PEDESTRIAN-ORIENTED DESIGN AND SENSE OF COMMUNITY: A COMPARATIVE STUDY

A Dissertation

by

SINEENART SUKOLRATANAMETEE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2006

Major Subject: Urban and Regional Science

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ABSTRACT

Pedestrian-Oriented Design and Sense of Community:

A Comparative Study. (August 2006)

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The primary objective of the research is to examine the attempt of new urbanism principles to promote a sense of community through its pedestrian-oriented design guidelines of neighborhoods. The following questions will be addressed to examine the subject. First, do residents of a new urbanism neighborhood have a higher level of sense of community than residents of a typical suburban neighborhood? Second, is there an evidential support that pedestrian-oriented design features of new urbanism enhance the sense of community in a neighborhood? Finally, do residents of a pedestrian-oriented design neighborhood have more out-of-door activities in their neighborhood than residents of a typical suburban neighborhood?

To examine the relationship between neighborhood design and sense of community, a comparative study was conducted in four subdivision neighborhoods located in the Houston metropolis, Texas. The first two neighborhoods exhibit pedestrian-oriented design principles and features of new urbanism, although each to different degrees. The other two neighborhoods are typical suburban neighborhoods that

are not specifically designed to accommodate pedestrians and usually have less public spaces. The methods of collecting data are self-administered questionnaires, systematic observations, and unstructured interviews of residents in the four neighborhoods.

The research findings provide evidence that the residents in pedestrian-oriented neighborhoods have a higher level of *supportive acts of neighboring* (SAON) and *neighborhood attachment & weak social ties* (NA&WST) than those of typical suburban neighborhoods. The findings also provide partial support for the relationships between the design factor (pedestrian-oriented design) and two dimensions of sense of community investigated—SAON and NA&WST. Additionally, the findings strongly indicate that the social processes, measured through selected demographic and non-environmental design variables, have their own unique and vital role on the sense of community in the neighborhoods, and that physical design has no impact on the way the social processes work on the sense of community in the neighborhood. The roles of physical design and social process are independent from each other. Finally, the results partially support the hypothesis that residents of pedestrian-oriented design neighborhoods have a higher level of out-of-door activities than residents of typical suburban neighborhoods.

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Finally, my deepest thanks to my parents, who always love and support me unconditionally, my husband, who loves, understands, and supports me in every way, and my daughter, who is the reason I can work hard and be happy every day.

TABLE OF CONTENTS

CHAPTER Page

Page

LIST OF FIGURES

FIGURE Page

LIST OF TABLES

TABLE Page

CHAPTER I

INTRODUCTION

1. Introduction

New urbanism, also known as neotraditional development, is a new planning movement, which provides an alternative to post-World War II automobile-oriented suburban development, and encompasses a better quality of life through building a sense of community and neighborly social life (Bookout 1992; Langdon 1997). Increasingly, it has gained its popularity over the past ten years. The Congress for the New Urbanism (CNU) has over 2,300 members in 20 countries and 49 states (Congress for the New Urbanism 2006) and has recently reported over 210 new urbanist developments under construction or completed in the United States (Congress for the New Urbanism 2006). New urbanist principles are also supported by the U.S. Department of Housing and Urban Development and former Vice President Al Gore (Day 2003).

Modeled after the American small towns of pre-World War II, new urbanism is characterized by high density development, a diversity of housing types, pedestrian-oriented environment, dedicated public and open spaces, and accommodation of retail and office uses (Calthorpe 1993; Duany and Plater-Zyberk 1991). Through the use of physical design guidelines and elements, new urbanism creates a sense of community and a sense of place by encouraging neighbors to interact with one another. The careful

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This dissertation follows the style of *Journal of Planning Education and Research.*

design of physical environment, according to the new urbanist approach, will draw people out of their private realm to public and semi-public spaces, such as streets, parks, front porches, where neighbors can interact with each other (Duany and Plater-Zyberk 1992). The creation of a distinctive environment, such as those of civic buildings and squares, also reinforces community identity and a sense of attachment to place (Congress for the New Urbanism 2000).

Underlying these goals is a belief that the typical suburban development, characterized by low-density or sprawl, homogeneous, and automobile-dependent development, has destroyed the community identity through poorly-designed architecture and monotonous subdivisions (Calthorpe 1993; Langdon 1994). Since its suburb confines people to their private realms, the typical suburban development inevitably created a sense of isolation from the community and surrounding (Duany and Plater-Zyberk 1992; Katz 1994). Calthorpe and Fulton (2001) assert that the typical suburb is simply a physical demonstration of a community of interest, and emphasized the importance of community of place created by designing a neighborhood environment that promotes networks of social interactions and strengthens social structure in neighborhoods. This is precisely what new urbanism has to offer as an alternative form of development to overcome problems of suburban development and to construct a community of place.

New urbanism's contribution to the community of place through its promotion of sense of community in neighborhoods is what has drawn the attention of critics and planners, and is the focus of this research. This research will empirically investigate

whether new urbanism, through the use of specific physical design guidelines and elements, promotes a sense of community. In addition, the research will systematically measure and compare the sense of community of the residents in neighborhoods that have adopted some of the pedestrian-oriented design elements of new urbanism with that of the residents in typical suburban neighborhoods.

2. Problem Statement

While new urbanism has gained its popularity, a number of critiques have been directed toward its principles, practices, and its social goals. New urbanism was criticized for being too "nostalgic and cosmetic" (Krieger 2004), and overlooking its social goals (Nasar 2003; Shibley 1998). Questions have been raised whether new urbanism promotes a sustainable urban form (Durack 2001). Durack (2001) states that "if we define sustainability as keeping options open and inviting our children to satisfy their own ambitions, within the same limits of consideration for the next generation, then the village as a model is antithetical to these objectives" (66).

New urbanism has been criticized for being too physically controlled and planned, and thus inflexible to changes and inputs from residents (Durack 2001; Southworth 1997). Southworth (1997) raises questions regarding new urbanism's village concept and practice that focus too much on suburban and new town development. The new urbanism model has been criticized for its artificiality, which only superficially creates a structure of community life and culture (Landecker 1996; Southworth 1997).

Southworth (1997) suggests that the real tradition of places needs to be focused rather than merely imitating architectural styles.

Krieger (1998) argues that new urbanism helps produce more homogeneous subdivisions that still rely on automobile instead of public transportation; that it is a new form of planned unit development that has not made any connection between new and existing development; and that its social claim to build community through design is a determinism approach. Marshall (2004) states that new urbanist projects did not promote income diversity and fail to stimulate commerce which is an integral part of urban neighborhoods. He added that new urbanism should take into account sociological and economic aspects of urbanism; otherwise it is just a "fashion" in suburban design. Zimmerman (2001) argues that new urbanism, in fact, facilitates suburban growth while it claims to promote urban life. Lehrer and Milgrom (1996) point to the fact that the physical models used by new urbanism are culturally biased toward a specific consumer market and fails to represent socio-demographic difference within the greater urban area.

Grant (2006) has investigated the practice of new urbanism in relation to its theory and concluded that new urbanism pays little attention to the structures of power and social inequity and often offers simple solutions that do not resolve complex problems. Moreover, new urbanism development creates suburban enclaves while claiming to promote urban forms. Its affordability and equity claims contradict its actual practice that usually targets the high-end market. Finally new urbanism claims to

promote public realm while, in reality, it creates private landscapes that exclude unwanted public.

Gordon and Richardson (1997) argue that there is no need for new urbanism because low-density is a preference for residential living. Given the preferences for low density, mass transportation system is unattractive and wasteful; the traffic problem resulting from suburbanization is benign; the efficiency of compact development has never been proven; the equity case for compact cities is weak; concentrated development cost is high and only worthwhile if transportation or communication costs are high; and so on.

Some researchers have also criticized new urbanism's social goal by pointing out that its theorists have made a social claim— the promotion of social interaction and sense of community through physical design and planning of community—based primarily on urban planning theory without sufficient empirical basis (Plas and Lewis 1996; Talen 1999). Talen (1999) asserts that there is no clear evidence of support on the relationship between the sense of community and the physical design factors. Grant (2006) concluded that commonality amongst residents in new urbanism projects is primarily due to the homogeneity and self-selection of the residents, rather than design strategies. Brindley (2003) argues that building the sense of community takes more than physical design features, it takes time and must incorporate the larger social networks in which the residents engage.

Despite varied criticism, new urbanism has been embraced by both public and private sectors. Langdon (1997) calls it "…the brightest hope to arise in community

design in a long while" (36). Given the controversial aspect of new urbanism and its social goal and lack of sufficient empirical research to evaluate its success or failure, this area constitutes the main focus of this research.

3. Research Objectives

The primary objective of the research is to provide empirical evidence to examine the attempt of new urbanism principles to promote a sense of community through its pedestrian-oriented design guidelines of neighborhoods. Using a comparative study and surveys, the research aims to:

1. compare the level of sense of community between the neighborhoods that adopted pedestrian-oriented design guidelines of new urbanism and typical suburban neighborhoods and;
2. examine whether the difference in the level of sense of community, if any, is influenced by the physical design of the neighborhoods.

4. Significance of the Study

Although new urbanism has been criticized on various grounds, its potential as an alternative way of living is difficult to deny. While promoting a sense of community in neighborhoods is important to the quality of social life, it has yet to be determined how much environmental design can foster such a sense of community. Therefore, this research is important because:

1. It will provide empirical evidence to demonstrate the relationship between environmental design and the sense of community;
2. The findings of this research will answer the question whether new urbanism actually promotes a sense of community as it claims;
3. The findings of this research may be used to help develop environmental design guidelines aimed at improving the quality of life in neighborhoods;
4. The findings of this research may lead to an improvement in the measuring instrument that this research is based on.

CHAPTER II

LITERATURE REVIEW

1. New Urbanism and Its Social Goals

Beneath its attractive physical design, new urbanism has an aim to create a sense of community. The creation of the sense of community through physical design elements and guidelines is the main focus of this research. Before exploring how new urbanist principles translate into design elements and, in turn, into sense of community, it is necessary to examine the social goals related to new urbanism.

While the analysis of new urbanism and social goals is still limited, Talen (2002) has done an evaluation of new urbanist principles and its associated social goals. The evaluation is based on all of the new urbanist principles as stated in the *Charter of New Urbanism* (Congress for the New Urbanism 2000), an official publication of new urbanist principles and strategies by Congress for the New Urbanism.

Talen's (2002) evaluation is based on three types of social goals: community, social equity, and common good. She defined "community"[1] in terms of social interaction and psychological aspects. Social interaction refers to social networks and emotional support among neighbors. Unger and Wandersman (1985) distinguish between two types of emotional supports: sociability refers to casual interaction among neighbors and socioemotional support refers to closer relationships among neighbors, which are similar to the relationships between friends or relatives. The psychological

[1] The term "sense of community" used throughout this paper refers to this type of social goal.

aspects of community are defined as *membership* which provides emotional safety and a sense of belonging in relations to boundaries; *influence* which characterizes an ability to affect change in each other; *fulfillment of needs* which refers to the feeling that needs are met through cooperative behavior of the group; and *shared emotional connection* which is the emotional support and feeling of emotional connectedness (McMillan and Chavis 1986). Community, also called sense of community, is the center of further analysis in this research and will be explored in detail later on in this chapter.

The second social goal, social equity, refers to fair distribution of resources (Talen 2002). Talen wrote "equity can be defined as equality, in which everyone receives the same public benefits regardless of socioeconomic status…" (169). Although social equity can be defined in many different ways, Talen (2002) used this notion of social equity (i.e., equitable distribution of resources) as a basis to evaluate new urbanist principles. Lastly, the goal of common good refers to common benefits of actions that are prioritized over individual benefits. In other words, "actions should benefit all individuals, not just a privileged few" (Talen 2002, 169). Public goods such as health, safety, and environment must function in a way that benefits everyone.

Of the 27 principles of new urbanism evaluated by Talen (2002), 8 are found related to social equity and 19 to common good. While none of the principles is proven to be explicitly related to community, there are some descriptive statements related to the principles and the notion of community. The new urbanist principles of the Charter found to be related in some way to the notion of community are as follows:

Principle 11. Neighborhood should be compact, pedestrian-friendly, and mixed-use. Districts generally emphasize a special single use, and should follow the principles of neighborhood design when possible. Corridors are regional connectors of neighborhoods and districts; they range from boulevards and rail lines to rivers and parkways.

Principle 13. Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community.

Principle 16. Concentration of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.

Principle 18. A range of parks, from tot lots and village greens to ball fields and community gardens, should be distributed within neighborhoods. Conservation areas and open lands should be used to define and connect different neighborhoods and districts.

Principle 23. Street and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbors to know each other and protect their communities.

Principle 25. Civic buildings and public gathering places require important site to reinforce community identity and the culture of democracy. They deserve distinctive form, because their role is different from that of other buildings and places that constitute the fabric of the city.

The above principles have found to be related to the notion of community in such a way that the design elements of these principles provide a venue for (principles 13, 16, and 18) or encourage (principles 11 and 23) social contacts or interactions among neighbors that "help form the bonds of community" (Congress for the New Urbanism 2000, 81). Principles 11 and 25 are related to the notion of community in the sense that it "reinforces community identity" (161). Careful design and placement of public space create a venue for chance encounters, which serve to strengthen community bond

(Langdon 1994) and promote a sense of place (Duany and Plater-Zyberk 1992; Katz 1994).

The effect of the new urbanist design element on the sense of community is the focus of this research and will be explored further. The design elements of new urbanism from the above principles that are related to the notion of community are summarized in Table 2.1 and will be used as a guideline for neighborhood selections in Chapter III.

Table 2.1
Neighborhood design elements of new urbanism that are related to the notion of community

Elements	Characteristics
Well-defined	Clear center and edge
Mixed-use	Mixed types of households within neighborhood Mixed land uses and activities
Density	Compact neighborhood and smaller lot size
Pedestrian-friendly design	Uses of front porches and balconies Shallow setback Absence of garage on facade and use of alley Presence of sidewalks Tree-lined street Narrow street Interconnected street network
Public Space	Availability of park Integrated network of parks and open space

2. New Urbanist Design Elements and Their Theoretical Basis

There are several social and urban theories that have contributed to the new urbanism approach. One of the most important theoretical contributions comes from

Jane Jacob's (1961) *Death and Life of Great American Cities*. Jacobs outlines her basic concept of what makes a city livable. To Jacobs, safety comes from involved neighborhood surveillance of public space or what she called "eyes on the street." She adds that urban vitality comes from well-defined, mixed use, and diverse neighborhoods, because these create a sense of personal belonging and social cohesiveness. New urbanism is also based in large part on urban design theories. It draws on the work of Christopher Alexander (Alexander, Ishikawa, and Silverstein 1977), who lays out "a pattern language" as principles of urban development, and Kevin Lynch (1981), who emphasizes the creation of a sense of place through good urban designs. The work of sociologist William Whyte (1988), who links understanding of human behavior to improving urban designs, also serves as a theoretical basis for new urbanist principles. The contribution also came from Leon Krier, who argues that a dynamic urban culture, through the use of urban space and the construction of a public realms such as streets and squares, offer better opportunity for democracy and social corporation than do the suburbs (Grant 2006).

Given the theories of the larger context outlined above, the following section will explain each design element summarized in Table 2.1 and identify the underlying theoretical basis that links each element to the notion of community in Talen (2002) or referred to as sense of community in this study.

Well-defined: The new urbanist neighborhood is distinguished by its clear center and edge. The center is usually a public space, such as park, square, and civic building, and geographically located near the center of the neighborhood. The edge of a

neighborhood depends largely on its setting. In a village setting, the edge is defined by naturally reserved land or green belt, while in an urban setting, it is usually defined by boulevards or parkways. According to the new urbanist theory (Congress for the New Urbanism 2000), "the combination of a focus and a limit contributes to the social identity of the community" (79). This quality along with high quality urban design creates a unique symbolic value of a place and can build a social identity and a sense of security (Brindley 2003; Grant 2006).

Density: New urbanism prefers a compact form of development to a low-density sprawl one. Houses are usually built on small lots since it is believed that an increase in residential density will increase chances to contact, which translates into an increased sense of community (Talen 1999).

Mixed-use: The new urbanist neighborhood provides a mix of land use activities such as shopping, work, schooling, and recreation, as well as a mixture of housing types. The theoretical assumptions of the relationship between the mixed land use and a sense of community is that the mixed land use creates opportunities for social contacts among residents of different income, race, or age, which encourages social integration and establishes a sense of community (Talen 1999).

Pedestrian-friendly design: In new urbanist neighborhood, houses are usually built on smaller lots, positioned close to the street, and have front porches facing the street. Garages that are normally highly visible from house façades in typical suburb developments are moved to the rear of the house and accessed through alley ways. The careful design that emphasizes transition space between public and private realms, in

form of porches and shallow housing setback, can facilitate conversation between residents and pedestrians (Brown and Cropper 2001), generate pedestrian traffic by projecting the human presence within the house (Duany and Plater-Zyberk 1992), and provide a degree of surveillance on the streets that promotes street safety (Jacobs 1961).

Streets are designed to be pedestrian friendly and to encourage pedestrian activities with the use of sidewalks, tree-lined street, narrow streets, and interconnected street systems. Streets are regarded as public space (Calthorpe 1993) that provide physical settings for social contacts. Therefore, streets are specifically designed to encourage pedestrian activities, in an attempt to promote community bond and sense of place.

Public space: Public spaces are carefully designed and located since they are thought to be a key factor in promoting a sense of place (Duany and Plater-Zyberk 1992). Public spaces such as parks, squares, and playgrounds provide physical locations for social contacts, while the careful placement of civic buildings and public spaces promotes a community identity and a sense of place (Congress for the New Urbanism 2000). An integrated network of parks and open spaces should be included within the neighborhoods since these open spaces support the neighborhood life (Congress for the New Urbanism 2000).

3. Influential Factors of the Sense of Community

There are many factors that can influence a sense of community among neighbors. These include individual or sociodemographic factors such as the length of

residency and the number of household with children, the neighborhood characteristic factors such as homogeneity and similarity among residents, and the physical environment.

Several studies support the idea that physical factors, such as structural features of buildings (Gans 1962), physical arrangement of houses (Festinger, Schachter, and Back 1950), and common areas (Fleming, Baum, and Singer 1985), can act as a mechanism to promote interactions among residents. Some daily activities such as shopping and porch sitting that can be encouraged through physical design and arrangement are believed to facilitate casual acquaintances (Fowler 1987). Festinger, Schachter, and Back (1950) found in their study of married student housing at MIT that the arrangement and positional relationships of houses that required residents' uses of common path increased neighboring contacts among residents. Other studies have shown that residents' uses of front porches lead to social interactions and increased local surveillance in neighborhoods (Brown, Burton, and Sweaney 1998), and that place identity and neighborliness can be enhanced through personalized home appearance (Werner, Peterson-Lewis, and Brown 1989). Other factors, which have also been identified as keys to social interactions are indirectly linked to the physical design, since these factors contain some environmental basis and may be promoted via the physical design and urban form. These factors include the feeling of safety (Newman 1972), greater utilization of public space (Levine 1986), and greater use of local facilities for shopping (Riger and Lavrakas 1981).

Studies of the relationship between new urbanism and the sense of community have produced the findings that are contradictory. The first group of studies supported the link between the overall design of these neighborhoods and enhanced levels of the sense of community, social interaction, and neighborliness. Kim and Kaplan's (2004) study of sense of community of residents in Kentlands, a new urbanist community, in comparison to that of residents in Orchard Village, a traditional suburban development, found that the residents in Kentlands exhibited a higher sense of community and took greater advantage of the community's pedestrian friendly design than those of Orchard Village did. Lund's studies found that residents of pedestrian-oriented neighborhood had a higher level of sense of community that those of automobile-oriented neighborhood (2002), and that pedestrian activities associated with increased neighbor interactions and weak social ties (2003). Plas and Lewis's (1996) study of Seaside's residents found a connection between the physical design and a sense of community.

The second group, however, found no relationship between neighborhood design and a high level of sense of community. Nasar (2003) found no evidence that the new urbanist development's emphasis on the reduction of auto use resulted in an increased sense of community. Lee and Ahn (2003) found that new urbanist interconnected grid did not yield more walkability than the American garden city's scheme where pedestrians and vehicles are separated, and suggested an integration of their design principles.

The third group had mixed evidence. Brown and Cropper (2001) found that, although residents of new urbanist subdivisions and standard suburban subdivisions

reported comparable levels of sense of community, residents of new urbanist subdivisions had more neighboring behaviors and outdoor activities. Rodriguez, Khattak, and Evenson's (2006) study also yielded mixed findings. Although their findings revealed that residents of new urbanist neighborhoods were not more physically active than residents of conventional suburban neighborhood, the findings also suggested that residents of new urbanist neighborhood exhibited a higher level of walking activities and were more physically active in their respective neighborhood.

4. Social and Non-Environmental Factors of Sense of Community

Non-environmental factors also play an important role in building a sense of community. Hunter (1975) found shared values and needs among residents to create social bonds that lead to the residents' strong sense of community. Burkhart (1981) also found that residents avoid heterogeneous social interaction and prefer affiliation with a homogeneous social group because social comfort, according to Klein (1978), "…is enhanced by similarities in race, religion, ethnicity, occupations, values, and age" (37). A study by Verbrugge and Taylor (1980) concluded that residents' social and demographic characteristics, the number of residents in the area, and their subjective feelings about their environment had an impact on social ties. In a smaller size grouping, residents tended to participate more in social activities and have a stronger sense of obligation than residents in a larger size grouping because smaller settings provide more opportunities to participate (Klein 1978). In addition, Buckner suggested a relationship between high neighborhood cohesion and residents' degree of attraction to

the neighborhood. Another study (Lund 2002) has demonstrated that positive feelings toward the environment correlated with a higher level of sense of community among residents.

Other life stage and sociodemographic factors that have been linked to the sense of community include the length of residency (Buckner 1988; Chavis et al. 1986; Glynn 1981; Skjaeveland, Garling, and Maeland 1996), homeownership (Davidson and Cotter 1986; McMillan and Chavis 1986), presence or absence of children (Buckner 1988; Keller 1968; Nasar and Julian 1995; Riger and Lavrakas 1981; Skjaeveland, Garling, and Maeland 1996), gender, and age (Campbell and Lee 1992).

Length of residency, homeownership, and expected length of residency were used in Riger and Lavrakas's (1981) study as indicators for physical rootedness or "…the extent to which a person is settled or rooted in her/his neighborhood" (59). According to Riger and Lavrakas, physical rootedness and social bonding were identified as factors affecting residents' attachments to their communities. Essentially, the physical rootedness has to do with the degree of commitments and responsibilities to ones' neighborhoods (Davidson and Cotter 1986). Therefore, the higher the degree of rootedness, the higher the level of neighborhood attachment of residents.

Campbell and Lee (1992) view "familistic statuses" (i.e., marriage and parenthood) as essential in promoting the level of neighborhood attachment. According to Campbell and Lee, "…familistic statuses heighten the investments that residents have in their neighborhoods, increasing their participation in local life…" (1080). Married

people and people with children will, therefore, have higher social networks and contacts than those who are single and without children.

Campbell and Lee's (1992) study also show that women have larger neighborhood networks than men do, and that age and neighborhood networks have a negative curvilinear relationship between each other where younger and older neighbors have less neighbor networks than middle-aged adults. Campbell and Lee assert that a female is more emotional and has a higher responsibility in maintaining social networks, whereas aging is associated with detachment and withdrawal.

5. Social Aspects within the Context of Neighborhood

5.1. Community and Urbanism

Before we begin to explore various aspects of the sense of community in the neighborhood, we must first understand about some urban theories that have influenced the development of sociology and urbanism. In Louise Wirth's (1938) essay, "Urbanism as a Way of Life", he sees urbanism as a product of large population size, social heterogeneity, and population density. Wirth argues that the decline of close community ties associated with city life result in anonymity and fragmentation of city life. This condition creates urban social problems such as crime, divorce, and mental illness. Wirth's theory of urbanism is known as the social disorganization thesis of urban life (Gottdiener and Hutchison 2006).

Herbert Gans (1968) criticizes the "Wirthian" perspective on the grounds that it disregards the suburban life by overemphasizing the urban life, and proposes the suburban lifestyle that offers neighborly ties. Gans argues that urban social behaviors are influenced by class, ethnicity, and life-cycle stage, whereas the "Wirthian" theory considers the city itself, in terms of size, density, and heterogeneity, as an influential factor of urban social behaviors.

Claude Fischer (1976), on the other hand, saw the urban effects (i.e., size, density, and heterogeneity) as conditions that reinforce subcultures and social differences. According to Fischer, an individual's social worlds are composed of social networks. These social networks are groups of small people, who interact with one another, and form meaningful relationships (Fischer 1976). These relationships or networks, as Fischer (1976) described, can be divided into two groups, based on their social contents. The primary groups include the social networks that involve close relationships of individuals such as those of kin, friends, and ethnic groups, while the secondary groups refer to the social networks that are "not most intimate to individuals" (101). These individuals share the same interests, social characters, or physical boundaries. Examples of secondary groups are community, associations, occupational groups, special-interest groups, and neighborhoods.

Following the subcultural theory, Fischer concludes that urbanism affects social life by helping to create subculture groups and strengthen social contacts. The most significant social consequence of urbanism (i.e., the size, density, and heterogeneity of the wider community), Fischer (1976) added, is "the promotion of diverse *subcultures*"

(36) or culturally distinctive groups. Urbanism is, according to this view, creating, modifying, and bringing these subcultures into contact with each other, and thereby, strengthening community bonds and social networks.

Fischer (1976) also views urbanism as a cause of the decline in neighborhood interaction. Fischer asserts that as the degree of urbanism increases, the likelihood that neighbors form personal relationships amongst each other decrease since urbanism brings with it opportunities for people to form meaningful relationships outside of their immediate neighborhoods. This view agrees with Melvin Webber's (Webber et al. 1964) "community without propinquity," which supports the idea that people do maintain social networks outside their local neighborhoods.

Although it is important to recognize that there are other social networks or social ties, which neighborhood residents maintain as a part of their social worlds besides their internal networks amongst each other, neighborly relations cannot be devalued. Social ties and networks among neighbors are regarded as unique and serve as support systems for individuals by providing emotional aid, social support, companionship, and material aid (Wellman and Wortley 1990). Such emotional aid may help prevent the feeling of isolation associated with urbanism (Unger and Wandersman 1985). Neighbors can share their local support, service, and information among each other (Unger and Powell 1980). Certain supports such as assistance in emergencies remain on the neighborhood level (Riger and Lavrakas 1981). In addition, neighborhoods may foster psychological sense of community among neighbors through a sense of belonging (Riger and Lavrakas 1981). McMillan and Chavis (1986) explain a

sense of belonging as "a feeling that one has invested part of oneself to become a member and therefore has a right to belong" (9). Neighborhood essentially provides a boundary for members to belong and thereby, create emotional safety necessary for the development of intimacy.

5.2. Sense of Community in Neighborhoods

Sense of community within the context of neighborhoods consists of several domains which vary across the studies. McMillan and Chavis (1986) propose a four dimensional explanation of the psychological sense of community (PSC), including *membership* which is emotional safety and a sense of belonging in relations to boundaries; *influence* which characterizes an ability to affect change in each other; *fulfillment of needs* which refers to the feeling that needs are met through cooperative behaviors of the group; and *shared emotional connection* which is the emotional support and feelings of emotional connectedness.

Unger and Wandersman (1985) suggest three components of the concept of neighboring including *social interactions* which are emotional, instrumental, and informational support and social networks; *neighborhood cognition* referring to cognitive mapping of the physical environment and the use of symbolic communication; and *affective bonds* referring to affective components of neighboring including sense of mutual aid, sense of community, and attachment to place.

A related dimension of neighboring refers to "weak social ties" of Granovetter's theory (Granovetter 1973). The theory maintains that weak social ties, casual social

contacts that often occur between people with different interests, help promote social integration because these ties connect "bridge" groups of people that typically comprise a neighborhood. Weak ties, as opposed to strong ties such as ties between friends, kin, and group of people with common interest, consist of short-period interactions among acquaintances.

Pedestrian activity and walkability, another related dimension of the sense of community refer to a physical environment that is designed to accommodate pedestrian activities with the use of human scale and high quality street environment (Gehl 1996; Goldsteen and Elliott 1994). These pedestrian activities provide opportunities for social contacts among neighbors, which can enhance social integration (Brown and Cropper 2001; Kim and Kaplan 2004). Jacobs (1961) argues that pedestrian activities on streets lead to a degree of surveillance on the streets that promote street safety. Southworth and Ben-Joseph (1997) asserts that "…as people spend more time on the street, the chances for social interactions also increase" (116).

With a multitude of various meanings and dimensions of the sense of community (some of them even overlap such as affective components by Unger and Wandersman (1985) and psychological sense of community by McMillan and Chavis (1986)), community psychologists have conducted several measurements in an attempt to capture these attributes of community. The following section describes some of these various measurements.

6. Sense of Community Measurements

There are several instruments, developed by community psychologists and urban researchers, to measure the sense of community (Buckner 1988; Chavis et al. 1986; Davidson and Cotter 1986; Glynn 1981; Nasar and Julian 1995; Skjaeveland, Garling, and Maeland 1996). Although these measures share the common goal of measuring the sense of community, some differences still exist among them. The differences are primarily related to the psychological dimensions and the context of measurements. Several of these measures were developed by combining the Sense of Community Index (SCI), developed by Chavis et al., (1986), with other items or instruments (Chavis and Pretty 1999).

Chavis et al. (1986) have developed one of the most widely used (Chavis and Pretty 1999) measures of the sense of community based on McMillan and Chavis's (1986) model of psychological sense of community (PSC). The instrument consists of 12 True/False items, representing four dimensions of PSC—membership, influence, fulfillment of needs, and emotional connection. This short form of the Sense of Community Index (SCI) has a solid theoretical grounding (Chipuer and Pretty 1999) and has been tested in several studies (Plas and Lewis 1996; Sonn and Fisher 1996). However, Chipuer and Pretty (1999) indicate that its internal reliability among four subscales is relatively low and suggest the use of the SCI as a unidimensional measure.

Buckner (1988) has developed an instrument to measure the neighborhood cohesion, a variable that represents the psychological sense of community, attraction-to-neighborhood, and social interaction. His proposed 18-item instrument measures the

sense of community or neighborhood cohesiveness at a collective level, since the author argues that the sense of community may be a collective attribute among community members. Using three scales, attraction-to-neighborhood (3 items), neighboring (6 items), and psychological sense of community (9 items), the instrument, Bucker concluded, demonstrated good internal consistency and test-retest stability at the individual-level of analysis. However, more testing is needed to prove the construct validity of the instrument at the neighborhood-level of analysis. Although Buckner hypothesized a three theoretical-dimension measurement, the result indicated a unidimensional solution that is the instrument is valid when analyze 18 items as a single dimension (Skjaeveland, Garling, and Maeland 1996).

Nasar and Julian (1995) also employed a short version of Glynn's (1981) instrument. Their 11-item scale replicates several sense of community dimensions found by Glynn: supportive relationships in the community, similarity and relationship patterns of community residents, individual involvement in the community, and community security. The result yields reliable and valid measures of the psychological sense of community at the neighborhood scale. However, similar to those of Chavis and Buckner, the scale does not allow an analysis of a separate dimension of community.

Skjaeveland, Garling, and Maeland (1996) propose a 14-item four-dimensional measure of neighboring, which include Supportive Acts of Neighboring, Neighbor Annoyance, Neighborhood Attachment, and Weak Social Ties. *Supportive Acts of Neighboring* includes observable social interactions, exchange of help and goods, and the psychological sense of community (PSC). *Neighbor Annoyance* pertains to negative

evaluations of neighbors. It explains the presence of dislike relationship in neighborhoods that can cause intense stress for extended periods of time. *Neighborhood Attachment* or rootedness is a dimension of the neighboring experience that refers to positively experienced bonds, which neighbors develop according to their sociophysical environment. Finally, the *Weak Social Ties* refers to casual social contacts among neighbors. Granovetter's (1973) theory imposes that weak social ties that often occur between people with different interests tend to promote social integration in neighborhoods. This type of behavior consists of short-duration outdoor talks and greetings among acquaintances. Descriptions of all 14 items in the multidimensional measure of neighboring (MMN) can be found in Chapter III.

Skjaeveland, Garling, and Maeland conclude that the four dimensions of the MMN have a valid autonomous status (i.e., the measure allows an analysis of separate dimension independently). Although its validity still needs further testing across income levels and national cultures[2], it is the chosen instrument for this research according to the following reasons:

1. Although all instruments mentioned earlier are based on the multidimensional sense of community, the MMN is the only instrument that actually allows an analysis of separate dimensions of the sense of community, which is preferable since it is agreeable among community psychologists that the sense of community possesses a multidimensional character (Skjaeveland, Garling, and Maeland 1996; Unger and Wandersman 1985). A multidimensional analysis also

[2] Skjaeveland, Garling, and Maeland (1996) have tested the MMN on low-to-medium-income groups, in urban residential areas in the city of Bergen, Norway.

enables a separate assessment of each dimension and its influential factors. This is particularly useful since each dimension may not be influenced by the same factors of analysis.

2. The theoretical basis of the instrument broadly encompasses several dimensions of neighborhoods' social characteristics including social interaction, psychological sense of community, weak social ties, place attachment, and neighbor annoyance.

Bosselmann and Macdonald's (1999) study of the livability of residential boulevards use the criteria for measuring activities observed on the streets including talking, sitting, parents with children, child with toys, bike riding, pet walking, jogging, roller skating, ball playing, building things, gardening, and garage sales. These criteria are based on Appleyard's (1981) "Livable Street," which studies the effect of traffic on residential street life in San Francisco in search of ways to make streets safe and livable. Bosselmann and Macdonald's criteria of measuring street activities will form a basis for measuring pedestrian activity dimension of sense of community in this study. Table 2.2 summarizes and compares the sense of community measurements in terms of their theoretical basis and measurement solutions.

Table 2.2
Comparison of selected sense of community measuring instruments

Instruments	Theoretical dimensions					Measurement solution
	Psychological dimensions	**Social interactions**	**Place attachments**	**Others**	**Pedestrian activities**	
Chavis et al. (1986)	●Psychological sense of Community					Unidimensional
Buckner (1988)	●Psychological sense of community	●Social interaction	●Attraction to neighborhood			Unidimensional
Nasar and Julian (1995)	●Similarity and relationship pattern of community residents ●Community security	●Supportive relationships in community ●Individual involvement in community				Unidimensional
Skjaeveland, Garling, and Maeland (1996)	●Supportive acts of neighboring		●Neighborhood attachment	●Weak social ties ●Neighbor annoyance		Multidimensional
Bosselmann and Macdonald (1999)					●Street activities	Unidimensional

CHAPTER III

RESEARCH DESIGN

1. Research Hypotheses

The fundamental objective of this research is to explain whether the physical design features of new urbanism enhance a sense of community in a neighborhood. The research deals with multi-dimensional sense of community in the neighborhood context according to Skjaeveland, Garling, and Maeland's (1996) definition of neighboring (i.e., supportive acts of neighboring, neighbor annoyance, neighborhood attachment, and weak social ties) and pedestrian activity and walkability dimension of sense of community. The following questions will be addressed to examine the subject. First, do residents of a new urbanism neighborhood have a higher level of sense of community than residents of a typical suburb neighborhood? Second, is there an evidential support that pedestrian-oriented design features of new urbanism enhance the sense of community in a neighborhood? In addition, with regard to the new urbanism assumption that its pedestrian-oriented design and public space can promote pedestrian activities and draw residents out of their private realm into public space, the third question of the study is, do residents of pedestrian-oriented design neighborhood have more out-of-door activities in their neighborhood than residents of typical suburban neighborhood?

The research hypotheses are as follows.

1. Residents of a new urbanism neighborhood have a higher level of sense of community than residents of a typical suburban neighborhood.

2. Pedestrian-oriented design features of new urbanism contribute to the level of sense of community of the residents.
3. Residents in a new urbanism neighborhood have more out-of-door activities within the neighborhood area than residents of a typical suburban neighborhood.

2. Research Methodology

To examine the relationship between neighborhood design and sense of community, a comparative study was conducted in four subdivision neighborhoods located in the Houston metropolis, Texas. The first two neighborhoods exhibit pedestrian-oriented design principles and features of new urbanism, although each to different degrees. The design features revealed will be discussed in this chapter. The other two neighborhoods under study are typical suburban neighborhoods that are not specifically designed to accommodate pedestrians and usually have less public spaces. The methods of collecting data are self-administered questionnaires, systematic observations, and unstructured interviews of residents in the four neighborhoods.

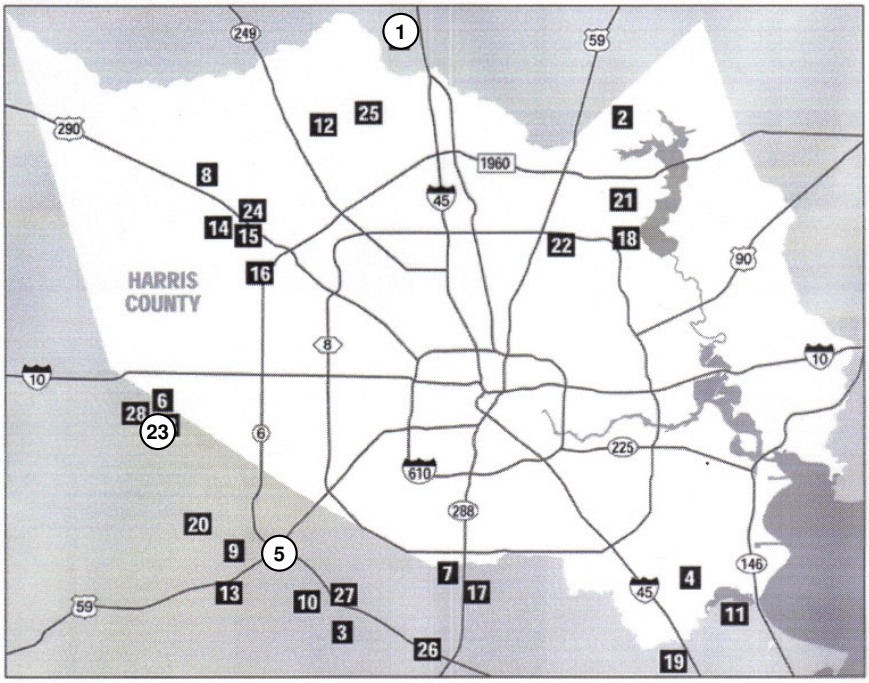
2.1. Neighborhood Selection

Since the new urbanist neighborhoods in the Houston area tend to be developed as parts of master-planned communities in suburban areas and, due to the existing limited number, the cases selected for this study are therefore focused on neighborhoods in master-planned communities. Methodologically, careful site selections are conducted

to ensure selected neighborhoods are comparable at both the community and neighborhood levels.

At the community level, the first two master-planned communities chosen, *The Woodlands* and *First Colony*, are among the largest and most established master-planned communities in the Houston area. Both communities were built at around the same time and have enjoyed commercial successes. The third master-planned community chosen, *Grand Lakes*, is relatively new and small compared to the first two. Nonetheless, Grand Lakes was built based on the traditional small-town concept combined with the American garden city concept of the 1920s. This design quality makes it a unique community and thus a worthwhile candidate to be studied. In terms of community locations, all three are located in the areas among the highest growth of residential developments in the Houston area namely the North Houston area, The Woodlands; the Southwest Houston area, First Colony; and the West Houston-Katy area, Grand Lakes. Figure 3.1 maps the location of each selected community, as well as a comparison of general real estate data. Based on their acreage sizes, The Woodlands, First Colony, and Grand Lakes were ranked 1st, 5th, and 23rd, respectively.

At the neighborhood level, two neighborhoods, one of a pedestrian-oriented design, the other of a typical suburban neighborhood, were selected within The Woodlands. At the time of the survey, there was only one pedestrian-oriented design neighborhood built in The Woodlands. Therefore, a comparable neighborhood of typical suburban design, located in the same village as the pedestrian-oriented neighborhood, was also chosen. The other typical suburban neighborhood was located in First Colony.



Master-planned communities

Houston-area residential developments with 1,000 acres or more, excluding subdivisions with estates-size lots:

Rank	Community	Size (acres)	Location	Developer	Year started	Current new home price range
1	The Woodlands	27,000	Far North	The Woodlands Operating Co.	1974	$95,000 - $1,000,000 +
2	Kingwood	14,000	Northeast	Friendswood Development	1970	$91,000 - $1,000,000 +
3	Sienna Plantation	10,500	Southwest	Johnson Development	1997	$136,000 - $1,000,000 +
4	Clear Lake City	10,000	Southeast	Friendswood Development	1963	$195,000 - $1,000,000 +
5	First Colony	9,700	Southwest	Sugarland Properties	1978	$139,000 - $1,000,000 +
6	Cinco Ranch	5,000	West Southwest	Terrabrook	1990	$114,000 - $800,000
7	Shadow Creek Ranch	3,305	South	Collins Bros.	2002	N/A
8	Fairfield	3,200	Northwest	Friendswood Development	1988	$108,000 - $324,000
9	New Territory	3,100	Southwest	Markborough Development	1986	$142,000 - $800,000
10	Riverstone	2,800	Southwest	Johnson Development	2001	$230,000 - $1,000,000 +
11	South Shore Harbour	2,200	Southeast	Eland Development	1982	$136,000 - $1,000,000 +
12	Gleannloch Farms	2,100	Northwest	Trend Development	1998	$168,000 - $1,000,000 +
13	Greatwood	2,050	Southwest	Terrabrook	1989	$133,000 - $1,000,000 +
14	Cypress Creek Ranch	1,805	West Northwest	Wheatstone Investments	2001	$244,000 $345,000
15	Canyon Gate at Stonegate*	1,800	West Northwest	Land Tejas	1999	$112,000 - $292,000
16	Copperfield	1,800	West Northwest	Friendswood Development	1979	$135,000 - $200,000
17	Silverlake	1,700	South	Johnson Development	1984	$140,000 - $650,000
18	Summerwood	1,500	Northeast	Newland Communities	1996	$138,000 - $600,000
19	Bay Colony	1,400	South	Todd Sherman Development	1998	$108,000 - $222,000
20	Pecan Grove Plantation	1,400	West Southwest	Pecan Grove Associates	1979	$132,000 - $264,000
21	Eagle Springs	1,360	Northeast	Terrabrook	2001	$130,000 - $307,000
22	Fall Creek	1,260	Northeast	Johnson Development	2001	$160,000 - $370,000
23	Grand Lakes	1,250	West Southwest	Trendmaker Development Co.	1998	$143,000 - $505,000
24	Coles Crossing	1,200	Northwest	Jefferson Development	1998	$135,000 - $650,000
25	WindRose	1,121	Northwest	Friendswood Development	1997	$125,000 - $570,000
26	Savannah	1,050	South	Friendswood Development	2002	N/A
27	Lake Olympia	1,000	Southwest	Lake Olympia Development	1983	$151,000 - $1,000,000 +
28	Seven Meadows	1,000	West Southwest	Newland Communities	2002	N/A

Source: American Metro/Study Corp. * Includes Canyon Lakes at Stonegate

B.C. Oren/Chronicle

Figure 3.1 *Master-planned communities in the Houston Metropolitan area*
Source: Houston Chronicle (2002)

The second pedestrian-oriented design case was located in Grand Lakes. As mentioned earlier, Grand Lakes was built on the pedestrian-oriented design concept throughout the community. Therefore, a section of neighborhood, with a comparable size to the pedestrian-oriented design neighborhood in The Woodlands, was selected as a comparative case. The following section will elaborate the criteria that form for choosing these neighborhoods.

Criteria for Neighborhood Selection

The four neighborhoods selected from three master-planned communities are controlled, to the extent possible, for neighborhood age, size, and residents' median household income since these factors have been found to have an influence on the sense of community (Campbell and Lee 1992; Verbrugge and Taylor 1980). The selected neighborhoods, therefore, were built at around the same time; consists of comparable number of homes; and have comparable home-price ranges. The home-price ranges are based on new home-price data from active home builders in the neighborhoods at the time of survey. Other non-environmental factors that have found to affect the sense of community such as length of residency (Buckner 1988; Chavis et al. 1986; Glynn 1981; Skjaeveland, Garling, and Maeland 1996) and home ownership (Davidson and Cotter 1986; McMillan and Chavis 1986) are also controlled, to the extent possible, through the neighborhood age and type of housing. Although some may argue that neighborhood age has little to do with residents' length of residency, the selected neighborhoods in this study are relatively new. They all were built at around 1998-1999, thus the ages of the neighborhoods were only five to six years at the time of survey. Therefore, residents'

length of residency on the average should not fluctuate to the level where they are not comparable. All selected neighborhoods also consist of only a single type of housing namely single-family homes. At this stage of study and for the purpose of site selection, it is hypothesized that most of the residents who live in single-family homes are homeowners.

Differences in the neighborhoods include their physical designs and arrangement of pedestrian-oriented neighborhood or of typical suburban neighborhood. There are other sociodemographic and non-environmental factors, such as age, gender, number of young children in the household, and marital status, that have found to affect the sense of community that can not be controlled for in the study due to the nature of quasi-experimental research. These factors will be accounted for during the data analysis. Table 3.1 summarizes the controlled features of the four neighborhoods. Table 3.2 summarizes and compares pedestrian-oriented design elements of all four neighborhoods selected.

Table 3.1
Controlled features for the neighborhood selection

Controlled Features	Pedestrian-oriented		Typical suburb	
	Cottage Green	**Grand lakes**	**Evangeline Oaks**	**Heritage Colony**
1. Year built	1998	1999	1999	1998
2. Neighborhood size in number of homes	109*	96	108*	77
3. Home price	$190's - $230's	$200's - $250's	$200's - $260's	$150's - $230's
4. Single-family home neighborhood	Yes	Yes	Yes	Yes

* Number of homes occupied at the time of conducting the questionnaire survey

Table 3.2
Comparing neighborhood design elements of new urbanism among the four neighborhoods

Elements	Characters	Pedestrian-oriented		Typical suburb	
		Cottage Green	**Grand lakes**	**Evangeline Oaks**	**Heritage Colony**
Well-defined	Clear center and edge	**Yes**	**Yes**	Clear edge but no center	Unclear edge and no center
Mixed-use	Mixed types of households within neighborhood	No	No	No	No
	Mixed land uses and activities	No	No	No	No
Density	Compact neighborhood and smaller lot size	**Yes**	No	No	No
Pedestrian-friendly design	Uses of front porches and balconies	**Yes**	17% of houses have front porches	No	13% of houses have front porches
	Distance between houses and the nearest pedestrian activities (sidewalk or street)	10'	28'	40'	35'
	Absence of garage on facade	**Yes**	**Yes**	25% of houses have garages set to the rear	No
	Presence of sidewalks	Partial*	**Yes** (on both sides)	No	**Yes** (on both sides)
	Tree-lined street	**Yes**	No	No	**Yes**
	Street width (pavements)	17', 20'	31'	20'	27'
	Interconnected street network	**Yes**	No	No	No
	Separated pedestrian network**	No	**Yes**	No	No
Public Space	Distance from the furthest house to the nearest park	0.25 mile	0.2 mile	0.3 mile	0.8 mile
	Integrated network of parks and open space (at the community level)	**Yes**	**Yes**	**Yes**	No

*There is no sidewalk in front of houses where their garages are front-loaded. These houses are mostly located at the parameter of the neighborhood.

**This design character is added to the pedestrian-friendly design element to accommodate a hybrid design of Grand Lakes. While the pedestrian-friendly design of new urbanism assumes the combining of streets and pedestrian network, Grand Lakes has a separate pedestrian network without the use of interconnected street network.

The Woodlands

The Woodlands is a large-scale master-planned community developed on a 27,000-acre site north of Houston, in Montgomery County, Texas. Began in 1974, its conventional plan was derived from the concept of new towns in the 1960s (Schmitz and Bookout 1998). The Woodlands has been carefully planned to coalesce the physical development with natural environment. It provides the residents with not only a place to live, but also a place to work, shop, and entertain within the natural bounds of its wooded surroundings. The Woodlands has drawn many residents and businesses from a national market. In the past decade, its population has increased to over 75,000 residents, and it has created more than 30,000 jobs (Galatas 2004). The community has also won a prestigious international award for its successful combination of commercial, retail, and residential components, and its protection of natural environment (Galatas 2004).

The community plan consists of eight residential villages. Each village consists of mixed types of housing, although, each neighborhood within the village represents only a single type of housing. Residential streets are typically curvilinear with the presence of cul-de-sacs. There are commercial district or the Town Center, institutional district, and an expansive network of open space, trails, lakes, and waterways. It is expected that 25 percent of the acreage will be preserved for forests, golf courses, and open space network (Schmitz and Bookout 1998). The community provides amenities such as a regional shopping mall, outdoor pavilion, hotel, hospital, convention center, and university center.

There are two community associations serving eight residential villages and a commercial owner association serving the businesses area within The Woodlands. The associations are in charge of maintaining the community facilities, enforcing covenants, and sponsoring neighborhood-based programs. The Woodlands also provides several social institutions including schools, health care facilities, churches, and libraries.

The two neighborhoods selected from The Woodlands, Cottage Green and Evangeline Oaks, are both located in the Village of Alden Bridge in the northern part of this community (see Figure 3.2).

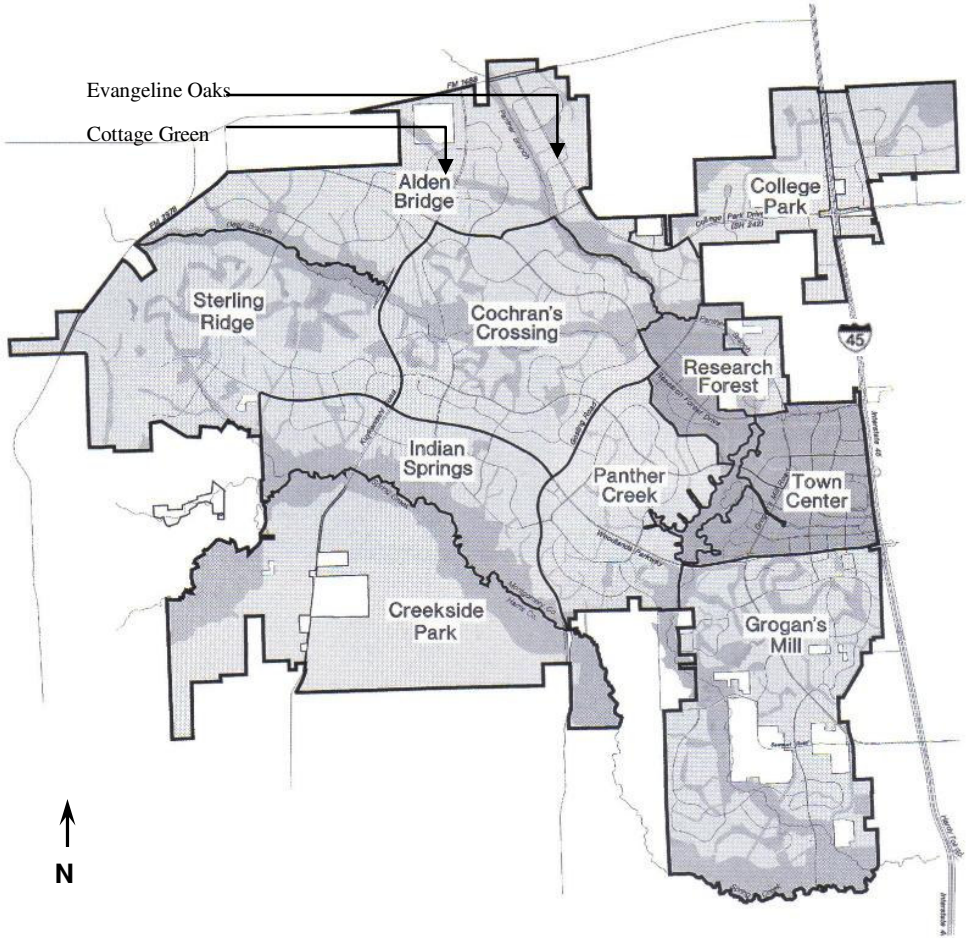


Figure 3.2 *The Woodlands area map (Map is not to scale.)*
Source: Galatas (2004)

Figure 3.3 Cottage Green*, the pedestrian-oriented design neighborhood in The Woodlands*

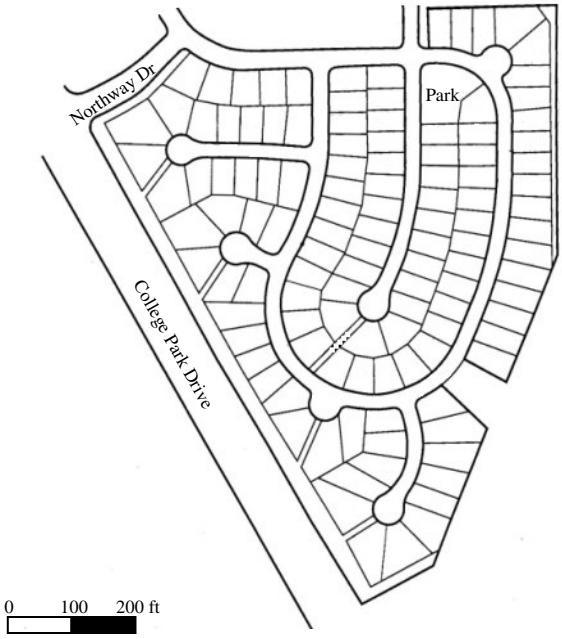


Figure 3.4 Evangeline Oaks*, the typical suburban neighborhood in The Woodlands*

"Cottage Green" (Figures 3.3, 3.5, and 3.6), a pedestrian-oriented neighborhood, was built in 1998. It is a small neighborhood development that represents 138 single-family homes, once fully completed. At the time when the survey took place in 2003, 109 homes were occupied. Within the same year, the new home price in Cottage Green ranged somewhere between $190K's and $230K's (The Woodlands Homefinder Center 2003). Advertised as a neo-traditional design neighborhood, Cottage Green is topographically characterized by small lots (46 by 110 feet for interior lots and 60 by 110 feet for parameter lots), grid-iron street patterns with alleys, narrow streets with trees lines, and continuous networks of sidewalks. The neighborhood has a park located at its center. All houses have front porches and are built relatively close to the streets, with the garage access from the alleys where available, or with a garage set to the rear of each home for perimeter lots. The neighborhood of Cottage Green is also within a walking distance to the Alden Bridge shopping center.

"Evangeline Oaks" (Figures 3.4, 3.7, and 3.8), a typical suburban neighborhood, was built in 1999. It provides 118 single-family homes of which 108 homes were occupied at the time of the survey. The neighborhood's new home price in 2003 ranged between $200K's and $260K's (The Woodlands Homefinder Center 2003). Houses in the neighborhood were built on larger lots than those of the Cottage Green. The neighborhood has a disconnected, curvilinear street pattern characterized by cul-de-sacs and long street blocks. The streets do not have sidewalks. Housing set backs are large and garages are highly visible from the streets. The neighborhood has a park located near its main entrance. Throughout the Woodlands, accessibility to parks and open

space is strongly emphasized. Therefore, the presence of a neighborhood park is typified in almost all the neighborhoods in this community.

Figure 3.5 *Cottage Green, a pedestrian-oriented design neighborhood*

Figure 3.6 *The use of alley ways in Cottage Green*

Figure 3.7 *Evangeline Oaks, a typical suburban neighborhood*

Figure 3.8 *Deep setback of houses in Evangeline Oaks*

First Colony

First Colony (Figure 3.9) is a 9,700 acre master-planned community located in the Fort Bend County in Southwest Houston Metropolitan area. Began in late 1970's, the community provides a mix of residential, office, and retail components. First Colony is home to some 55,000 residents and has since created over 10,000 jobs (First Colony Community Association 2006). The community is among the oldest and the most successful master-planned communities in the Houston Metropolitan area.

The community consists of 61 neighborhoods. Each neighborhood has a single housing type. Residential streets are typically curvilinear with the presence of cul-de-sacs. The community amenities are comparable to those of The Woodlands. These include regional shopping mall, Sugar Land's Town Square and Plaza, hotel, hospital, and convention center. In addition, First Colony also maintains extensive open space, including 89 acres of lakes, parks, playgrounds, trails, and sport facilities (First Colony Community Association 2006).

First Colony Community Association, the only community association in First Colony, encompasses all 61 neighborhoods. The association has established a network of volunteers who represent their neighborhoods. Representatives serve as a connection between the association and their neighborhood. Their role is to help facilitate neighborhood programs and social events to promote interaction among neighbors. First Colony also provides several social institutions, including schools, health care facilities, churches, and libraries.

Figure 3.9 *First Colony area map (Map is not to scale.)*

Source: Sugarland Properties Incorporated (2003)

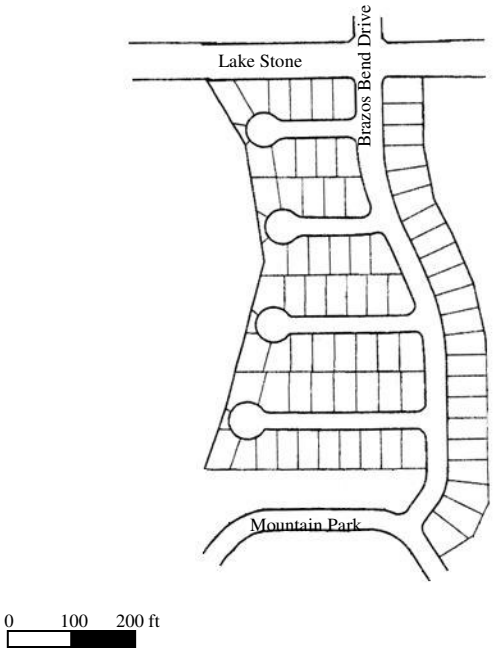


Figure 3.10 Heritage Colony*, the typical suburban neighborhood in First Colony*

Figure 3.11 *Heritage Colony, a typical suburban neighborhood*

Figure 3.12 *Highly visible garages on house façades in Heritage Colony*

"Heritage Colony" (Figures 3.10, 3.11, and 3.12), a typical suburban neighborhood development, is located in the southwest section of First Colony. A section of Heritage Colony, consisted of 77 single-family homes, was chosen for the survey. This section was built in 1998 and was already completed at the time of the survey. Heritage Colony's new home price in 2003 ranged between $150K's and $230K's (Sugarland Properties Incorporated 2003). The lower end of the price range reflects a newer section with smaller homes that have not been completed at the time. The neighborhood has a disconnected street pattern characterized by cul-de-sacs and wide traffic lanes. There are sidewalks on both sides of every street. The streets are also tree lined. Housing set backs are large and garages are highly visible from the street. The neighborhood does not have any park attached to it. The distance from the furthest house to the nearest neighborhood park is approximately 0.8 mile.

Grand Lakes

Grand Lakes (Figure 3.13) is a 1,259 acre master-planned community located in the West Houston-Katy area in Fort Bend County, Texas. Began in 1998, the community was built on an integration design concept of traditional small town and the American garden city. Follow the traditional small town concept, the community's master plan envisions six landscaped town squares which are located at the center of each residential village. The town squares also serve as the sites for park and recreational facilities. Each village consists of several clusters of neighborhoods. Similar to those of The Woodlands, there is no mixture of housing type at the neighborhood level.

In addition to the use of town squares and centralized site planning, Grand Lakes also partially adopted the American garden city concept, where pedestrian and vehicle systems are separated completely through the use of cul-de-sacs and pedestrian-only paths. Grand Lakes' pedestrian system creates a trail network that connects to almost every cul-de-sac end of the streets, and through this system, pedestrian network is separated from automobile network. The trail system, interior parks, and interior open space form a continuous park system that not only connects neighborhoods and villages together, but also provides accessibility to town squares and public facilities such as school, church, and day care. These public facilities also centralize the community to provide easy accessibility from most of the villages. Its extensive greenway park and trail system integrated with its small village and town square design have made Grand Lakes a unique community. Essentially, Grand Lakes' design scheme is also dedicated to pedestrians, although without the use of interconnected street network that is highly emphasized in new urbanist principles.

The community also maintains a community association and a community-wide monthly publication. However, due to its rather small size, several community amenities such as shopping facilities, schools, health care facilities, and libraries are shared among the communities in the West Katy area.

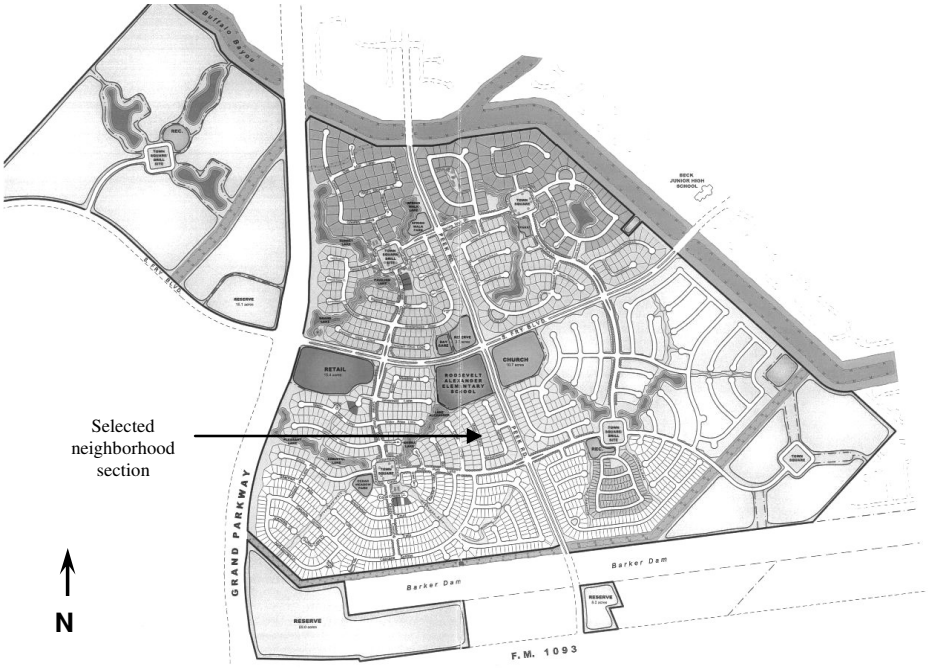


Figure 3.13 *Grand Lakes area map (Map is not to scale.)*

Source: Trendmaker Development Company (2002)

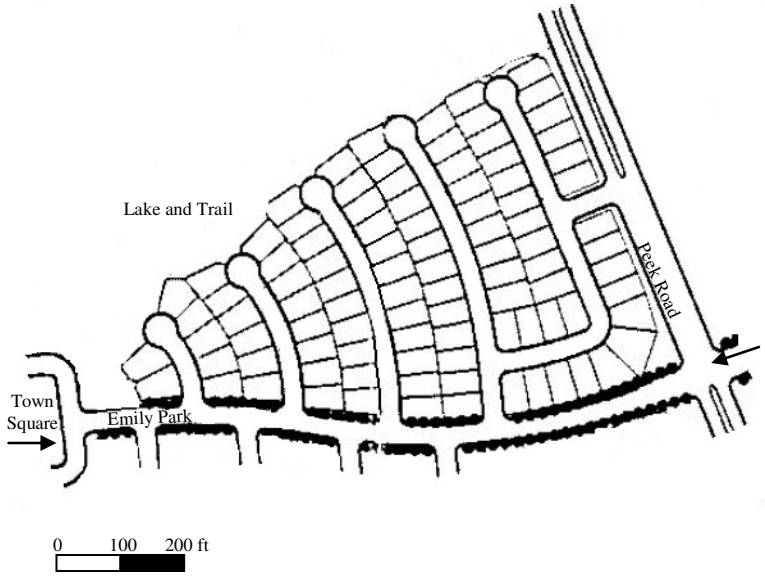


Figure 3.14 Grand Lakes*, the pedestrian-oriented neighborhood*

Figure 3.15 *Grand Lakes, a pedestrian-oriented neighborhood*

Figure 3.16 *Extensive open space and trail systems in Grand Lakes*

A section of 96 single-family homes (Figures 3.14, 3.15, and 3.16) in the southwest village was chosen for the survey. The section was already completed at the time of survey. The home price of this section in 2003 was in the range of $200K's to $250K's (Trendmaker Development Company 2002). The neighborhood has a disconnected street pattern characterized by cul-de-sacs and wide traffic lanes. There are sidewalks on both sides of every street, although most streets are not tree lined. Housing set backs are large. Most houses have garages set back toward the rear of the house. Each street in the neighborhood connects directly to the community trail system, which leads to the area lakes, village town square, recreational facilities, parks, and a school. Table 3.2 summarizes and compares pedestrian-oriented design features of all four neighborhoods selected.

2.2. Data Collection

Self-Administered Questionnaires

The self-administered questionnaire consists of three parts (see Appendix A for the questionnaire). Parts 1 and 2 contain statements and questions of the 14-item MMN. Part 3 consists of 14 questions regarding the respondents' demographic profile and other questions related to their neighborhoods, such as their length of residency, expected year of tenure, and the need to use a car to get around in the neighborhood. Each questionnaire was systematically labeled to enable geo-coding of each home surveyed for future follow-ups.

The survey was commenced in the summer of 2003. In the survey process, each questionnaire was enclosed in a package composed of a cover letter from the community's homeowner association or village association, the questionnaire form, and a postage-paid self-addressed envelope. For Cottage Green in The Woodlands, each questionnaire was enclosed in the neighborhood's monthly newsletter delivered to every house within the neighborhood. A total of 105 questionnaires were delivered in this neighborhood. For Evangeline Oaks in The Woodlands, parts of the questionnaires were delivered to residents attending "Good Neighbor Day", a social event of the neighborhood. The residents who answered the questionnaires at the event were also asked to identify their houses in the neighborhood map. Later, the rest of the questionnaires were dropped off at the houses of residents who did not answer the questionnaires at the event or did not attend the event. A total of 95 questionnaires were delivered in this neighborhood. For Grand Lakes and Heritage Colony, the questionnaires were dropped off at every house within the neighborhoods. A total of 94 questionnaires were delivered in Grand Lakes and 73 in Heritage Colony.

The first follow-up was conducted one week after the questionnaires were delivered. Follow-up letters reminding the residents to answer the questionnaires were dropped off at the houses of the residents in the survey areas who had not returned the questionnaires. After the first follow-up, the collective number of questionnaires returned from Cottage Green, Grand Lakes, and Evangeline Oaks were 56, 53, and 52, respectively. The returned rates of the questionnaires in the three neighborhoods exceeded 50 percent (see Table 3.3 for a summary of returned questionnaires).

However, the collective number of questionnaires returned from Heritage Colony was only 36, after the first follow-up. Therefore, the second follow-up was deemed necessary and sequentially conducted in this neighborhood.

The second follow-up was conducted in Heritage Colony two weeks after the first follow-up. In the second follow-up, a replacement questionnaire and a postage-paid envelope were also attached along with the follow-up letter, and delivered to houses of residents in the survey area who had not returned the questionnaires. 13 additional questionnaires were returned after the second follow-up. The total number of questionnaires returned in this neighborhood was 49 after two follow-ups.

Table 3.3
The questionnaire returns before and after conducting the follow-ups

	Questionnaires dropped	Returned before follow-up	Returned after first follow-up	Returned after second follow-up	Total returned questionnaires	**Total return rate**
Cottage Green	105	32	24	n/a	56	53.33%
Evangeline Oaks	95	38	14	n/a	53	55.79%
Grand Lakes	94	34	19	n/a	52	55.32%
Heritage Colony	73	23	13	13	49	67.12%
Summary	**367**	127	70	13	**210**	**57.22%**

Observations

Systematic observations were conducted on all four neighborhoods following the completion of self-administered questionnaires. The objective of the observations is to record pedestrian activities and other out-of-door activities of residents that occur in the neighborhood areas. The observations focus on the activities in and around the neighborhood streets, open space such as parks and trails, and the semi-private areas of

houses including the front porch, front yard, driveway, and alley way. The physical areas to be observed represent the principal design differences between pedestrian-oriented and suburban neighborhoods. In the pedestrian-oriented design neighborhoods, streets are designed to encourage activity, which is believed to provide opportunities for social contacts among neighbors and lead to enhance social integration (Brown and Cropper 2001; Kim and Kaplan 2004). Public spaces such as parks, squares, and playgrounds provide physical chances for social contacts (Congress for the New Urbanism 2000). Furthermore, the careful design that emphasizes the semi-private area in the form of porches and shallow housing setback can generate pedestrian traffic by projecting the human presence within the house (Duany and Plater-Zyberk 1992) and provide a degree of surveillance on the streets, which in turn promotes street safety (Jacobs 1961). In contrast, in typical suburban neighborhoods streets are not designed to be as pedestrian friendly and walkable; open spaces are less accessible; and semi-private areas are typically dominated by garages which appear to interfere with casual surveillance from residents inside the house (Brown and Cropper 2001). Table 3.2 summarizes and compares these neighborhood design elements among four neighborhoods.

Where to observe?

The criteria for observing street activities include neighboring and leisure activities occurred on the sidewalks, streets, and cul-de-sacs. The criteria for observing neighborhood park usage include neighboring and leisure activities taking place in the neighborhood parks and trails. Finally, since human presence is believed to generate

pedestrian traffic, the criteria for observing semi-private space usage include all activities taking place in the front porches, front yards, driveways, and alley ways.

When to observe?

The observations were focused on the activities during the weekday late afternoon (around 5:00 to 7:30 PM), the weekend morning (around 9:00 to 11:30 AM), and the weekend late afternoon (around 5:00 to 7:30 PM). The observations were also carried out on days of comparable weather conditions. In general, the weathers on the observation days were somewhere between cloudy to sunny with no rain or wet condition. The temperatures were in the mid 70's to mid 80's degree Fahrenheit. See Appendix K for the specific weather condition and temperature at the time of each observation. Table 3.4 summarizes the observation schedules.

Table 3.4
Summary of observation schedule

		Morning		Afternoon	
		9:00-10:00*	10:00-11:30*	5:00-6:00*	6:00-7:30*
Weekdays	Tuesday 05/02/06			HC	**GL**
	Wednesday 05/03/06			**CG**	EO
Weekends	Saturday 05/06/06	(Rainy morning)		EO	**CG**
	Saturday 05/13/06	HC	**GL**		
	Sunday 05/07/06	**CG**	EO	**GL**	HC

* The time window presented is not necessarily the exact beginning and ending time of observation.

CG Cottage Green in The Woodlands (a pedestrian-oriented design)
EO Evangeline Oaks in The Woodlands (a typical suburban design)
HL Grand Lakes (a pedestrian-oriented design)
HC Heritage Colony (a typical suburban design)

Although each time window might have an impact on the amount of activities observed (i.e., residents may be more outdoor active between 6:00 to 7:30 PM than between 5:00 to 6:00 PM), each neighborhood was, however, observed in both time windows on different days with an exception of weekend mornings. It was also recognizable that the pattern and the degree amount of activities of residents might also be different between Saturday and Sunday. On Saturday morning, two neighborhoods with different design types were observed. In the afternoon, the other two neighborhoods with different design types were observed. Same was true on Sunday. Conducting the observation in this way, each neighborhood was provided with fair chances, to a certain degree, to be observed at different time windows, in the morning and afternoon, and on both Saturday and Sunday.

What and how to observe?

During the time of observation, the observer systematically walked in the designated routes in the neighborhood areas and recorded the residents' out-of-door activities that were taking place at the time. The same observation route of each neighborhood was taken in each observation. The activities recorded were adapted from Bosselmann, Macdonald, and Kronemyer's (1999) criteria of measuring social interactions and street activities. Some activities such as reading, picnicking, gardening and car washing were added to the observation to accommodate semi-private and park usages. These activities are summarized in Table 3.5.

Unstructured Interviews

The unstructured interviews were conducted after the completion of the questionnaire survey. In the interview, a set of primary questions was developed as broad guidelines for interviewer and respondents. These primary interview questions comprise general introductory questions asking respondents to share perceptions of strengths and weaknesses of their neighborhoods, their level of satisfaction about the

Table 3.5
Summary of activities to be observed

Activities	Street activities	Semi-private space usage	Neighborhood park usage
Reading	*	*	*
Talking	*	*	*
Sitting	*	*	*
Walking	*	*	*
Stroller	*	*	*
Pet Walking	*	*	*
Jogging	*	*	*
Biking/Roller Blading	*	*	*
Picnicking/ Barbecuing	*	*	*
Gardening/ Doing yard works		*	
Car washing/ Working on driveways		*	
Parents and Children Playing	*	*	*
Children Playing w/o Parents	*	*	*

environment of the neighborhood, and their reasons of moving into the neighborhoods. Later, additional questions intended to follow up on and clarify any important subject or issue emerging from the primary questions were asked. These additional questions were different from one respondent to another, depending on particular the subjects or issues that were important to each respondent. Each respondent was also asked to draw

an area in the neighborhood map that he or she considered as his or her neighborhood. The primary interview questions were presented as follows:

General perceptions of one's own neighborhood

1. Respondent will be asked to identify an area in the neighborhood map that he or she considers as his or her neighborhood.
2. How do you describe your neighborhood?
3. What do you like/do not like about your neighborhood?

Satisfaction of one's own neighborhood environment

1. How do you like/dislike the way your neighborhood look?
2. How about your neighborhood streets?
3. How about your neighborhood park?

Reasons for moving

1. What was the main reason you moved here?

The interviews were carried out during the daytime and either in public areas or in front of the respondents' houses. In Cottage Green and Evangeline Oaks where there were neighborhood parks, most of the respondents were asked to participate in the interviews while they were at the parks. A respondent in Cottage Green was asked to participate in the interviews while she was sitting in her front porch, whereas a respondent in Evangeline Oaks was asked to participate in the interviews while he was washing his car in front of his house. In Grand Lakes and Heritage Colony where their neighborhood parks were shared with other neighborhoods in the same subdivisions, all

of the respondents were asked to participate in the interviews while they were doing activities in their front yards, driveways, or on sidewalks. Each interview lasted between twenty minutes to one hour. During the interviews, handwritten notes were taken and immediately after each interview, the notes were reviewed and enlarged from memory. The interviews were later transcribed and examined for recurring subjects. Five respondents in each neighborhoods participated in the interviews, with an exception of Evangeline Oaks where only four respondents participated. The total interview participants of all four neighborhoods were nineteen. Table 3.6 summarizes respondents' characteristics.

Table 3.6
Summary of respondents' characteristics

Neighborhoods	Respondents	Gender	Age	Race	Years of tenant
Cottage Green*	1(couple)	Male & Female	35's	White	4
	2	Female	35's	White	3
	3	Female	60's	White	6
	4	Male	40's	White	1
	5	Male	40's	White	3
Grand Lakes*	1	Female	40's	White	5
	2	Male	40's	White	6
	3	Female	35's	White	4
	4	Female	55's	White	6
	5(couple)	Male & Female	40's	White	6
Evangeline Oaks	1	Female	35's	Asian	3
	2	Female	40's	White	3
	3	Female	30's	White	4
	4	Male	35's	White	3
Heritage Colony	1	Female	40's	White	6
	2	Male	35's	Asian	2
	3	Female	35's	White	4
	4(couple)	Male & Female	45's	White&Hispanic	6
	5	Female	40's	White	4

*A pedestrian-oriented design neighborhood

3. Research Variables

3.1. Independent Variables

The independent variable used to determine the importance of pedestrian-oriented design of new urbanism to the sense of community is the neighborhood design layout. For this variable, the two pedestrian-oriented design neighborhoods are coded as 1 and the typical suburban neighborhoods are coded as 0. Other independent variables are related to demographic and non-environmental factors: homeownership, length of residency, expected number of years to live in the neighborhood, number of young children in the household, household size, household income, participant's age and gender, marital status, level of education, and race. These variables are either controlled through neighborhood selection or have been found in past research as important factors in determining the sense of community, as previously mentioned in Chapter II. Location of the workplace of is also added as an independent variable since almost one third of the residents in The Woodlands reported that they also worked in the community area. The last independent variable, the residents' reported need to use a car to get around in the neighborhood, is related to the design differences between the two types of neighborhoods studied. These variables are to be analyzed against the sense of community score, in order to possibly eliminate alternative explanations for the relationship between neighborhood design layout and the sense of community.

3.2. Dependent Variables

The dependent variables are the overall level of neighboring score computed from item scores in Table 3.7. The level of neighboring is measured using the 14-item Multidimensional Measure of Neighboring (MMN) developed by Skjaeveland, Garling, and Maeland (1996). The measure consists of 14 items categorized into four subscales: *Supportive Acts of Neighboring* (items 1, 2, 3, 4, 5, 6), *Neighbor Annoyance* (items 7, 8, 9), *Neighborhood Attachment* (items 10, 11, 12), and *Weak Social Ties* (items 13, 14). Items 1, 2, 3, 4, 7, 9, 10, 11, and 12 are to be measured based on a 5-point scale: Strongly Disagree, Disagree, Not Sure, Agree, and Strongly Agree. Items 6 and 8 are measured on a 4-point frequency scale: Frequently, Sometimes, Rarely, and Never. Finally, items 5, 13, and 14 are measured by the amount of contacts associated with them.

Table 3.7
The 14-item Multidimensional Measure of Neighboring

Factor	Item
Supportive Acts of Neighboring	1. If I need a little company, I can stop by a neighbor I know.
	2. If I have a personal crisis, I have a neighbor I can talk to.
	3. I have made new friends by living here.
	4. If I don't have something I need for my cooking, I can borrow it from a neighbor.
	5. How many neighbors do you visit now and then?
	6. How often do you help your neighbors with small things, or they help you?
Neighbor Annoyance	7. Noise which my neighbors make can occasionally be a big problem.*
	8. How often are you irritated with some of your neighbors?
	9. In this house I never feel quite safe.*
Neighborhood Attachment	10. I feel strongly attached to this residence.
	11. I don't feel at home in this neighborhood.*
	12. I would have better contacts with friends, family, etc., if I live in another part of town.*
Weak Social Ties	13. How many of your closest neighbors do you typically stop and chat with when you run into them?
	14. How many of your neighbors who live near you do you say hello to when you meet them?

*Reverse scoring is used for this item.

CHAPTER IV

ANALYSES AND RESULTS

1. Self-Administered Questionnaires

1.1. Score Assignment and Factor Analysis of the Sense of Community Items

For each positive response question in the Sense of Community Items, the most positive answer choice was assigned the highest score and vice versa (i.e., a score of 5 was assigned to the Strongly Agree answer choice, versus a score of 1 to the Strongly Disagree answer choice). Reversed scoring was, however, used for negative response questions. For each negative response question in the Sense of Community Items, the most positive answer choice was assigned the lowest score and vice versa (i.e., a score of 1 was assigned to the Strongly Agree answer choice, versus a score of 5 to the Strongly Disagree answer choice). These negative response questions were items 7, 8, 9, 11 and 12 in Table 4 (see Appendix B for a complete score assignment of all items).

The 14-item Multidimensional Measure of Neighboring (MMN) developed by Skjaeveland et al., (1996), chosen for this research, was analyzed using the principle-component analysis method to test the rationally derived dimensions and compare these dimensions to those of the MMN. Principal component analysis is a data-reduction technique used to identify factors that statistically explained variations of measures. This type of analysis provided evidence of how many factors were important in understanding the results.

Factors were initially extracted using principal component analysis to make an initial decision about the number of explained factors. Three factors with eigenvalues (i.e., the variability of a factor) greater than 1.00 were retained. These three factors included one large factor that explained 42 percent of the variance and two smaller factors explaining 11.6 and 7.4 percent of the variance. In order to make the factors more meaningful and interpretable, the factors were then rotated using Oblique method, which is one of the rotation methods. Items 1-6 (in Table 4.1) showed high positive loading on the first factor (ranging from 0.92 – 0.53). Items 7 and 8 had high loading on the second factor (0.81 and 0.71, respectively). Items 10-14 had high negative loading on the third factor (ranging from -0.77 to -0.45). However, item 9 showed relatively high loading on the first (0.48) and second (0.37) factors. Further analyses revealed that item 9 did not fit with any factors (see Appendix C for outputs of factor analysis). Therefore, it was excluded from the sense of community items.

While the MMN seeks to measure four dimensions of neighboring (i.e., *Supportive Acts of Neighboring, Neighbor Annoyance, Neighborhood Attachment, and Weak Social Ties*), the results of factor analysis revealed only three dimensions among the 14 items (i.e., principal component analysis extracted three factors underlying the measures). Although the first factor, *Supportive Acts of Neighboring*, remained the same, the last three factors were regrouped into two factors as a result of principal component analysis. Table 4.1 illustrates the regrouping and demonstrates a comparison between the four factors of MMN and the three sense of community (SOC) factors

Table 4.1
Comparison between the four-factor MMN and the three SOC factors

The four factor MMN	Sense of community items	The three SOC factors
Supportive Acts of Neighboring	**1. If I need a little company, I can stop by a neighbor I know.** **2. If I have a personal crisis, I have a neighbor I can talk to.** **3. I have made new friends by living here.** **4. If I don't have something I need for my cooking, I can borrow it from a neighbor.** **5. How many neighbors do you visit now and then?** **6. How often do you help your neighbors with small things, or they help you?**	Supportive Acts of Neighboring
Neighbor Annoyance	**7. Noise which my neighbors make can occasionally be a big problem.** **8. How often are you irritated with some of your neighbors?**	Lack of Neighbor Annoyance*
	9. In this house I never feel quite safe.	
Neighborhood Attachment	**10. I feel strongly attached to this residence.** **11. I don't feel at home in this neighborhood.** **12. I would have better contacts with friends, family, etc., if I live in another part of town.**	Neighborhood Attachment & Weak Social Ties
Weak Social Ties	**13. How many of your closest neighbors do you typically stop and chat with when you run into them?** **14. How many of your neighbors who live near you do you say hello to when? you meet them**	

* This factor was renamed since the items in this factor were scored reversely. Therefore a positive naming will better represent the concept.

generated as a result of factor analysis. These three factors consequently formed the basis in further analyses.

1.2. Descriptive Statistics

Descriptive statistics are used first to provide an overall picture of the data and to describe the characteristics of the respondents. The sense of community items and demographic and non-environmental factor items with quantitative data were calculated for their means and standard deviations (Tables 4.2 and 4.3). Other qualitative items were also calculated for their percentage of categories (Table 4.4). Among the items described in Tables 4.3 and 4.4, *need for a car to get around in the neighborhood* and *race* were the two items that accounted for the highest differences among four neighborhoods surveyed. 91.9% of the respondents from the Cottage Green neighborhood said they did not need to use a car to get around in the neighborhood, while only 26.5% of the respondents from First Colony said so about their neighborhood. Heritage Colony was also the most racially diverse neighborhood among the four. Cottage Green and Grand Lakes, on the other hand, had a very homogeneous racial profile (i.e., the proportions of white population in Cottage Green and Grand Lakes were 94.4% and 92%, respectively). Other demographic and non-environmental factor items including homeownership, approximate household income, and length of residency were controlled, to the extent possible, by neighborhood selections. Therefore, their results were relatively comparable.

Table 4.2
Sense of community items

Sense of community items	Pedestrian-oriented				Typical suburb			
	Cottage Green @ The Woodlands		**Grand Lakes**		**Evangeline Oaks** @ The Woodlands		**Heritage Colony**	
	Mean	StD	Mean	StD	Mean	StD	Mean	StD
1. If I need a little company, I can stop by a neighbor I know.	3.96	1.15	4.33	0.71	4.08	0.85	3.55	1.00
2. If I have a personal crisis, I have a neighbor I can talk to.	3.69	1.32	4.16	0.99	3.88	1.02	3.27	1.22
3. I have made new friends by living here.	4.29	1.09	4.48	0.73	4.21	0.93	3.86	0.91
4. If I don't have something I need for my cooking, I can borrow it from a neighbor.	4.16	0.93	4.42	0.80	3.98	0.92	3.49	1.02
5. How many neighbors do you visit now and then?	1.71	0.89	1.88	0.86	1.70	0.97	1.20	0.74
6. How often do you help your neighbors with small things, or they help you?	3.09	0.82	3.38	0.69	3.02	0.80	2.90	0.71
7. Noise which my neighbors make can occasionally be a big problem.*	3.89	1.15	3.92	1.11	4.00	0.96	4.00	0.98
8. How often are you irritated with some of your neighbors?*	2.96	0.69	2.98	0.83	3.15	0.60	2.98	0.63
9. In this house I never feel quite safe.*	4.71	0.56	4.52	0.64	4.36	0.98	4.24	0.69
10. I feel strongly attached to this residence.	4.07	0.97	4.10	0.98	3.79	1.03	3.67	1.01
11. I don't feel at home in this neighborhood.*	4.59	0.73	4.46	0.83	4.25	1.02	4.16	0.77
12. I would have better contacts with friends, family, etc., if I live in another part of town.*	4.16	0.99	4.17	0.86	4.25	0.90	3.63	1.17
13. How many of your closest neighbors do you typically stop and chat with when you run into them?	2.25	0.86	2.25	0.71	1.89	0.80	1.49	0.77
14. How many of your neighbors who live near you do you say hello to when you meet them?	2.68	0.61	2.87	0.34	2.58	0.63	2.24	0.88

* Reversed scoring is used for this item.

Table 4.3
Demographic and non-environmental factor items

Demographic and non-environmental factor items	Pedestrian-oriented				Typical suburb			
	Cottage Green @ The Woodlands		**Grand Lakes**		**Evangeline Oaks** @ The Woodlands		**Heritage Colony**	
	Mean	StD	Mean	StD	Mean	StD	Mean	StD
16. How long have you been living in this neighborhood?	3.09	1.32	2.73	0.57	1.76	0.59	2.67	1.31
17. How long do you expect to live in this neighborhood? (1=0-1 more yr, 2=1-5 more yr, 3=5-10 more yr, 4=10 or more yr)	2.89	1.03	3.10	0.96	2.75	0.85	2.55	0.87
20. What is your age?	42.20	11.13	42.50	8.89	43.37	11.17	38.73	11.80
22. Number of children under 12 years old	0.79	0.97	1.33	1.20	1.06	1.05	0.92	1.02
23. How many persons are there in your household?	3.02	1.05	3.80	1.33	3.52	1.06	3.14	1.29
26. Which is the highest level of education you have completed? (1=No formal education, 2=Completed grade school, 3=Completed high school, 4=Completed college, 5=A graduate degree)	4.09	0.67	4.17	0.65	4.15	0.77	4.27	0.74
27. What was your approximate household income before tax from all sources, in 2002. (1=<$20,000, 2=$20,000-$39,999, 3=$40,000-$59,999, 4=$60,000- $79,999, 5=$80,000-$99,999, 6=$100,000 and over)	5.23	1.01	5.72	0.65	5.51	0.86	4.95	1.19

Table 4.4
More demographic and non-environmental factor items

Demographic and non-environmental factor items (cont.)	Pedestrian-oriented		Typical suburb	
	Cottage Green @ The Woodlands	**Grand Lakes**	**Evangeline Oaks** @ The Woodlands	**Heritage Colony**
	Valid Percent*	Valid Percent*	Valid Percent*	Valid Percent*
15. Do you rent or own your place of residence?				
Rent	1.8	1.9	-	-
Own	98.2	98.1	100.0	100.0
18. Do you need a car to get around in this neighborhood?				
No	91.1	50.0	43.1	26.5
Yes	8.9	50.0	56.9	73.5
19. Your gender.				
Male	37.5	36.5	31.4	40.8
Female	62.5	63.5	68.6	59.2
21. What is your marital status?				
Never married	1.8	-	1.9	2.0
Married	92.9	96.2	94.4	91.8
Divorced	5.4	3.8	1.9	4.1
Widowed	-	-	1.9	2.0
24. Are you presently employed?				
Employed	64.3	75.0	58.5	75.5
Unemployed	1.8	-	5.7	2.0
Retired	10.7	1.9	7.5	10.2
Full-time homemaker	21.4	19.2	26.4	10.2
Student	1.8	1.9	-	-
Self-employed	-	1.9	1.9	2.0
25. Location of your work place:				
Within community area	40.0	3.8	32.0	12.2
Houston and its vicinities	52.7	94.2	58.0	81.6
Other city in Texas	5.5	-	2.0	4.1
Other state	1.8	-	4.0	-
Other country	-	1.9	4.0	2.0
28. What is your race?				
White	94.4	92.0	79.2	57.1
Black or African-American	-	-	3.8	4.1
Asian	-	6.0	11.3	34.7
American Indian or Alaska Native	1.9	-	-	-
Hispanic/ Latino	3.8	2.0	5.7	4.1

* Exclude missing data

1.3. Neighborhood Comparison

An analysis of variance (ANOVA) of the score summation of each of the three SOC factors by neighborhood types (i.e., pedestrian oriented and typical suburb) was conducted first to investigate the significant difference in their mean values (see Table 4.5). The result of the first factor, *Supportive Acts of Neighboring* (SAON), revealed that the mean value of pedestrian-oriented neighborhoods (21.77) was higher than that of the typical suburb (19.66), and that the difference was significant at the 0.01 level ($F = 10.812$, $p < 0.01$). The result of the third factor, *Neighborhood Attachment and Weak Social Ties* (NA&WST), was similar to that of the first factor. Its mean difference (17.80 in pedestrian-oriented design neighborhoods, compared to 15.98 in typical suburban neighborhood) was also significant at the 0.01 level ($F = 18.898$, $p < 0.01$). However, the result of the second factor, *Lack of Neighbor Annoyance* (LONA), revealed no difference in mean values between the two types of neighborhoods.

Table 4.5
ANOVA of the score summation of each of the three SOC factors by neighborhood types, pedestrian-oriented and typical suburban neighborhoods

		Sum of Squares	df	Mean Square	F	Sig.
Supportive Acts of Neighboring	Between Groups	229.868	1	229.868	10.812	.001
	Within Groups	4337.006	204	21.260		
	Total	4566.874	205			
Lack of Neighbor Annoyance	Between Groups	1.545	1	1.545	.726	.395
	Within Groups	438.378	206	2.128		
	Total	439.923	207			
Neighborhood Attachment & Weak Social Ties	Between Groups	172.138	1	172.138	18.898	.000
	Within Groups	1885.479	207	9.109		
	Total	2057.617	208			

To further compare the differences in mean value among the four neighborhoods, another analysis of variance of the score summation of the three SOC factors by neighborhoods, Cottage Green, Grand Lakes, Evangeline Oaks, and Heritage Colony, was conducted. The result (see Table 4.6) of the first factor (SAON) revealed that at least one mean value differed from the rest ($F = 8.387$, $p < 0.01$) i.e., at least one neighborhood had a mean SAON value that was different from those of the rest. Tukey HSD procedure of multiple comparisons (see Table 4.7) revealed that, at 0.01 significant level, the mean value of SAON of Heritage Colony was significantly different from the rest. There was no significant difference among the mean SAON values of the other three neighborhoods.

The result of the third factor (NA&WST) also showed that at least one mean value of NA&WST differed from the rest ($F = 8.588$, $p < 0.01$). Tukey HSD procedure of multiple comparisons (see Table 4.8) revealed that, at 0.01 significant level, the mean NA&WST value of Heritage Colony was significantly different from those of Cottage Green and Grand Lakes. However, the result also yielded that the mean NA&WST value of Evangeline Oaks was not significantly different from both subsets (see Table 4.8). The second factor (LONA), on the other hand, yielded no mean difference among the four neighborhoods.

To sum up the ANOVA analyses, at the neighborhood type level, there was some statistically significant evidence that the SAON and NA&WST values of pedestrian-oriented neighborhoods are higher than those of typical suburban neighborhoods.

Table 4.6
ANOVA of the score summation of each of the three SOC factors by neighborhoods

		Sum of Squares	df	Mean Square	F	Sig.
Supportive Acts of Neighboring	Between Groups	505.820	3	168.607	8.387	.000
	Within Groups	4061.053	202	20.104		
	Total	4566.874	205			
Lack of Neighbor Annoyance	Between Groups	2.356	3	.785	.366	.778
	Within Groups	437.567	204	2.145		
	Total	439.923	207			
Neighborhood Attachment & Weak Social Ties	Between Groups	229.716	3	76.572	8.588	.000
	Within Groups	1827.901	205	8.917		
	Total	2057.617	208			

Table 4.7
Tukey HSD homogeneous subsets of mean values of Supportive Acts of Neighboring

	Neighborhood ID	N	Subset for alpha = .05	
			1	2
Tukey HSD(a,b)	Heritage Colony	49	18.27	
	Cottage Green	55		20.89
	Evangeline Oaks	51		21.00
	Grand Lakes	51		22.73
	Sig.		1.000	.165

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 51.410.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Table 4.8
Tukey HSD homogeneous subsets of mean values of Neighborhood Attachment and Weak Social Ties

	Neighborhood ID	N	Subset for alpha = .05	
			1	2
Tukey HSD(a,b)	Heritage Colony	49	15.20	
	Evangeline Oaks	52	16.71	16.71
	Cottage Green	56		17.75
	Grand Lakes	52		17.85
	Sig.		.052	.215

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 52.133.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

However, there was no difference between LONA values of two types of neighborhoods. At the neighborhood level, Heritage Colony seemed to have the lowest SAON and NA&WST than the rest. Evangeline Oaks was not different from pedestrian-oriented group in terms of SAON value, however, its NA&WST value seemed to fit in both neighborhood groups i.e., pedestrian-oriented and typical suburban neighborhoods. There was no LONA value difference among the four neighborhoods.

1.4. Comparing the Sense of Community Score before and after Conducting the Follow-up

The mean values of sense of community score of all three factors derived from the questionnaires returned before conducting a follow-up were compared to the mean values derived from those returned after the follow-ups. The results revealed that the mean values of all three factors of SOC derived from the questionnaires returned after conducting follow-ups were lower than those derived from the questionnaires returned before conducting a follow-up. Table 4.9 summarizes the mean values of all three factors of SOC derived from before and after conducting the follow-ups. The analysis of variance (ANOVA) further revealed that the mean value of all three factor of SOC derived from the questionnaires returned before conducting a follow-up were significantly lower than those derived from the questionnaires returned after conducting the second follow-up. The differences were significant at the .05 level (see Appendix J for the ANOVA results of before and after follow-ups).

Table 4.9
Summary of mean values of the three factors of SOC from before and after conducting follow-ups

	Mean values of sense of community factors		
	Supportive Acts of Neighboring	Lack of Neighbor Annoyance	Neighborhood Attachment and Weak Social Ties
Before follow-up	21.22	7.17	17.21
After first follow-up	20.42	6.80	16.79
After second follow-up	18.00	6.15	14.85

1.5. Screening Analysis of Independent Variables

Correlation analysis along with theoretical reasoning were carried out as a part of the elimination process in order to selectively screen the independent variables for the regression analysis. Table 4.10 showed the correlations between the three SOC factors and all demographic and non-environmental variables.

Table 4.10
Correlations between the three SOC factors, Supportive Acts of Neighboring (SAON), Lack of Neighbor Annoyance (LONA), and Neighborhood Attachment & Weak Social Ties (NA & WST) and demographic and non-environmental variables

	SAON	LONA	NA&WST
Home ownership	0.06	-0.14*	-0.07
Length of residency	0.02	-0.10	0.11
Expected years to live in neighborhood	0.27**	0.20**	0.37**
Need for a car to get around in neighborhood	-0.22**	-0.08	-0.27**
Gender	0.04	-0.01	0.03
Age	-0.05	0.05	0.04
Number of children under 12 yrs old	0.26**	0.00	0.11
Household size	0.22**	0.01	0.06
Full-time homemaker	0.17*	0.06	0.22**
Work within community area	-0.06	-0.14*	-0.11
Level of education	-0.08	-0.09	-0.01
Household income	0.04	-0.05	0.02
Race	-0.07	-0.06	-0.04

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Home ownership was excluded from the regression analysis because the descriptive statistics (Table 4.4) showed at least 98 percent of all the respondents were homeowners and the results were quite uniform in all the neighborhoods. *Length of residency* did not have any significant correlation with any of the SOC factors. In addition, this variable was controlled through neighborhood selections, and therefore, it was excluded from the regression analysis. *Gender* was correlated with *full-time homemaker* (correlation coefficient = 0.351). While *full-time homemaker* had correlations with SAON and NA&WST, *gender* showed no correlation with any factors, and was excluded from the regression analysis as well. The same was true for *age* and *number of children under 12 years old*. Both variables correlated to each other with a correlation coefficient of -0.448. *Number of children under 12 years old* was not only correlated with SAON, but was also theoretically important. Notably, a previous research linked this variable to the sense of community (Keller 1968). As a result, *age* was excluded from the regression analysis.

Household size had a very strong correlation with *number of children under 12 years old* (correlation coefficient = 0.806), and was excluded from the regression analysis, due to the theoretical importance of *number of children under 12 years old. Level of education* and *household income* were also excluded from the regression analysis because they bore no correlation with any of the SOC factors. Both variables also yielded no difference among the four neighborhoods. Finally, as explained earlier in the descriptive analysis results, Heritage Colony was the only neighborhood with the most racially diverse profile of the four, while Cottage Green, Grand Lakes, and

Evangeline Oaks had relatively more homogeneous racial profiles (see Table 4.4). Therefore, the *racial profile* item was excluded from the regression analysis, because the results would not represent the overall picture. Moreover, the racial profile had no correlation with any of the SOC factors (refer to Appendix E for a complete correlation matrix of all variables).

To sum up the screening analysis, *home ownership*, *length of residency*, *gender*, *age*, *household size*, *level of education*, *household income*, and *race* were excluded from the regression analysis due to various reasons mentioned above.

1.6. Regression Analysis

Multiple regression analyses were conducted to determine if pedestrian-oriented design changed the way selected demographic and non-environmental variables affected the score summation value of each SOC factor. The analyses can provide evidence to prove whether the difference in the SOC values between the two types of neighborhood established from the ANOVA analysis resulted from the difference in design. In other words, the regression analysis was used here to help eliminate alternative explanations from demographic and non-environmental factors (given the existing explanation that the difference in the neighborhood design caused the difference in SOC values) for the difference in SOC values between the two neighborhood-types.

In order to do so, a dummy variable, *neighborhood design*, was created by assigning a value of 0 to typical suburban neighborhood, and a value of 1 to pedestrian-oriented design. Subsequently, a set of interaction terms between *neighborhood design*

and selected demographic and non-environmental variables were created to investigate the significance of the differences between the parameters of the selected variables and those of their interaction terms, which were adjusted for pedestrian-oriented design. The significance of the differences in parameters would indicate whether the pedestrian-oriented design changed the way selected demographic and non-environmental variables affected the score summation value of each SOC factor. The following regression equation represents the model with the interaction terms.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k + \beta_0' Z + \beta_1' Z X_1 + \beta_2' Z X_2 + \ldots + \beta_k' Z X_k + \epsilon$$

where,

Y = dependent variable

X_k = k^{th} independent variable

β_k = coefficient of kth independent variable

β_k' = adjusted coefficient of kth independent variable under pedestrian-oriented design

Z = dummy variable; 0 = typical suburban design

1 = pedestrian-oriented design

For each SOC factor, the first model conducted included all selected demographic and non-environmental factor variables that were not excluded as a result of screening analysis. Moreover their correlations with the score value of each SOC factor had to be at least significant at the 0.05 level (see Table 4.10). Afterwards, reduced models would be conducted to eliminate insignificant predictors while maximizing R square values, in order to find the best fit model for each SOC factor.

The First Factor: Supportive Acts of Neighboring (SAON)

The first full model incorporated four demographic and non-environmental variables, *neighborhood design*, and four interaction terms (see Table 4.11). It accounted for 25.3 percent of the variation in this variable (R^2 = 0.25, F = 7.17, p < 0.01). Among these variables, *expected years to live in neighborhood*, *need for a car to get around in neighborhood* and *full-time homemaker* were significantly correlated with SAON. *Number of children under 12 years old* and the interaction term of *neighborhood design* and *full-time homemaker* displayed mild correlations with SAON.

The second model incorporated all the variables as in the first full model, except the interaction term of *neighborhood design* and *need for a car to get around in neighborhood*. The second model accounted for 25.0 percent of the variation in this variable (R^2 = 0.25, F = 7.96, p < 0.01). In this model, the interaction term of *neighborhood design* and *number of children under 12 years old* had the least t value and was excluded from the third model. The third model accounted for 24.5 percent of the variation in this variable (R^2 = 0.25, F = 8.89, p < 0.01). In this model, the interaction term of *neighborhood design* and *expected year to live in neighborhood* had the least t value and was the next variable to be dropped from the fourth model. The fourth model accounted for 23.5 percent of the variation in this variable (R^2 = 0.24, F = 9.88, p < 0.01).

The final model, inclusive of all variables in the fourth model, except the interaction term of *neighborhood design* and *full-time homemaker*, accounted for 22.6 percent of the variation in this variable (R^2 = 0.23, F = 11.35, p < 0.01). In this model,

Table 4.11
Summary of regression analysis of Supportive Acts of Neighboring (SAON) with neighborhood design interactive terms

SAON	Full model			Reduced 1			Reduced 2			Reduced 3			Reduced 4		
	b	β	t	b	β	t	b	β	t	b	β	t	b	β	t
Intercept	14.62		8.86	14.09		9.10	13.71		9.06	15.30		13.48	15.39		13.53
Expected years to live in neighborhood	1.86	0.38	3.79***	1.91	0.39	3.91***	1.92	0.39	3.93***	1.33	0.27	4.13***	1.38	0.28	4.28***
Need for a car to get around in neighborhood	-1.82	-0.19	-1.99**	-1.22	-0.13	-1.87*	-1.16	-0.12	-1.79*	-1.24	-0.13	-1.90*	-1.25	-0.13	-1.92*
Number of children under 12 yrs old	0.75	0.17	1.72*	0.74	0.17	1.71*	1.11	0.25	3.78***	1.13	0.25	3.84***	1.15	0.26	3.90***
Full-time homemaker	2.88	0.24	2.56**	2.99	0.25	2.67***	2.73	0.23	2.49**	2.65	0.22	2.41**	1.51	0.13	1.92*
Neighborhood design	3.23	0.34	1.44	3.92	0.42	1.86*	4.66	0.49	2.31**	1.67	0.18	2.32**	1.21	0.13	1.86*
Design_Expected yr. to live in neigh	-0.95	-0.33	-1.45	-0.99	-0.35	-1.53	-1.03	-0.36	-1.59						
Design_Need for a car to get around	1.22	0.09	0.94												
Design_Number of children <12	0.62	0.12	1.05	0.67	0.13	1.14									
Design_Full-time homemaker	-2.71	-0.18	-1.73*	-2.92	-0.19	-1.89*	-2.51	-0.16	-1.67*	-2.20	-0.14	-1.47			
N	200			200			200			200			200		
R^2	0.25			0.25			0.25			0.24			0.23		
Adjusted R^2	0.22			0.22			0.22			0.21			0.21		
F	7.17			7.96			8.89			9.88			11.35		
Sig.	0.00			0.00			0.00			0.00			0.00		

*p<0.1, **p<.05, ***p<.01

expected years to live in neighborhood and *number of children under 12 year old* were still significantly correlated with SAON. *Need for a car to get around in neighborhood*, *full-time homemaker* and *neighborhood design* showed mild correlations with SAON, although they were still significant at the 0.1 level. No interaction term was included in the final model.

The Second Factor: Lack of Neighbor Annoyance (LONA)

The first full model included two demographic and non-environmental variables, *neighborhood design*, and two interaction terms (see Table 4.12). It accounted for 6.9 percent of the variation in this variable (R^2 = 0.07, F = 2.94, p < 0.05). The result displayed no significant predictor for LONA. However, among the variables included, *work within community area* had the least t value; therefore this variable and its interaction term were excluded from the reduced model.

The second model included *expected year to live in neighborhood*, its interaction term with *neighborhood design*, and *neighborhood design.* The second model accounted for 5.4 percent of the variation in this variable (R^2 = 0.05, F = 3.89, p < 0.1). The result still showed no significant predictor for LONA. The third model, excluding the interaction term of *neighborhood design* and *expected year to live in neighborhood,* accounted for 4.9 percent of the variation in this variable (R^2 = 0.05, F = 5.31, p < 0.01). In this model, *expected year to live in neighborhood* significantly correlated with LONA at the 0.01 level. However, *neighborhood design* was still insignificant and excluded from the final model.

Table 4.12
Summary of regression analysis of Lack of Neighbor Annoyance (LONA) with neighborhood design interactive terms

LONA	Full model			Reduced 1			Reduced 2			Reduced 3		
	b	β	t	b	β	t	b	β	t	b	β	t
Intercept	6.52		13.79	6.52		14.13	6.18		19.49	6.11		19.46
Expected years to live in neighborhood	0.23	0.15	1.39	0.21	0.13	1.24	0.34	0.22	3.14***	0.31	0.20	2.93***
Work within community area	-0.35	-0.10	-0.10									
Neighborhood design	-0.66	-0.22	-0.10	-0.91	-0.31	-1.42	-0.29	-0.10	-1.41			
Design_Expected yr. to live in neigh	0.15	0.17	0.67	0.22	0.25	1.03						
Design_Work within community area	-0.19	-0.04	-0.39									
N	203			207			207			207		
R^2	0.07			0.05			0.05			0.04		
Adjusted R^2	0.05			0.04			0.04			0.04		
F	2.94			3.89			5.31			8.58		
Sig.	0.01			0.10			0.01			0.00		

*p<0.1, **p<.05, ***p<.01

The final model had only one independent variable, *expected year to live in neighborhood*. The model accounted for 4.0 percent of the variation in this variable ($R^2 = 0.04$, $F = 8.58$, $p < 0.01$). The variable as a single predictor of LONA was significant at the 0.01 level. There was no interaction term included in the final model.

The Third Factor: Neighborhood Attachment and Weak Social Ties (NA&WST)

The first full model included three demographic and non-environmental variables, *neighborhood design*, and three interaction terms (see Table 4.13). It accounted for 29.2 percent of the variation in this variable ($R^2 = 0.29$, $F = 11.52$, $p < 0.01$). Among these variables, *expected years to live in neighborhood* and *full-time homemaker* were significantly correlated with NA&WST at the 0.01 level. *Need for a car to get around in neighborhood* and *neighborhood design* showed rather mild correlations with NA&WST.

In the first reduced model, the interaction term of *neighborhood design* and *need for a car to get around in neighborhood* was omitted. The model accounted for 29.0 percent of the variation in this variable ($R^2 = 0.29$, $F = 13.44$, $p < 0.01$). In this model, the interaction term of *neighborhood design* and *full-time homemaker* had the least t value and was excluded from the next model. The second reduced model accounted for 28.9 percent of the variation in this variable ($R^2 = 0.29$, $F = 16.08$, $p < 0.01$). In this model, the interaction term of *neighborhood design* and *expected year to live in neighborhood* was the only insignificant variable and was excluded from the final model.

Table 4.13
Summary of regression analysis of Neighborhood Attachment and Weak Social Ties (NA&WST) with neighborhood design interactive terms

NA&WST	Full model			Reduced 1			Reduced 2			Reduced 3		
	b	β	t	b	β	t	b	β	t	b	β	t
Intercept	12.16		11.65	11.97		12.23	12.06		12.48	12.90		18.23
Expected years to live in neighborhood	1.55	0.46	4.79***	1.57	0.47	4.88***	1.553	0.46	4.85***	1.24	0.37	5.97***
Need for a car to get around in neighborhood	-1.08	-0.17	-1.85*	-0.86	-0.13	-2.06**	-0.86	-0.13	-2.07**	-0.90	-0.14	-2.16**
Full-time homemaker	2.29	0.29	3.19***	2.32	0.29	3.25***	1.963	0.25	4.01***	2.00	0.25	4.09***
Neighborhood design	2.57	0.40	1.84*	2.83	0.45	2.17**	2.581	0.41	2.07**	1.08	0.17	2.61**
Design_Expected yr. to live in neigh	-0.56	-0.29	-1.31	-0.57	-0.30	-1.36	-0.53	-0.28	-1.27			
Design_Need for a car to get around	0.45	0.05	0.54									
Design_Full-time homemaker	-0.61	-0.06	-0.62	-0.67	-0.07	-0.68						
N	204			204			204			204		
R^2	0.29			0.29			0.29			0.28		
Adjusted R^2	0.27			0.27			0.27			0.27		
F	11.52			13.44			16.08			19.63		
Sig.	0.00			0.00			0.00			0.00		

*p<0.1, **p<.05, ***p<.01

The final model included *expected year to live in neighborhood*, *need for a car to get around in neighborhood*, *full-time homemaker* and *neighborhood design.* The model accounted for 28.3 percent of the variation in this variable (R^2 = 0.28, F = 19.63, p < 0.01). All variables were significant as predictors of NA&WST at the 0.05 and 0.01 levels. There was no interaction term included in the final model.

Summary of Regression Results

The final regression model of SAON included five predictors—*expected years to live in neighborhood*, *need for a car to get around in neighborhood*, *number of children under 12 year old, full-time homemaker,* and *neighborhood design.* The final regression model of NA&WST incorporated four predictors—*expected years to live in neighborhood*, *need for a car to get around in neighborhood*, *full-time homemaker,* and *neighborhood design.* Finally, the final regression model of LONA included only one predictor—*expected years to live in neighborhood.* There was also no interaction term between *neighborhood design* and the above selected variables included in any of the final models.

According to the regression analyses, design factor (i.e., *neighborhood design* variable) as an independent variable in the final regression models of the first (SAON) and third (NA&WST) SOC factors, was a predictor of SAON and NA&WST values (significant at the 0.1 and 0.05 levels, respectively), in addition to the selected demographic and non-environmental variables mentioned above, although these predictors were statistically significant at various degrees. Furthermore, there was also no interaction term between *neighborhood design* and the above selected variables

included in the final models. This essentially meant that there was no difference between the parameters of the selected variables and those of their interaction terms, which were adjusted for pedestrian-oriented design. The significance of the differences in parameters would indicate whether pedestrian-oriented design changed the way selected demographic and non-environmental variables affected the score summation value of each SOC factor. Therefore, the lack of difference in parameters as explained above indicated that these demographic and non-environmental variables affected the SOC values in the same manner, both before and after the addition of the design factor. In other words, design did not seem to change the way these demographic and non-environmental variables affected the SOC values.

Validity of the Regression Models

Finally, residual analyses were carried out in order to verify the validity of all chosen regression models. Although histograms of residuals revealed a mildly skewed distribution, the data set ($N \geq 200$) was large enough for a violation of normality to be negotiable. A plot of score summation value of SAON and NA&WST vs. residuals displayed a funnel shape. The shape suggested heteroscedasticity in the data. After analyzing each variable individually, *number of children under 12 years old* seemed to be the variable causing heteroscedasticity in the data (i.e., there were some outliers in reported number of children under 12 years old). Despite several attempts to transform this variable, the problem still existed. However, further analysis showed that heteroscedasticity in the data did not affect the outcome of the model (see Appendix I for output of variable transformations). Finally, the result of Durbin-Watson statistics

confirmed no serial correlation (DW of the SAON model = 1.83, LONA model = 1.86 and NA&WST model = 2.04).

2. Observation Results

2.1. On Weekday Afternoons

The results of observations on weekday afternoon of Cottage Green, Grand Lakes, and Evangeline Oaks were quite comparable. However, the result of Heritage Colony yielded a much lower level of activities in all activity types than those of the rest of the neighborhoods. In general, street activities and semi-private usages of residents in Cottage Green, Grand Lakes, and Evangeline Oaks were very comparable. Neighborhood park usages of the residents in Grand Lakes, on the other hand, were twice the amount of usage of those in Cottage Green and Evangeline Oaks. The reason for this could be that Grand Lakes' parks and trails were shared among several neighborhoods in the same village, therefore the number of their users was higher. In Heritage Colony, the streets and the nearest neighborhood park (0.8 miles away from the furthest home in the neighborhood) were quiet. Since the day of observation was also the garbage pick-up day, the activities recorded were all related to residents' hauling garbage containers back to their garages. Table 4.14 and Figure 4.1 summarize the activities observed on weekday afternoon of the four neighborhoods.

Table 4.14
Summary of observations of four neighborhoods by activity types on weekday afternoons

			Number of people observed				
			Children < 12 yrs	Youths	Adults	Elderly	**Summary**
Pedestrian-oriented neighborhoods	**Cottage Green**	Street activities	2	1	5	1	9
		Semi-private space usage	2	0	9	1	12
		Neighborhood park usage	4	0	1	0	5
		Summary	8	1	15	2	**26**
	Grand Lakes	Street activities	4	0	3	0	7
		Semi-private space usage	6	0	7	0	13
		Neighborhood park usage	4	3	4	0	11
		Summary	14	3	14	0	**31**
Typical suburban neighborhoods	**Evangeline Oaks**	Street activities	1	1	5	0	7
		Semi-private space usage	11	0	3	0	14
		Neighborhood park usage	3	0	1	0	4
		Summary	15	1	9	0	**25**
	Heritage Colony	Street activities	0	0	1	0	1
		Semi-private space usage	0	0	2	0	2
		Neighborhood park usage	0	0	0	0	0
		Summary	0	0	3	0	**3**

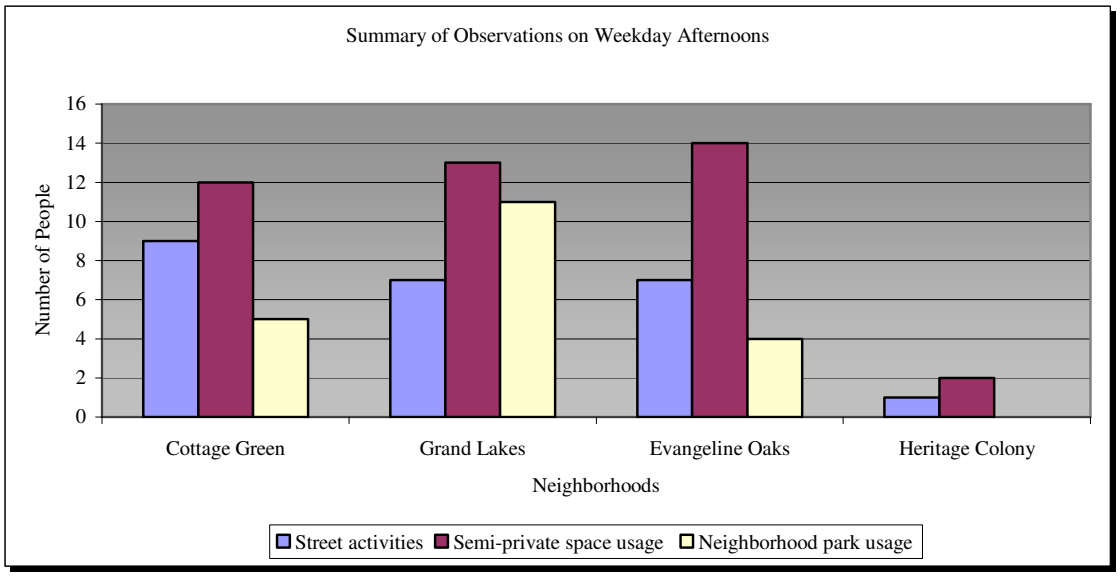


Figure 4.1 *Summary of observations on weekday afternoons*

2.2. On Weekend Afternoons

The results of observations on weekend afternoon of four neighborhoods varied according to the types of activities. For street activities, it appeared that the residents of the pedestrian-oriented design neighborhoods had more street activities than those of the typical suburban neighborhoods. Street activities observed on weekend afternoon in Cottage Green were mostly related to children biking or playing with their parents on the streets. In Grand Lakes, street activities observed on weekend afternoon were also mostly related to children biking or playing with their parents on sidewalks and in cul-de-sacs. While the streets in Evangeline Oaks and Heritage Colony were relatively quiet during the observations on weekend afternoons, most activities observed were concentrated around the residents' driveways and front yards. Residents' usages of the semi-private space (i.e., front porches, front yards, and driveways) were also quite similar among the four neighborhoods. However, the neighborhood park usages of Grand Lakes and Heritage Colony were distinctively higher than the usages of the other two neighborhoods because their parks were shared among several neighborhoods in the same subdivisions. Table 4.15 and Figure 4.2 summarize the activities observed on weekend afternoon of the four neighborhoods.

2.3. On Weekend Mornings

The results of observations on weekend afternoon of the four neighborhoods varied according to the types of activities. For street activities, the residents in Cottage Green and Evangeline Oaks were more active on their streets than those of Grand Lakes

Table 4.15
Summary of observations of four neighborhoods by activity types on weekend afternoons

			Number of people observed				
			Children < 12 yrs	Youths	Adults	Elderly	**Summary**
Pedestrian-oriented neighborhoods	**Cottage Green**	Street activities	10	0	8	0	18
		Semi-private space usage	4	0	1	6	11
		Neighborhood park usage	2	0	2	0	4
		Summary	16	0	11	6	**33**
	Grand Lakes	Street activities	11	0	7	0	18
		Semi-private space usage	3	1	8	0	12
		Neighborhood park usage	7	1	6	0	14
		Summary	21	2	21	0	**44**
Typical suburban neighborhoods	**Evangeline Oaks**	Street activities	2	1	2	0	5
		Semi-private space usage	10	0	3	0	13
		Neighborhood park usage	1	0	1	0	2
		Summary	13	1	6	0	**20**
	Heritage Colony	Street activities	0	0	1	0	1
		Semi-private space usage	3	0	6	1	10
		Neighborhood park usage	3	0	5	2	10
		Summary	6	0	12	3	**21**

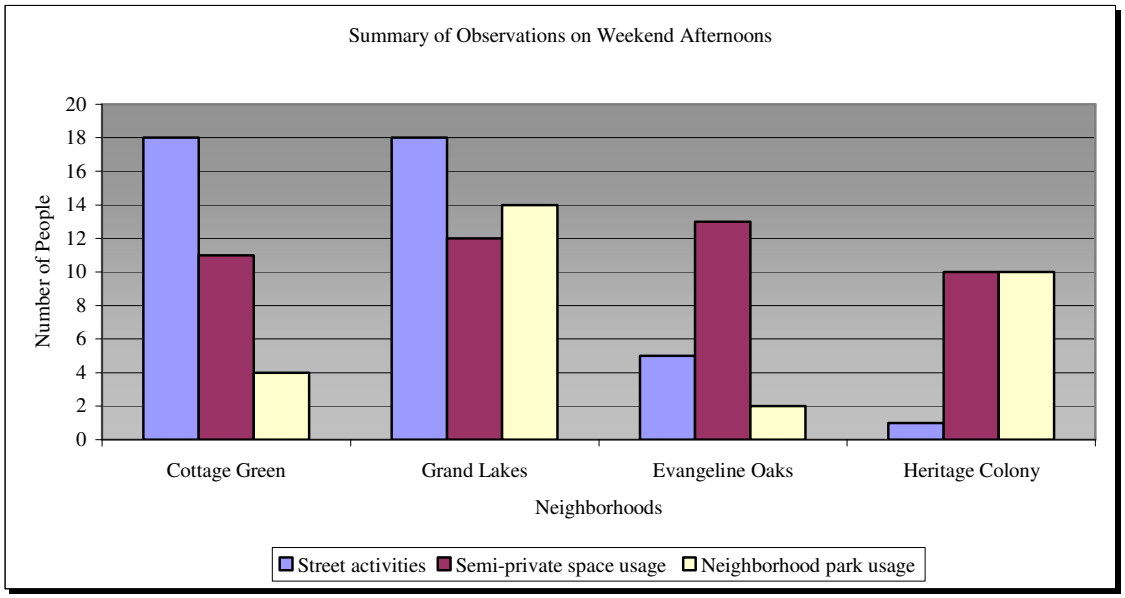


Figure 4.2 *Summary of observations on weekend afternoons*

and Heritage Colony. Most street activities taking place in Cottage Green and Evangeline Oaks during the time of observation were mostly children playing and family activities such as parents and children walking or, biking. In Cottage Green, the majority of the children on the streets were biking alone or in groups without parents' supervision. For the residents' usages of semi-private space, it appeared that Cottage Green, Grand Lakes, and Evangeline Oaks were relatively comparable. In Cottage Green, only 20 percent of the activities taking place in semi-private space were work-related such as gardening, doing yard work, or car washing, while 61 percent and 47 percent of the activities in semi-private space in Grand Lakes and Evangeline Oaks, respectively, were work-related. In Heritage Colony, all activities observed in semi-private space were work-related; in addition, there was no presence of children. In the neighborhood park of Evangeline Oaks and the nearest park of Heritage Colony, there was no activity during the time of observations. On the other hand, neighborhood parks and trails of Grand Lakes had the most activities going on among the four neighborhoods. Table 4.16 and Figure 4.3 summarize activities observed on weekend mornings of the four neighborhoods.

2.4. Summary of Observations

Overall, residents of pedestrian-oriented design neighborhoods appeared to have a higher level of out-of-door activities than the residents of typical suburban neighborhoods. Residents in Cottage Green appeared to be more active on their neighborhood streets than those in the other three neighborhoods. Residents in Heritage

Table 4.16
Summary of observations of four neighborhoods by activity types on weekend mornings

			Number of people observed				
			Children < 12 yrs	Youths	Adults	Elderly	**Summary**
Pedestrian-oriented neighborhoods	**Cottage Green**	Street activities	9	0	6	0	15
		Semi-private space usage	3	0	9	3	15
		Neighborhood park usage	3	0	2	0	5
		Summary	15	0	17	3	**35**
	Grand Lakes	Street activities	3	0	3	0	6
		Semi-private space usage	10	0	8	0	18
		Neighborhood park usage	4	3	3	0	10
		Summary	17	3	14	0	**34**
Typical suburban neighborhoods	**Evangeline Oaks**	Street activities	9	0	5	1	15
		Semi-private space usage	6	0	11	0	17
		Neighborhood park usage	0	0	0	0	0
		Summary	15	0	16	1	**32**
	Heritage Colony	Street activities	0	0	1	0	1
		Semi-private space usage	0	0	8	0	8
		Neighborhood park usage	0	0	0	0	0
		Summary	0	0	9	0	**9**

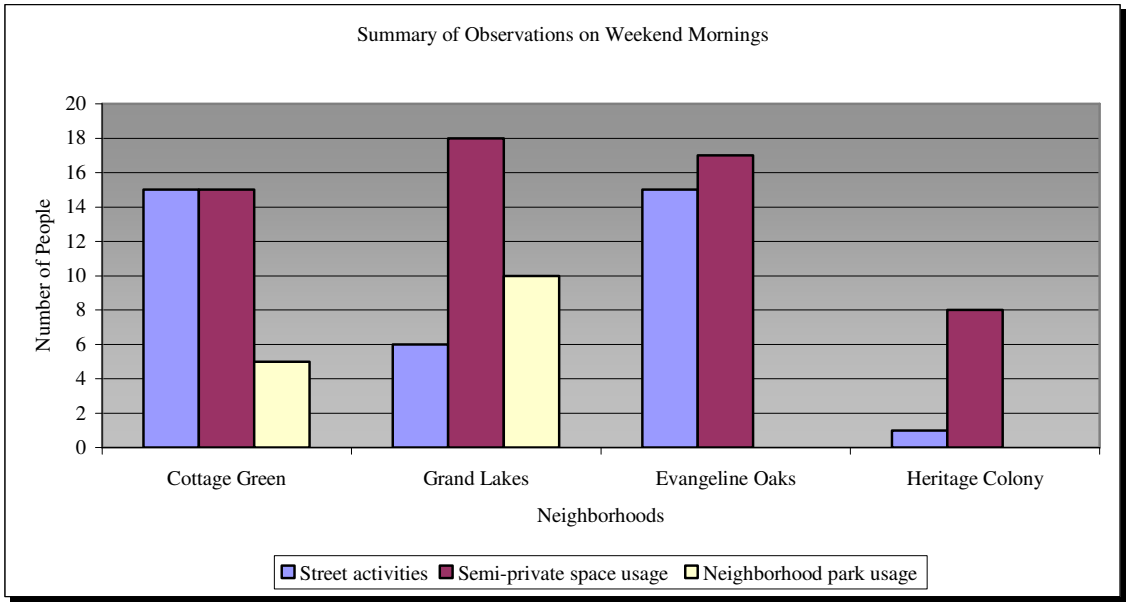


Figure 4.3 *Summary of observations on weekend mornings*

Colony, on the other hand, appeared to be the least active on their neighborhood streets. The level of street activities of the residents in Grand Lakes and Evangeline Oaks were similar. Furthermore, there were more children on the neighborhood streets of Cottage Green and Grand Lakes than on those of Evangeline Oaks (21, 18, and 12 children observed, respectively), and no children at all on those of Heritage Colony. It also appeared that the children in Evangeline Oaks tended to be more active in the semi-private space than on the neighborhood streets, while the opposite was true in Cottage Green.

The semi-private space usages of the residents in Grand Lakes and Evangeline Oaks were comparable, while the usages of those in Cottage Green were slightly lower. However, the semi-private space activities of the residents in Cottage Green seemed slightly more leisure-oriented than those of the residents in the other two neighborhoods (i.e., 84 % of the activities observed in the semi-private space were leisurely activities in Cottage Green, whereas 72% and 73% were leisurely activities in Grand Lakes and Evangeline Oaks, respectively). In addition, 40 percent of the semi-private space activities of the residents in Cottage Green occurred in their front porches. The semi-private space activities of the residents in Heritage Colony, on the other hand, were 80 percent work-related. As mentioned above, Evangeline Oaks was the neighborhood with the most children's activities in the semi-private space.

The neighborhood park usages were, on other hand, rather complicated to compare across the neighborhoods because the neighborhood parks of Grand Lakes and Heritage Colony were shared among several neighborhoods in the same subdivisions.

Table 4.17
Summary of observations of four neighborhoods by activity types

			Number of people observed				
			Children < 12 yrs	Youths	Adults	Elderly	**Summary**
Pedestrian-oriented neighborhoods	**Cottage Green**	Street activities	21	1	19	1	42
		Semi-private space usage	9	0	19	10	38
		Neighborhood park usage	9	0	5	0	14
		Summary	39	1	43	11	**94**
	Grand Lakes	Street activities	18	0	13	0	31
		Semi-private space usage	19	1	23	0	43
		Neighborhood park usage	15	7	13	0	35
		Summary	52	8	49	0	**109**
Typical suburban neighborhoods	**Evangeline Oaks**	Street activities	12	2	12	1	27
		Semi-private space usage	27	0	17	0	44
		Neighborhood park usage	4	0	2	0	6
		Summary	43	2	31	1	**77**
	Heritage Colony	Street activities	0	0	3	0	3
		Semi-private space usage	3	0	16	1	20
		Neighborhood park usage	3	0	5	2	10
		Summary	6	0	24	3	**33**

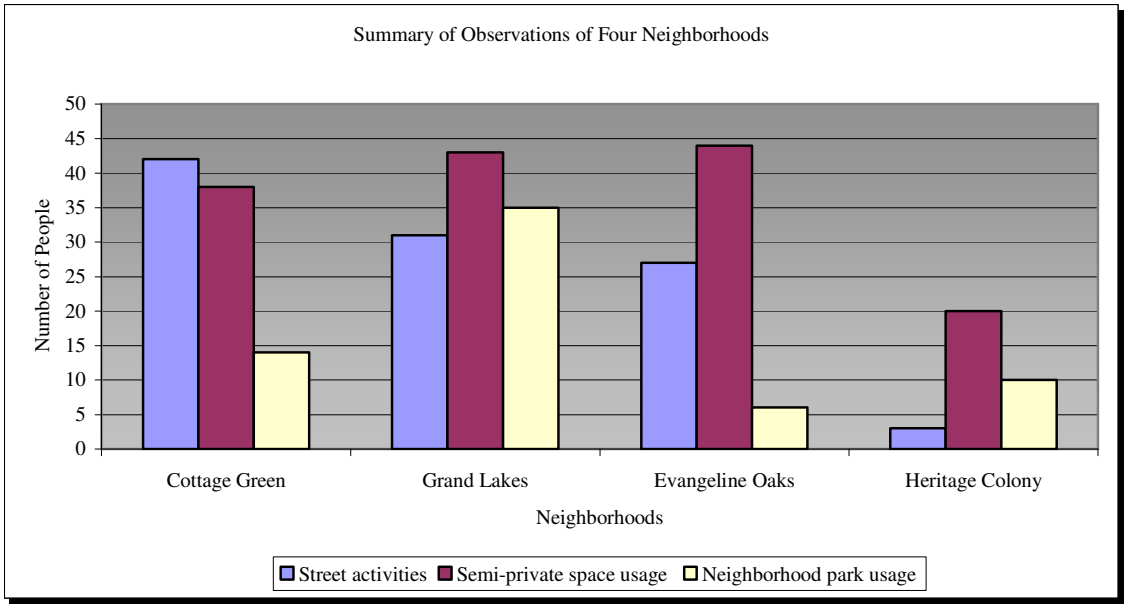


Figure 4.4 *Summary of observations of four neighborhoods*

Although Cottage Green and Evangeline Oaks had their neighborhood parks inside the neighborhood area, the park in Cottage Green appeared to be of greater use than that of Evangeline Oaks. Grand Lakes, with the most features of open space such as park, lake, and trails attached to the neighborhood, was observed to have the highest amount of activities in the open space areas. Table 4.17 and Figure 4.4 summarize the activities observed of the four neighborhoods.

3. Interview Results

3.1. Cottage Green

Interview respondents in Cottage Green described their neighborhood as friendly, safe, quiet, and family and children-oriented. One respondent described Cottage Green as "urban feel in suburban environment." Among the things that the respondents did not like about their neighborhood were off-street parking, houses that were too close together, and the neighborhood location that was further away from Town Center and I-45, the interstate highway that connects The Woodlands to Houston area.

All respondents described their neighbors as nice and friendly. One respondent described her neighbors as conservative. In general, they knew lots of their neighbors and did talk to one another when they saw each other on the streets. All of them believed that they could ask their neighbors for some help with small things and in emergency. One respondent mentioned that this neighborhood was a close community, and that people knew and looked out for each other. The neighborhood organized social

events a few times a year. These events are initiated by the neighborhood association. However two of the respondents who mentioned about the neighborhood's social events said they did not participate in the events.

The unique physical design of the neighborhood was obviously recognizable by all respondents. All of the respondents said they were satisfied with the way their neighborhood looked. Most of them valued their front porches and the neighborhood park as parts of their satisfaction with the neighborhood's appearance. Some respondents liked the neighborhood's older look because they thought it was attractive. Two respondents liked the neighborhood's sidewalks. One respondent mentioned that he liked the centralized location of the neighborhood park. However, two respondents complained that they had to pay a yearly fee to the neighborhood association to have their front yards maintained by professionals. According to them, residents in this neighborhood had to pay this fee to have their front lawns mowed and bushes in the front yards trimmed. Part of the attractive look of the neighborhood was due to this, they added. One of the two respondents who complained about this fee also said that he and his wife would prefer to do their yard themselves.

The neighborhood style was clearly the main reason of all respondents for moving into this neighborhood. All of the respondents said they moved to this neighborhood because they liked its style. Four respondents liked its front porch feature and cottage look. One respondent concluded that "the look added to the community." Four respondents stated positive sides about being in The Woodlands as one of their reasons for moving here. In general, these respondents valued The Woodlands' trail

system, park, tree environment, and safety. When the respondents were asked to identify the area in the map that they considered as their neighborhood, all of them considered the whole neighborhood as their neighborhood.

3.2. Grand Lakes

Interview respondents in Grand Lakes described their neighborhood as family-oriented, children-oriented, safe, quiet, nice, and clean. However, one respondent said that her neighborhood was too crowded, and two of them said that the houses were too close together. One of the two respondents who complained that the houses were too close together also said that he needed more privacy. "Further away from each other translated into more privacy" he added. One respondent also did not like that there was no grocery store or other shops in Grand Lakes. The closest shopping district located about three miles north of the community.

The respondents described their neighbors as nice, friendly, diverse, and looking out for each other. In general, they knew lots of their neighbors but did not visit with on a regular basis. All of them believed that they could ask their neighbors for help with small things and in emergency. Most of them had frequent neighboring activities, especially during the summer months when their children came out and played. One respondent mentioned that her neighbors from the same block would take turns babysitting their children and watch houses for each other. Another respondent who lived on a different block mentioned that his neighbors helped each other out in the time of crisis. During Hurricane Rita, they had planned to ride the hurricane out together and

helped each other out for foods, supplies, and emergency needs. The residents in this neighborhood also organized block parties a few times a year. The parties were normally held in cul-de-sac areas. Every neighbor could also invite his or her backyard neighbors who belonged to a different block to the party. And since this block party was common to other blocks in the neighborhood as well, neighbors were able to expand their social network in the neighborhood through this type of social activity. There were also various interest groups in the neighborhood such as Aggie club, book club, and walk group. The home owner association also held community-wide events a few times a year at the town square of this village.

All respondents were satisfied with the way their neighborhood looked. Three respondents stated that they liked the cul-de-sac because it provided safety to their children while they were on the streets playing. The respondents thought that thoroughfares were dangerous for children and that cul-de-sac helped decrease the amount of traffic on their streets. Most respondent appreciated the extensive network of parks and trails that Grand Lakes had to offer. One respondent mentioned that the trail made the whole community accessible. Another respondent liked the way the pedestrian network was separated from the streets and the interior location of the parks away from the streets because he thought such designs were safer for children. The same respondent also thought that Grand Lake's centralized plan had fostered a sense of community. Most respondents thought that their neighborhood was walkable and they did walk around the neighborhood on a regular basis. All of them preferred walking in the trails.

Majority of the respondents said that they moved to Grand Lakes because of its school district. Two respondents moved to Grand lakes because they liked its design and site planning. Other reasons for moving into Grand lakes were its location (i.e., a newly opened toll way, Westpark Tollway, which connects west Houston-Katy to midtown Houston and is virtually adjacent to Grand Lakes) and homebuilder. When the respondents were asked to identify the area in the map that they considered as their neighborhood, four of them considered the whole Grand Lakes as their neighborhood, while one respondent considered the whole village in which her neighborhood located as her neighborhood.

3.3. Evangeline Oaks

Interview respondents in Evangeline Oaks described their neighborhood as friendly, family-oriented, children-oriented, safe, clean, and quiet. The negative sides of the neighborhood pointed out by the respondents were noise from nearby highway 242 and speeding cars on the neighborhood streets.

Most respondents described their neighbors as nice and friendly. As in the two neighborhoods previously discussed, they knew lots of their neighbors but did not socialize with them on a regular basis. Most of them believed that they could ask their neighbors for help with small things and in emergency. One respondent mentioned that he and his neighbors had helped each other out during Hurricane Rita. They had planned for evacuation together and helped each other prepare for essential supplies. The same respondents also mentioned that neighbors around ten to twelve families on

this block had maintained regular contacts and communications. They also held block parties occasionally which he said he did not participate. The homeowner association also put together neighborhood events once or twice a year in the neighborhood park.

Most respondents were satisfied with the way the neighborhood looked. They said the neighborhood was clean and well-maintained. One of the respondents mentioned that he liked that the neighborhood was located next to the greenbelt. He added that his electricity bill was cut by half since he had moved to this house. However, almost all respondents complained about the lack of sidewalks in their neighborhood. Half of the respondents said that they would walk in the neighborhood more often had there be sidewalks. One respondent complained about the neighborhood streets being too narrow for two cars to pass by each other without having to slow down. She said this was inconvenient.

The reasons for moving into this neighborhood of the respondents were the house, the location of the neighborhood, wanting to live close to friends, and the affordability of houses. Three of the respondents also valued The Woodlands' school district and its environment. When the respondents were asked to identify the area in the map that they considered as their neighborhood, three of them considered the whole neighborhood as their neighborhood, while one respondent considered only the block in which her house was located as her neighborhood.

3.4. Heritage Colony

Interview respondents in Heritage Colony described their neighborhood as warm and friendly, family-oriented, children-oriented, quiet, and diverse. The negative side of the neighborhood according to one respondent was the off-street parking. She said that it was hard to get by.

The respondents described their neighbors as friendly, diverse, helpful, warm, and sharing. In general, they knew lots of their neighbors but did not meet on a regular basis. All of them believed that they could ask their neighbors for small favors and in emergency. One respondent mentioned that the neighbors on her block did socialize and take turns babysitting. She added that, although there was no organized block party due to the lack of representatives, she and her neighbors did party occasionally. Recently, she and her husband invited neighbors on their block to come to their house and watched the Super Bowl together. There were also subdivision-wide events initiated by the homeowner association a few times a year. But the same respondent also mentioned that not many people attended the events.

Although all of the respondents said that they were satisfied with the way their neighborhood look, three of the respondents complained about the neighborhood park's location that was too far away from their houses. This neighborhood park is located in the front of the subdivision and was shared among several neighborhoods in the subdivision. This park is the nearest one to the neighborhood and is the one that almost all of them use. One respondent said it took her more than twenty minutes to walk to the park. Most of the respondents said when they took their children to the park they drove.

One resident complained about the neighborhood streets being too narrow to get by especially when there were cars parking on the streets. The same respondent also added that the houses in the neighborhood were placed too close together. Another respondent complained about the neighborhood's long block that she said made it hard to organize a block party.

The reasons for moving into this neighborhood, according to three respondents, were its location, which was close to shopping facilities, while another wanted to move to a safer neighborhood. One respondent said he wanted to move closer to his wife's job. The other respondent preferred living in a master-planned community, and chose First Colony due to its level of establishment. When the respondents were asked to identify the area in the map that they considered as their neighborhood, three of them considered the whole neighborhood as their neighborhood, one respondent considered the whole subdivision as her neighborhood, and one respondent considered only the area along the main access street in which his house was located as his neighborhood.

3.5. Summary of Interviews

With regards to a general perception toward one's own neighborhood, most of the respondents described their neighborhoods as friendly, family-oriented, children-oriented, and quiet. Heritage Colony was described by three respondents as a diverse neighborhood, while two respondents in Grand Lakes described their neighbors as diverse both by ages and ethnic groups. One respondent in Evangeline Oaks described it as international.

In general, the respondents described their neighbors as nice and friendly. They knew lots of their neighbors but did not meet on a regular basis. Most of them also believed that they could ask their neighbors for small favors and in emergency. Respondents in Grand Lakes and Evangeline Oaks, in particular, mentioned their neighbors helping each other out in a time of crisis. Respondents in Cottage Green, Evangeline Oaks and Grand Lakes also mentioned about regular neighborhood-wide social events in their neighborhood that were either initiated by the neighborhood associations or by neighbors themselves such as block parties. Respondents in Cottage Green did not mention block parties but they did name a few social events in their neighborhood that were initiated by the neighborhood association. Respondents in Evangeline Oaks also said that there were two yearly social events that were initiated by the neighborhood association and, according to one respondent, there were block parties in his block as well. The respondents in Grand Lakes seemed to be consistently mentioning about the block parties in their neighborhoods. Four respondents who lived in different blocks said that their blocks had block parties and community-wide social events a few times a year. Respondents in Heritage Colony, on the other hand, explained that their neighborhoods did not have any organized block party or social event due to the lack of neighborhood representative. However, they did have subdivision-wide social events that were initiated by the homeowner association a few times a year.

Generally, the respondents were satisfied with the physical environment in their neighborhoods. Respondents in Cottage Green and Grand Lakes consistently mentioned

specific positive sides of their neighborhood designs. Four respondents in Cottage Green valued the front porches and the neighborhood park as parts of their satisfaction in the neighborhood's look. Three respondents in Grand Lakes stated that they valued cul-de-sacs and park and trail systems of their neighborhood. However, respondents in Evangeline Oaks and Heritage Colony consistently criticized the negative sides of their neighborhood design. Three respondents in Evangeline Oaks complained about the lack of sidewalks in their neighborhood. They also believed that they would walk around the neighborhood more had there been sidewalks. Three respondents in Heritage Colony complained that the neighborhood park was too far away. They all reported that they would drive to the park instead of walking. Other common complaints on neighborhoods' physical environment were related to spacing between houses that were too close together (two complaints from Grand Lakes, one from Cottage Green, and one from Heritage Colony), off-street parking (one complaint from Cottage Green and one from Heritage Colony), and narrow streets (one complaint from Evangeline Oaks and one from Heritage Colony).

As for the reasons for their moving into their current house, all respondents in Cottage Green stated that the physical design and features, particularly the front porch and cottage look, were the main reasons they chose to live here. Four respondents in Grand Lakes mentioned that school district was the main reason for their moving into this neighborhood, although two respondents also chose Grand Lakes because of its design and site planning. Three respondents in Heritage Colony chose to live there because of its location that was close to shopping facilities. Seven respondents from

both neighborhoods in The Woodlands, Cottage Green and Evangeline Oaks, also valued The Woodlands' environment and facilities.

CHAPTER V

CONCLUSIONS

1. Research Findings

The primary goal of the research is to gather empirical evidence in support of the new urbanism principles, which focus on promoting the sense of community (SOC) through its pedestrian-oriented design guidelines for neighborhoods. Based on the analysis of the results, the research findings are discussed below.

The first hypothesis, *residents of a new urbanism neighborhood have a higher level of sense of community than residents of a typical suburb neighborhood*, is supported by the results from the analysis of variance of two SOC factors. The analysis of variance of the first, *Supporting Acts of Neighboring* (SAON), and third, *Neighborhood Attachment and Weak Social Ties* (NA&WST), factors of sense of community between the two types of neighborhoods—pedestrian-oriented and typical suburban neighborhoods—indicates that the residents in the pedestrian-oriented neighborhoods have a higher level of sense of community than those of the typical suburban neighborhoods. However, the analysis of variance of the second factor of sense of community, *Lack of Neighbor Annoyance* (LONA), does not yield any difference between the two types of neighborhood. As shown in the previous chapter, residents of the two types of neighborhoods reported comparable level of neighbor (or lack of neighbor) annoyance.

The second hypothesis, *pedestrian-oriented design features of new urbanism contribute to the residents' level of sense of community*, is, to a certain extent, supported by the regression analysis results. Firstly, the results show that the design factor (pedestrian-oriented design), as an independent variable in the final regression models of the first (SAON) and third (NA&WST) SOC factors, is a predictor of SAON and NA&WST values (significant at the 0.1 and 0.05 levels, respectively), in addition to the selected demographic and non-environmental variables. Secondly, the results reveal that the design factor (pedestrian-oriented design) does not change the way the selected demographic and non-environmental variables affects the SOC values. These selected variables work independently from the design factors in terms of affecting the SOC values. Therefore, the difference in the levels of SAON and NA&WST between the two types of neighborhoods (i.e. pedestrian-oriented design and typical suburban neighborhoods) can be explained to some degree by the difference in their design.

Although these demographic and non-environmental variables also affect LONA values in the same manner, both before and after the addition of the design factor, there is no evidential support that the design factor has an effect on the residents' level of neighbor (or lack of neighbor) annoyance.

Social processes also play an important role in determining the SOC values. This role is even more important than that of the design factor and, as demonstrated by the analysis results, these processes work independently from the design factor. These selected demographic and non-environmental factors that have been found to have significant influence on the levels of the residents' sense of community are *expected*

years to live in neighborhood, *need for a car to get around in neighborhood*, *number of children under 12 year old, and full-time homemaker.*

Expected length of residency seems to be the most significant predictor of all three factors of SOC i.e. SAON, LONA, and NA&WST. In other words, the longer the residents expect to continue living in their respective neighborhoods, the higher values of SOC are reported. Expected length of residency was used in Riger and Lavrakas's (1981) study as an indicator for physical rootedness, one of the two factors affecting residents' attachment to their communities.

Need for a car to get around in neighborhood represents a significant negative relationship with SAON and NA&WST. This means that individuals who reported that they did not need to use cars to get around in neighborhoods had higher levels of SAON and NA&WST. This finding, however, has an implication on the design factor since 68.5 percent of the residents who reported that they did not need to use cars to get around in neighborhoods were the residents of pedestrian-oriented design neighborhoods. The design implication of *need for a car to get around in neighborhood* will be discussed later in this chapter.

The other two demographic and non-environmental factors, found to have influences on the residents' level of sense of community, are *being a full-time homemaker* on SAON and NA&WST, and *number of children under 12 years old in the household* on SAON. These influences are somewhat weaker than the previous two factors. Previous researches also support the findings that certain sociodemographic factors such as presence of young children in households (Buckner 1988; Keller 1968;

Nasar and Julian 1995; Riger and Lavrakas 1981; Skjaeveland, Garling, and Maeland 1996; Talen 1999) and being at home during the day such as a retiree and a homemaker (Fischer 1976) have some influences on the sense of community.

The third hypothesis, *residents in a new urbanism neighborhood have more out-of-door activities within the neighborhood area than residents of a typical suburban neighborhood*, is, to a certain extent, supported by the observation results. According to the observation results, the residents of pedestrian-oriented design neighborhoods appear to have a higher level of out-of-door activities than the residents of typical suburban neighborhoods. The results reveal that the residents of Cottage Green, a pedestrian-oriented design neighborhood, are more active on their neighborhood streets than those in the other three neighborhoods. In addition, there were more children observed on the streets of pedestrian-oriented design neighborhoods than those of typical suburban neighborhoods. However, the semi-private space usages of residents in Grand Lakes, a pedestrian-oriented neighborhood, and Evangeline Oaks, a typical suburban neighborhood, are comparable, while the usages of those in Cottage Green are slightly lower. As for neighborhood park usages, it appears that there are more activities in the parks of pedestrian-oriented design neighborhoods than those of typical suburban neighborhoods.

2. Discussions

The research findings provide the evidence that the residents in pedestrian-oriented neighborhoods have a higher level of SAON and NA&WST than those of

typical suburban neighborhoods, and partial evidence for the relationships between the design factor (pedestrian-oriented design) and two dimensions of SOC investigated—SAON and NA&WST. The findings also strongly indicate that the social processes, measured through selected demographic and non-environmental design variables, have their own unique and vital role toward the sense of community in the neighborhoods, and that physical design has no impact on the way the social processes work on the sense of community in the neighborhood. The roles of physical design and social process are independent from each other. Finally, the findings partially support the hypothesis that residents of pedestrian-oriented design neighborhoods have a higher level of out-of-door activities than residents of typical suburban neighborhoods. These findings are discussed as follows:

2.1. The Influence of Neighborhood Design on Sense of Community

The research findings maintain that residents in pedestrian-oriented design neighborhood have a higher level of SAON and NA&WST than those of typical suburban neighborhood. The results of further analysis additionally confirm that design factor, to some extent, influences the two factors of sense of community beyond the influence of the social processes. According to these results, it is safe to conclude that the design factor has some influence on the sense of community of residents, in addition to the social processes. This assumption is based on the research design, structures of the data analysis, and theoretical basis discussed below.

At the research design level, this research has tried to control, to the extent possible, the effect of social factors through the process of site selection at both community and neighborhood levels (refer to Chapter III) so that the results allow a potential to draw an assumption between the physical design and the sense of community. Furthermore, the social factors measured in the survey were analyzed for their correlations with the sense of community in an attempt to assure that those controlled factors were not correlated to the sense of community, and to eventually eliminate the non-significant factors that bore no relationship with the SOC. After the elimination process, the social factors found to have the relationship with SOC were further analyzed along with the design factor for their explanatory power on SOC. In the analysis models, the social process and the design factor were given equal chances in order to explain the SOC values. After all these analysis processes, the design factor still has a role in explaining the SOC values, although its role is smaller that those of the social processes. These models have also been constructed in the way that they could differentiate the effects of neighborhood design on the social processes. Since the results indicates that the design factor has no influence on the manner in which the social processes affect the SOC, the difference in the SOC values between residents of the two types of neighborhood can be explained, to some degree, by the design factor. Nevertheless, the last assumption has to be drawn with caution, since there are other existing influential factors on the SOC such as the pre-selection bias of the residents that have not been measured directly in this study.

In theory, new urbanism maintains that its pedestrian-oriented design encourages pedestrian activities, which in turn increase chances for social contacts, and thereby promoting social interaction among neighbors. In addition, its public spaces provide physical settings for social contacts to occur. The public spaces, such as park and square, also promote a community identity and a sense of place that contribute to a sense of community. Through these design features, residents in a pedestrian-oriented design neighborhood are, therefore, provided with more venues of social contacts, which increases the likelihood of weak social ties and social interactions.

The research findings that the design factor is a predictor of the residents' level of SAON and NA&WST could partially be explained by analyzing the degree to which subcomponents of each dimension are related to the new urbanist theories. In the study, *Supportive Acts of Neighboring* (SAON) pertains to manifest actions, such as social interaction and exchange of help and goods, while latent sentiments refers to a psychological sense of community (Skjaeveland, Garling, and Maeland 1996). *Neighborhood Attachment* (NA) refers to a positive bond that individuals have developed with their residential environment (Skjaeveland, Garling, and Maeland 1996). It is also related to the physical rootedness (Riger and Lavrakas 1981), use of physical facilities (Smith 1975), and degree of attraction to neighborhood (Buckner 1988). *Weak Social Ties* (WST) refers to casual social contacts that often occur between people with different interests (Skjaeveland, Garling, and Maeland 1996). Previous research has shown that weak social ties, consisting of short-duration outdoor talks and greetings

among acquaintances, have been associated with some spatial features like shared common areas (Fleming, Baum, and Singer 1985).

According to these subcomponents of SAON and NA&WST, the relationship between the design factor and residents' levels of SAON and NA&WST could theoretically be linked to two subcomponents, which are social interactions and weak social ties, and partially linked to neighborhood attachment. The first two subcomponents are both associated with social contact among neighbors, but to a different degree. Social interactions relate to social support activities that neighbors engage in and to social networks among neighbors, while weak social ties refer to casual contacts that may or may not develop into friendship formations. These contacts, according to the new urbanist theory, are promoted by increasing the venues for social contacts through physical design features such as pedestrian-friendly features and public spaces. Neighborhood attachment, also called place attachment, is an affective bond which neighbors develop with their neighborhood. In addition to psychological investment and local social ties of residents, place attachment is also related to the level of satisfaction with and the degree of attraction to the physical aspects of the neighborhoods (Buckner 1988). Theoretically, new urbanist provisions on high quality architectures and public facilities could be seen as promoting the degree of attraction to the physical aspects of the neighborhoods. On the other hand, relationship between the psychological sense of community and the design factor is not clear. Psychological sense of community is related to affective relations of residents that are not necessarily attached to locality.

In addition to the theoretical basis mentioned above, these findings are also partially supported by residents' reported perceptions toward their neighborhoods' walkability, the observation, and interview results. The questionnaire data reveals that more residents in the pedestrian oriented design neighborhoods reported that their neighborhoods were walkable than those in the typical suburban neighborhood (i.e. 68.5 percent of residents who reported that they do not need to use cars to get around in neighborhoods were residents of pedestrian-oriented design neighborhoods). As the residents perceive their neighborhood as walkable, they tend to walk in their neighborhood, which in turn, increases the opportunity for social contacts. Therefore, individuals who reported that they did not need to use cars to get around in neighborhoods also had higher levels of SAON and NA&WST.

In the observation results, the residents of pedestrian-oriented design neighborhoods appeared to have a higher level of out-of-door activities than the residents of typical suburban neighborhoods. These pedestrian activities are seen as a channel to promote social contacts among the residents. Moreover, the interview results found that the respondents in the pedestrian-oriented design neighborhoods reported their satisfactions toward the pedestrian-oriented design features in their neighborhoods while the respondents in the typical suburban neighborhood complained on the lack of some of these design features such as sidewalks and park accessibility. The level of satisfaction with the physical aspects of neighborhoods is considered to have an effect on place attachment of the residents.

The findings also agree with the previous research that concludes that residents in new urbanist residents are more physically active in their neighborhood (Rodriguez, Khattak, and Evenson 2006). Another study found the link between pedestrian activity and increased social interactions (Kim and Kaplan 2004). Lund (2003) also points out that neighbor interactions are promoted by amenities such as park, since it provides neighbors with a place to interact and that weak social ties are promoted by strolling trip activities.

The lack of social networks among neighbors through social events or organized block parties in the neighborhood and the diversity issue of residents in Heritage Colony that was found in the pool of data and mentioned by three respondents could also be seen as a reason for the low SAON level of the residents in this neighborhood. The interview results show that Heritage Colony was the only neighborhood among the four where the residents reported no organized social activity at the neighborhood level. Unger and Wandersman (1985) assert that "by developing neighborhood linkages through participation in block/neighborhood organizations, neighbors may gain needed information and help" (148). Burkhart (1981) indicates that residents avoid heterogeneous social interaction and prefer affiliation with a homogeneous social group. Unger and Wandersman (1985) assert that homogeneity and similarity among residents are related to more social interaction. However, further examination, with direct measures on how neighborhood social events and the diversity issue affect residents' sense of community level, is needed in order to draw direct relationships between sense of community and these social factors.

Finally, it is also important to recognize that these neighborhoods were only around four to five years old at the time of survey. The study assumes that sense of community can develop in this time frame. However, sense of community may or may not increase over time. In other words, the relationship between sense of community and neighborhood age may not be a positively linear one, depending on several factors, such as residents' mobility and other long-term changes toward neighborhoods' physical environments and residents' demographic patterns.

With regards to neighbors' dislike relations and annoyance that was measured in the second dimension of SOC i.e. LONA, the research findings not only reveal no significant difference among the four neighborhoods, but also show that the design factor had no influence on the level of dislike relations among the residents. Although this SOC dimension, as Skjaeveland, Garling, and Maeland (1996) conclude, seems relevant to the multidimensional measure of neighboring, it was the only dimension that had not been explained by any factors included in this study, except *expected year of tenure*. The only finding drawn regarding LONA was that the longer the residents expected to continue living in their neighborhood, the lower the level of neighbor annoyance they reported. No other factors included in this study could explain it. While neighbor annoyance might be influenced by some other physical or social processes, it is beyond the scope of this study.

2.2. The Social Processes

The findings also provide a strong indication that social processes, measured through selected demographic and non-environmental design variables, have their own unique and vital role toward the sense of community in the neighborhoods, and that the physical design has no effect on the way the social processes work on the sense of community in the neighborhood. The roles of social processes in determining the level of sense of community are greater than that of the design factor and also independent from it. However, the finding that the design factor does not affect the social processes could be seen as related to potential self-selection of residents or other unknown factors. In addition, the social processes could be so dominant that the design factor has no influence on it. Since this research has not aimed to measure the effect of the design factor on the social processes, there is a potential that the effect does exist but has not been discovered through this study.

Selected demographic and non-environmental factors included in this study that have found to have significant influence on the level of the residents' sense of community are *expected years to live in neighborhood*, *number of children under 12 year old, and full-time homemaker.* These findings are neither new nor surprising. These social processes have been previously emphasized by researchers as determining factors on sense of community.

Expected length of residency seems to be the most significant predictor of all the three factors of SOC, namely SAON, LONA, and NA&WST. In other words, the longer the residents expected to continue living in their neighborhoods, the higher values of

SOC were reported. Expected length of residency was used in Riger and Lavrakas's (1981) study as an indicator for physical rootedness, one of the two factors affecting residents' attachment to their communities. Essentially, physical rootedness pertains to the level of investment in one's own neighborhood. It is also positively related to the social interaction and psychological sense of community. According to Unger and Wandersman (1985), as residents identify themselves with the neighborhood or invest in the neighborhood, they tend to create symbolic interactions with the physical environment, such as personalizing their homes, which contributes to a common symbol and sense of belonging to the neighborhood. And as residents feel they belong to the neighborhood, they tend to interact with one another.

The other two demographic and non-environmental factors, found to have influences on residents' level of sense of community, are *being a full-time homemaker* on SAON and NA&WST, and *number of children under 12 years old in the household* on SAON. People who spend more time at home, such as full-time homemakers, usually have more opportunity to see people nearby and form relationships with them (Fischer 1976). Fischer (1976) also explains that having children at home creates more opportunity to contact with neighbors because as children meet and play with next-door children, parents get a chance to interact with one another.

2.3. Out-of-door Activities and Neighborhood Design

In the observation results, the residents of pedestrian-oriented design neighborhoods appeared to have a higher level of out-of-door activities than the

residents of typical suburban neighborhoods. The results show that the residents of Cottage Green, a pedestrian-oriented design neighborhood, are more active on their neighborhood streets than those in the other three neighborhoods. In addition, there were more children observed on the streets of pedestrian-oriented design neighborhoods than on those of typical suburban neighborhoods. However, the semi-private space usages of residents in Grand Lakes, a pedestrian-oriented neighborhood, and Evangeline Oaks, a typical suburban neighborhood, were comparable, while the usages of those in Cottage Green were slightly lower. For neighborhood park usages, it appeared that there were more activities in the parks of pedestrian-oriented design neighborhood than those of typical suburban neighborhoods. Although these observation results cannot always be generalized due to some uncontrollable factors such as events that might occur during the time of observation that could affect the absence or presence of activities, some conclusions regarding out-of-door activities and neighborhood design might be drawn in the following paragraphs.

Firstly, the residents of pedestrian-oriented design neighborhoods appeared to have a higher level of out-of-door activities than the residents of typical suburban neighborhoods. The questionnaire data also reveal that more residents in the pedestrian oriented design neighborhoods reported that their neighborhoods were walkable than those in the typical suburban neighborhood (i.e. 68.5 percent of residents who reported that they do not need to use cars to get around in neighborhoods were residents of pedestrian-oriented design neighborhoods). In addition, more children were observed playing on the streets and sidewalks in the pedestrian-oriented design neighborhoods

than in the typical suburban ones. However, cul-de-sacs, seen by new urbanism as a non pedestrian-oriented design feature since it does not facilitate the interconnected street system, were also observed to be used by children. Group playing of children were observed in the cul-de-sac areas of Grand Lakes and Evangeline Oaks. This piece of evidence is also supported by the interview results where three respondents reported that they valued the use of cul-de-sac features as they provided safety from traffics to their children.

Secondly, the front porch feature of new urbanism appeared to be well used by the residents of Cottage Green. Forty percent of the semi-private space activities of the residents in Cottage Green occurred on their front porches. The interview results also revealed that all respondents in Cottage Green valued the front porch feature of their neighborhood. Although the quantity of observed activities taking place in the semi-private space of Cottage Green was lower than those in Evangeline Oaks and Grand Lakes, the types of activities in Cottage Green could facilitate more social contacts. The semi-private space activities of the residents in Cottage Green seemed to be slightly more leisure-oriented than those observed in the other two neighborhoods. Leisure activities such as sitting in the front porch can facilitate more social contacts with pedestrians than work-related activities such as lawn mowing. Front porch usages also provide casual surveillance to the street.

Finally, the neighborhood park usages are, however, inconclusive due to the lack of proper measurement in the observations. These neighborhood parks are varied in terms of their location placements, shared accesses, and sizes. Without a systematic

measurement of these open spaces, it is nearly impossible to meaningfully compare their usages across neighborhoods.

3. Research Limitations

The first limitations of this research are related to its interview surveys and observations. The limitations of the interview surveys are its small sample size and relatively narrow demographic profiles. Seventeen of nineteen respondents interviewed are in the age range of 30's to 40's. Most of them are white with families and children, since most of the respondents were asked to participate in the interview while they were in the neighborhood parks, where most of the users were families with young children. The interview survey, therefore, underrepresented the younger and older age groups, minority groups, and families without children who live in the four neighborhoods. The observations time windows and days could also have certain effects on the level and pattern of activities. However, attempts were made to try to overcome this limitation by providing each neighborhood with chances to be observed at different time windows, in the morning and afternoon, and on weekday, Saturday, and Sunday.

The second limitations are its narrow sociodemographic focus and lack of variation in terms of level of establishment of chosen neighborhoods. The four neighborhoods chosen consisted mostly of white, medium to high income range homeowners. In addition, all four neighborhoods were new developments in the master-planned communities that were built out or almost built out within 3-5 years from the time of survey. Since, the research was aimed at investigating the potential influence of

the design factor on the residents' sense of community, several sociodemographic characteristics such as home ownership and household income, along with the nature of developments and the level of establishment had to be controlled through site selections in order to limit the differences among the neighborhoods to their design differences. Therefore, the findings of this research may not necessarily be applicable to different sociodemographic profile groups, types of developments, and level of establishments, (e.g., minorities, low or high income group, apartments, and older neighborhoods).

The third limitation is the potential self-selection of respondent issue that was not directly measured in the questionnaire. There is a possibility that the higher level of sense of community could be a result of the neighborhood design and concepts that attract certain types of people who already have a high level of sense of community. If this is the case, then the high sense of community was not likely to be a result of the differences in design. Although each interview respondent was asked to provide their reasons for moving into their respective neighborhood, it still did not mitigate this limitation because only a small number of respondents were interviewed, and as a result, their answers were not necessarily generalizable.

4. Conclusions

New urbanism places great emphasis on the creation of sense of place and community bonds through design elements that provide venues for or encourage interactions among neighbors. According to this research, there is some evidence that supports these new urbanist statements. The results of the research indicate that the

residents of pedestrian-oriented design neighborhoods have higher levels of supportive acts of neighboring, place attachment and weak social ties than those of the residents of typical suburban neighborhoods. Further analysis confirmed that these differences were, to a degree, influenced by the neighborhood design factor. Social interaction, neighborhood attachment, and weak social ties, in particular, are theoretically related to neighborhood design factor through some intermediate assumptions. However, the relationship between the psychological sense of community and neighborhood design is unclear due to the lack of theoretical support.

The findings also provide a strong indication that the social processes, measured through selected demographic and non-environmental design variables, have their own unique and vital roles toward the sense of community in the neighborhoods, and that the physical design has no effect on the way the social processes work on the sense of community in the neighborhood. The roles of social processes in determining the level of the sense of community are greater than that of the design factor, independent from it, and could be viewed as a prerequisite to that of the design factor. The sociodemographic and non-environmental factors that have found to have significant influence on the residents' level of sense of community are *expected years to live in neighborhood*, *need for a car to get around in neighborhood*, *number of children under 12 year old, and full-time homemaker.*

The observations also show that the residents in the pedestrian-oriented design neighborhoods appear to be more out-of-door active than those in the typical suburban neighborhoods. More residents in the pedestrian-oriented design neighborhoods

reported that their neighborhoods were walkable than those in the typical suburban neighborhoods. In addition, more children were seen playing on the streets and sidewalks in the pedestrian-oriented design neighborhoods than in the typical suburban ones.

Finally, Cottage Green and Grand Lakes, both pedestrian-oriented design neighborhoods, are comparable in all aspects that this study aims to measure, even though some of their design principles and features are different, namely the separation or integration of pedestrian and vehicle networks. This means that certain goals of new urbanism can be achieved via different design principles. New urbanism should, therefore, reevaluate some of its pedestrian-oriented design features and consider the flexibility in integrating other design features that are valued and favored by many residents such as cul-de-sac and the use of separated pedestrian network. The possibility of integration of design principles should not be overlooked, and the outcome could also bring more market shares to new urbanism.

5. Future Research

This research began initially as an attempt to explore the relationship between neighborhood's physical environment and sense of community. This issue is of a complicated nature and previous research findings have been contradictory. More research is needed to explore the various dimensions of sense of community, different instruments used to measure the sense of community, and potential subjective factors that could influence the sense of community.

Future research could focus on how the physical design of neighborhood affects the various dimensions of sense of community. Place attachment, in particular, should receive attention from future research. Place attachment or affective bond which neighbors develop with their environment is believed to be multidimensional and related to neighborhood cognition components of neighboring (Unger and Wandersman 1985). These various dimensions of place attachment and measuring instruments should be explored further to find out how some of these dimensions could relate to the physical design. For example, Buckner's instrument to measure neighborhood cohesion has incorporated a related dimension of place attachment—residents' degree of attraction to live and remain in the neighborhood. Unger and Wandersman suggested *cognitive component*, which refers to thoughts or idea about neighborhood's social and physical environment, as a related dimension of sense of community.

In additions, subjective aspects of residents need to be incorporated to see how the physical design translates into the residents' perceptions or attitudes, and how these perceptions or attitudes toward the neighborhood could translate into social behavior and sense of community. These are particularly important aspects from which a direct relationship between physical design and sense of community could be drawn.

Future research could also aim at carefully evaluating the neighborhood design features of new urbanism and investigating how these design features influence residents' perceptions and behaviors. The investigation could result in a better understanding of the significant impact of each design feature on any particular perception and behavior of residents, thus leading to a set of crucial design guidelines to

help designers accomplish their design goals toward a pedestrian friendly and a more livable neighborhood.

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APPENDIX A

THE QUESTIONNAIRE

Dear *Cottage Green* Resident:

We need your help to further improve the quality of your living environment. *The Woodlands* as one of the national well-known planned communities has been extremely successful economically and environmentally. It has emphasized rigorous planning and efficiency of land use throughout its 28-year history, as Houston Chronicle called it "Perfect example of smart growth." However, little is really known about the quality of social life of the community. We want to know your opinion regarding **"sense of community"** in your neighborhood.

Your participation in this survey is very important. Only two neighborhoods have been chosen from the entire Woodlands community to be part of this survey. You response will be beneficial to everyone.

Please take a moment to fill out this questionnaire and return it in the enclosed postage-paid envelope by **May 31, 2003**. This questionnaire will take approximately 10 minutes to complete. You may refuse to answer any questions that make you feel uncomfortable, but an incomplete questionnaire will not be valid and will be excluded from the study.

Your responses to this survey will be kept strictly confidential.

This research study has been reviewed and approved by the Institution Review Board -Human Subjects in Research, Texas A&M University. For research-related questions regarding subjects' rights, you can contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Research Compliance, Office of the Vice President for Research at (979) 845-8585 (email: mwbuckley@tamu.edu). You may also contact Sineenart Sukolratanametee, the principal investigator, at Texas A&M University, School of Architecture at (713) 780-3053 (email: sineenarts@tamu.edu) with regards to any questions about this research study. Sineenart's Dissertation Committee Chair, Dr. Chang-Shan Huang, can be reached at (979) 845-7873 (email: cshuang@archone.tamu.edu).

Part I: There are statements in this part that you may agree or disagree with. These statements refer to your own neighborhood. Please record the first impression that occurs to you and answer every statement.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. If I need a little company, I can stop by a neighbor I know.	☐	☐	☐	☐	☐
2. If I have a personal crisis, I have a neighbor I can talk to.	☐	☐	☐	☐	☐
3. I have made new friends by living here.	☐	☐	☐	☐	☐
4. If I don't have something I need for my cooking, I can borrow it from a neighbor.	☐	☐	☐	☐	☐
5. I feel strongly attached to this residence.	☐	☐	☐	☐	☐
6. In this house I never feel quite safe.	☐	☐	☐	☐	☐
7. Noise which my neighbors make can occasionally be a big problem.	☐	☐	☐	☐	☐
8. I don't feel at home in this neighborhood.	☐	☐	☐	☐	☐
9. I would have better contacts with friends, family, etc., if I live in another part of town.	☐	☐	☐	☐	☐

Part II: Please answer all questions in this part. These questions refer to your own neighborhood.

	Frequently	Sometimes	Rarely	Never
10. How often do you help your neighbors with small things, or they help you?	☐	☐	☐	☐
11. How often are you irritated with some of your neighbors?	☐	☐	☐	☐

12. How many neighbors do you visit now and then?
❑None
❑1-2
❑3-5
❑6 and over

13. How many of your closest neighbors do you typically stop and chat with when you run into them?
❑None
❑1-2
❑3-5
❑6 and over

Please continue on the reverse side of this survey

14. How many of your neighbors who live near you do you say hello to when you meet them?
❑None
❑1-2
❑3-5
❑6 and over

Part III: Please answer all questions in this part.

15. Do you rent or own your place of residence?
❑Own
❑Rent
❑Other, specify_____

16. How long have you been living in this neighborhood?
_____ Years

17. How long do you expect to live in this neighborhood?
❑0-1 more year
❑1-5 more years
❑5-10 more years
❑10 or more years

18. Do you need a car to get around in this neighborhood?
❑No
❑Yes

19. Your gender.
❑Male
❑Female

20. What is your age? _____

21. What is your marital status?
❑Never married
❑Married
❑Divorced
❑Separated
❑Widowed

22. Number of children you have in each age group. (If none, write "0")

	Number of children
Under 5 years of age	_____
5 to 12 years of age	_____
13 to 17 years of age	_____
18 years of age and over	_____

23. How many persons are there in your household?
_____Persons

24. Are you presently:
❑Employed
❑Unemployed
❑Retired
❑Full-time homemaker
❑Other, specify_____

25. Please describe the usual occupation of the principal wage earner in your household. (If retired, describe the usual occupation before retirement.)
Title:_____
Kind of work you do:_____
Type of company or business:_____
Location of your work place:
❑Within The Woodlands
❑Houston and its vicinities
❑Other city in Texas
❑Other state
❑Other country

26. Which is the highest level of education you have completed?
❑No formal education
❑Completed grade school
❑Completed high school
❑Completed college
❑A graduate degree

27. What was your approximate household income before tax from all sources, in 2002.
❑Less than $20,000
❑$20,000 to $39,999
❑$40,000 to $59,999
❑$60,000 to $79,999
❑$80,000 to $99,999
❑$100,000 and over

28. What is your race?
❑White
❑Black or African-American
❑Asian
❑Native Hawaiian or other Pacific Islander
❑American Indian or Alaska Native
❑Other, specify_____

Please make any additional comments regarding any related issues that you have been asked in this questionnaire.

_____

_____

_____

_____

_____

THANK YOU FOR YOUR TIME IN COMPLETING THIS QUESTIONNAIRE !

Please return the completed questionnaire in the enclosed postage-paid envelope address to:

Sinee Sukolratanametee
2500 Old Farm Road, Suite 625, Houston, TX 77063-4434

APPENDIX B

SCORE ASSIGNMENTS

Part I: There are statements in this part that you may agree or disagree with. These statements refer to your own neighborhood. Please record the first impression that occurs to you and answer every statement.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. If I need a little company, I can stop by a neighbor I know.	1	2	3	4	5
2. If I have a personal crisis, I have a neighbor I can talk to.	1	2	3	4	5
3. I have made new friends by living here.	1	2	3	4	5
4. If I don't have something I need for my cooking, I can borrow it from a neighbor.	1	2	3	4	5
5. I feel strongly attached to this residence.	1	2	3	4	5
6. In this house I <u>never</u> feel quite safe.	5	4	3	2	1
7. Noise which my neighbors make can occasionally be a big problem.	5	4	3	2	1
8. I <u>don't</u> feel at home in this neighborhood.	5	4	3	2	1
9. I would have better contacts with friends, family, etc., if I live in another part of town.	5	4	3	2	1

Part II: Please answer all questions in this part. These questions refer to your own neighborhood.

	Frequently	Sometimes	Rarely	Never
10. How often do you help your neighbors with small things, or they help you?	4	3	2	1
11. How often are you irritated with some of your neighbors?	1	2	3	4

12. How many neighbors do you <u>visit</u> now and then?

- ❑None **0**
- ❑1-2 **1**
- ❑3-5 **2**
- ❑6 and over **3**

13. How many of your closest neighbors do you typically <u>stop and chat</u> with when you run into them?

- ❑None **0**
- ❑1-2 **1**
- ❑3-5 **2**
- ❑6 and over **3**

14. How many of your neighbors who live near you do you <u>say hello to</u> when you meet them?

❑None **0**
❑1-2 **1**
❑3-5 **2**
❑6 and over **3**

Part III: Please answer all questions in this part.

15. Do you rent or own your place of residence?

❑Own **1**
❑Rent **0**
❑Other, specify_____

16. How long have you been living in this neighborhood?

_____ Years

17. How long do you expect to live in this neighborhood?

❑0-1 more year **1**
❑1-5 more years **2**
❑5-10 more years **3**
❑10 or more years **4**

18. Do you need a car to get around in this neighborhood?

❑No **0**
❑Yes **1**

19. Your gender.

❑Male **0**
❑Female **1**

20. What is your age? _____

21. What is your marital status?

❑Never married **1**
❑Married **2**
❑Divorced **3**
❑Separated **4**
❑Widowed **5**

22. Number of children you have in each age group. (If none, write "0")

	Number of children
Under 5 years of age	_____
5 to 12 years of age	_____
13 to 17 years of age	_____
18 years of age and over	_____

23. How many persons are there in your household?

_____Persons

24. Are you presently:

❑Employed **1**
❑Unemployed **2**
❑Retired **3**
❑Full-time homemaker **4**
❑Other, specify_____**5**_____

25. Please describe the usual occupation of the principal wage earner in your household. (If retired, describe the usual occupation before retirement.)

Title:_____
Kind of work you do:_____
Type of company or business:_____
Location of your work place:

❑Within The Woodlands **1**
❑Houston and its vicinities **2**
❑Other city in Texas **3**
❑Other state **4**
❑Other country **5**

26. Which is the highest level of education you have completed?

❑No formal education **1**
❑Completed grade school **2**
❑Completed high school **3**
❑Completed college **4**
❑A graduate degree **5**

27. What was your approximate household income before tax from all sources, in 2002.

❑Less than $20,000 **1**
❑$20,000 to $39,999 **2**
❑$40,000 to $59,999 **3**
❑$60,000 to $79,999 **4**
❑$80,000 to $99,999 **5**
❑$100,000 and over **6**

28. What is your race?

❑White **1**
❑Black or African-American **2**
❑Asian **3**
❑Native Hawaiian or other Pacific Islander **4**
❑American Indian or Alaska Native **5**
❑Other, specify_____ **6**_____

APPENDIX C

FACTOR ANALYSIS OUTPUT

Factor Analysis-1-14 Extraction & Rotation

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Need company, stop by neighbor	3.99	.983	204
Personal crisis, talk to neighbor	3.75	1.182	204
Made new friends here	4.22	.959	204
Borrow cooking stuff from neighbor	4.01	.980	204
Visit neighbors	1.63	.897	204
Helping neighbors with small things	3.11	.774	204
NOISE	3.95	1.054	204
IRRITATED with some neighbors	3.02	.691	204
NEVER feel quite safe	4.47	.759	204
Feel strongly attached	3.93	.997	204
DON'T feel at home	4.37	.864	204
Have BETTER contact if living swhere else	4.07	1.007	204
Stop and chat with closest neighbors	1.98	.848	204
Say hello to when meet neighbors	2.60	.677	204

Communalities

	Initial	Extraction
Need company, stop by neighbor	1.000	.783
Personal crisis, talk to neighbor	1.000	.706
Made new friends here	1.000	.753
Borrow cooking stuff from neighbor	1.000	.637
Visit neighbors	1.000	.637
Helping neighbors with small things	1.000	.547
NOISE	1.000	.650
IRRITATED with some neighbors	1.000	.553
NEVER feel quite safe	1.000	.370
Feel strongly attached	1.000	.523
DON'T feel at home	1.000	.591
Have BETTER contact if living swhere else	1.000	.548
Stop and chat with closest neighbors	1.000	.634
Say hello to when meet neighbors	1.000	.609

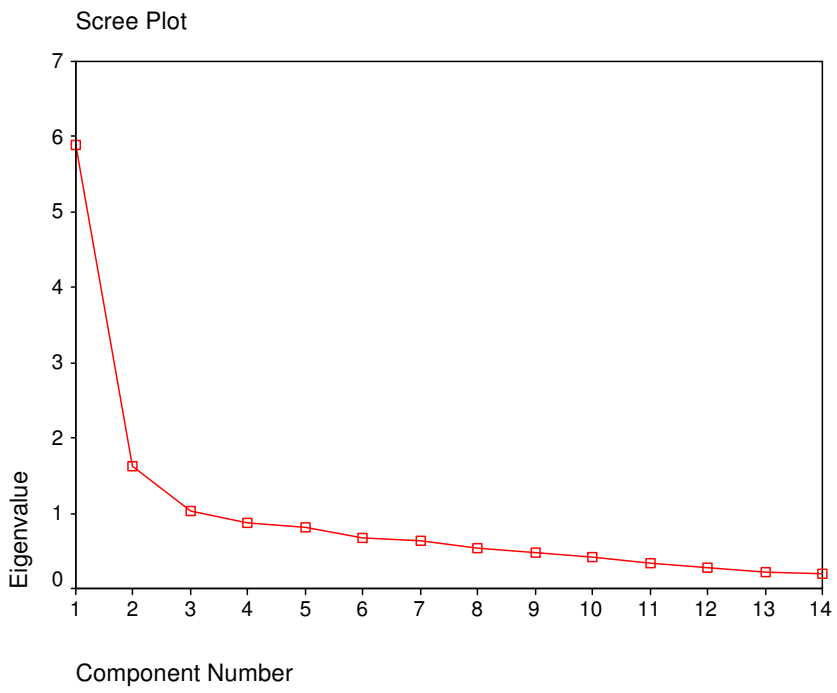
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotati
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.883	42.021	42.021	5.883	42.021	42.021	5.185
2	1.619	11.563	53.584	1.619	11.563	53.584	1.833
3	1.040	7.431	61.015	1.040	7.431	61.015	3.796
4	.876	6.259	67.275				
5	.808	5.768	73.043				
6	.680	4.855	77.898				
7	.637	4.553	82.451				
8	.532	3.797	86.248				
9	.473	3.378	89.626				
10	.416	2.972	92.597				
11	.332	2.370	94.968				
12	.284	2.031	96.998				
13	.221	1.577	98.575				
14	.199	1.425	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.



Component Matrix[a]

	Component		
	1	2	3
Need company, stop by neighbor	.787	-.226	.336
Personal crisis, talk to neighbor	.761	-.109	.339
Made new friends here	.845	-.152	.124
Borrow cooking stuff from neighbor	.735	-.211	.229
Visit neighbors	.783	-.144	-.056
Helping neighbors with small things	.726	-.127	-.064
NOISE	.172	.717	.326
IRRITATED with some neighbors	.148	.729	-.008
NEVER feel quite safe	.473	.241	.297
Feel strongly attached	.615	.327	-.194
DON'T feel at home	.639	.413	-.110
Have BETTER contact if living swhere else	.487	.204	-.519
Stop and chat with closest neighbors	.745	-.090	-.267
Say hello to when meet neighbors	.660	-.141	-.392

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Pattern Matrix[a]

	Component		
	1	2	3
Need company, stop by neighbor	.916	-.039	.066
Personal crisis, talk to neighbor	.854	.073	.059
Made new friends here	.767	-.026	-.191
Borrow cooking stuff from neighbor	.791	-.062	-.027
Visit neighbors	.581	-.079	-.354
Helping neighbors with small things	.526	-.071	-.342
NOISE	.090	.805	.142
IRRITATED with some neighbors	-.187	.712	-.197
NEVER feel quite safe	.475	.367	.073
Feel strongly attached	.167	.315	-.510
DON'T feel at home	.215	.426	-.448
Have BETTER contact if living swhere else	-.126	.086	-.773
Stop and chat with closest neighbors	.370	-.095	-.566
Say hello to when meet neighbors	.234	-.190	-.652

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Structure Matrix

	Component		
	1	2	3
Need company, stop by neighbor	.882	.064	-.347
Personal crisis, talk to neighbor	.836	.169	-.340
Made new friends here	.851	.095	-.537
Borrow cooking stuff from neighbor	.796	.039	-.379
Visit neighbors	.733	.041	-.608
Helping neighbors with small things	.674	.041	-.572
NOISE	.124	.796	-.011
IRRITATED with some neighbors	-.010	.716	-.210
NEVER feel quite safe	.487	.416	-.195
Feel strongly attached	.439	.407	-.630
DON'T feel at home	.472	.514	-.605
Have BETTER contact if living swhere else	.237	.178	-.728
Stop and chat with closest neighbors	.616	.029	-.722
Say hello to when meet neighbors	.508	-.071	-.732

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Component Correlation Matrix

Component	1	2	3
1	1.000	.123	-.456
2	.123	1.000	-.139
3	-.456	-.139	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

APPENDIX D

ANALYSIS OF VARIANCE OUTPUT

Oneway ANOVA-PSC 3 Factors by Neighborhood Types

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Supportive Acts of Neighboring	typical suburb	100	19.66	4.436	.444	18.78	20.54	7	27
	pedestrian oriented	106	21.77	4.770	.463	20.86	22.69	6	27
	Total	206	20.75	4.720	.329	20.10	21.40	6	27
Lack of Neighbor Annoyance	typical suburb	102	7.07	1.284	.127	6.82	7.32	3	9
	pedestrian oriented	106	6.90	1.609	.156	6.59	7.21	3	9
	Total	208	6.98	1.458	.101	6.78	7.18	3	9
Neighborhood Attachment & Weak Social Ties	typical suburb	101	15.98	3.169	.315	15.35	16.61	5	21
	pedestrian oriented	108	17.80	2.870	.276	17.25	18.34	6	21
	Total	209	16.92	3.145	.218	16.49	17.35	5	21

		Sum of Squares	df	Mean Square	F	Sig.
Supportive Acts of Neighboring	Between Groups	229.868	1	229.868	10.812	.001
	Within Groups	4337.006	204	21.260		
	Total	4566.874	205			
Lack of Neighbor Annoyance	Between Groups	1.545	1	1.545	.726	.395
	Within Groups	438.378	206	2.128		
	Total	439.923	207			
Neighborhood Attachment & Weak Social Ties	Between Groups	172.138	1	172.138	18.898	.000
	Within Groups	1885.479	207	9.109		
	Total	2057.617	208			

Oneway ANOVA-PSC 3 Factors by Neighborhoods

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Minimum	Maximum
Supportive Acts of Neighboring	Cottage Green	55	20.89	5.356	.722	19.44	22.34	6	27
	Grand Lakes	51	22.73	3.873	.542	21.64	23.81	14	27
	Evangeline Oaks	51	21.00	4.494	.629	19.74	22.26	9	27
	Heritage Colony	49	18.27	3.957	.565	17.13	19.40	7	25
	Total	206	20.75	4.720	.329	20.10	21.40	6	27
Lack of Neighbor Annoyance	Cottage Green	55	6.87	1.599	.216	6.44	7.31	3	9
	Grand Lakes	51	6.92	1.635	.229	6.46	7.38	3	9
	Evangeline Oaks	53	7.15	1.183	.163	6.82	7.48	4	9
	Heritage Colony	49	6.98	1.392	.199	6.58	7.38	3	9
	Total	208	6.98	1.458	.101	6.78	7.18	3	9
Neighborhood Attachment & Weak Social Ties	Cottage Green	56	17.75	2.974	.397	16.95	18.55	6	21
	Grand Lakes	52	17.85	2.782	.386	17.07	18.62	8	21
	Evangeline Oaks	52	16.71	3.057	.424	15.86	17.56	5	21
	Heritage Colony	49	15.20	3.129	.447	14.31	16.10	9	20
	Total	209	16.92	3.145	.218	16.49	17.35	5	21

		Sum of Squares	df	Mean Square	F	Sig.
Supportive Acts of Neighboring	Between Groups	505.820	3	168.607	8.387	.000
	Within Groups	4061.053	202	20.104		
	Total	4566.874	205			
Lack of Neighbor Annoyance	Between Groups	2.356	3	.785	.366	.778
	Within Groups	437.567	204	2.145		
	Total	439.923	207			
Neighborhood Attachment & Weak Social Ties	Between Groups	229.716	3	76.572	8.588	.000
	Within Groups	1827.901	205	8.917		
	Total	2057.617	208			

Homogeneous Subsets

	Neighborhood ID	N	Subset for alpha = .05	
			1	2
Tukey HSD[a,b]	Heritage Colony	49	18.27	
	Cottage Green	55		20.89
	Evangeline Oaks	51		21.00
	Grand Lakes	51		22.73
	Sig.		1.000	.165

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 51.410.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Lack of Neighbor Annoyance

	Neighborhood ID	N	Subset for alpha = .05
			1
Tukey HSD[a,b]	Cottage Green	55	6.87
	Grand Lakes	51	6.92
	Heritage Colony	49	6.98
	Evangeline Oaks	53	7.15
	Sig.		.768

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 51.904.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

	Neighborhood ID	N	Subset for alpha = .05	
			1	2
Tukey HSD[a,b]	Heritage Colony	49	15.20	
	Evangeline Oaks	52	16.71	16.71
	Cottage Green	56		17.75
	Grand Lakes	52		17.85
	Sig.		.052	.215

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 52.133.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

APPENDIX E

CORRELATION OUTPUT

Abbreviations

SAON	Supportive Acts of Neighboring
LONA	Lack of Neighbor Annoyance
NA&WST	Neighborhood Attachment and Weak Social Ties
V1	Home ownership
V2	Length of residency
V3	Expected years to live in neighborhood
V4	Need for a car to get around in neighborhood
V5	Gender
V6	Age
V7	Number of children under 12 years old
V8	Household persons
V9	Full-time homemakers
V10	Work within community area
V11	Level of education
V12	Household income
V13	Race

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SAON	206	6	27	20.75	4.720
LONA	208	3	9	6.98	1.458
NA&WST	209	5	21	16.92	3.145
Home ownership	210	0	1	.99	.097
Length of residency	205	1	7	2.57	1.125
Expected years to live in neighborhood	209	1	4	2.83	.945
Need a car to get around in neighborhood	206	0	1	.46	.500
Gender	208	0	1	.63	.483
Age	194	21	78	41.78	10.852
Number of children under 12 yrs old	209	0	5	1.02	1.072
Household persons	206	1	7	3.37	1.218
Full-time homemaker	210	0	1	.20	.397
Work within community area	206	0	1	.22	.417
Level of education	209	2	5	4.17	.704
Household income	190	1	6	5.36	.980
Race	206	1	6	1.49	1.159
Valid N (listwise)	160				

Correlations

		SAON	LONA	NA &WST	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13
SAON	Corr	1	.088	.669**	.058	.015	.272**	-.22**	.043	-.05	.261**	.216**	.172*	-.06	-.08	.039	-.07
	Sig.	.	.211	.000	.409	.837	.000	.002	.545	.474	.000	.002	.013	.420	.264	.601	.339
	N	206	205	205	206	201	205	202	204	190	205	202	206	202	205	186	202
LONA	Corr	.088	1	.217**	-.14*	-.10	.200**	-.08	-.01	.048	.000	.013	.065	-.14*	-.09	-.05	-.06
	Sig.	.211	.	.002	.049	.169	.004	.262	.913	.506	.995	.848	.353	.046	.210	.464	.424
	N	205	208	207	208	203	207	204	206	193	207	204	208	204	207	189	204
NA & WST	Corr	.669**	.217**	1	-.07	.105	.373**	-.27**	.028	.040	.115	.055	.218**	-.11	-.01	.024	-.04
	Sig.	.000	.002	.	.348	.135	.000	.000	.690	.577	.099	.437	.002	.119	.849	.743	.584
	N	205	207	209	209	204	208	205	207	193	208	205	209	205	208	189	205
V1	Corr	.058	-.14*	-.07	1	-.04	.034	-.01	.028	.078	-.04	.030	-.08	.053	.023	.090	.042
	Sig.	.409	.049	.348	.	.589	.623	.912	.693	.279	.529	.668	.277	.449	.736	.214	.553
	N	206	208	209	210	205	209	206	208	194	209	206	210	206	209	190	206
V2	Corr	.015	-.10	.105	-.04	1	.079	-.09	-.07	.109	-.05	-.05	-.06	-.05	.00	-.03	.017
	Sig.	.837	.169	.135	.589	.	.262	.209	.326	.134	.509	.490	.403	.456	.975	.639	.812
	N	201	203	204	205	205	204	201	203	189	204	201	205	201	204	186	201
V3	Corr	.272**	.200**	.373**	.034	.079	1	-.11	-.13	.216**	-.10	-.02	-.14*	-.04	-.03	-.05	.000
	Sig.	.000	.004	.000	.623	.262	.	.111	.063	.003	.171	.774	.044	.605	.620	.480	.999
	N	205	207	208	209	204	209	205	207	193	208	205	209	205	208	189	205
V4	Corr	-.22**	-.08	-.27**	-.01	-.09	-.11	1	-.15*	.024	.051	-.01	-.12	-.07	.00	-.04	.183**
	Sig.	.002	.262	.000	.912	.209	.111	.	.028	.739	.464	.869	.087	.323	.979	.614	.009
	N	202	204	205	206	201	205	206	204	191	205	202	206	202	205	186	202
V5	Corr	.043	-.01	.028	.028	-.07	-.13	-.15*	1	-.07	.051	.049	.351**	-.12	-.17*	.105	-.11
	Sig.	.545	.913	.690	.693	.326	.063	.028	.	.317	.465	.488	.000	.089	.014	.150	.115
	N	204	206	207	208	203	207	204	208	192	207	204	208	204	207	190	204
V6	Corr	-.05	.048	.040	.078	.109	.216**	.024	-.07	1	-.45**	-.33**	-.17*	-.06	.035	-.24**	-.09
	Sig.	.474	.506	.577	.279	.134	.003	.739	.317	.	.000	.000	.019	.374	.631	.001	.217
	N	190	193	193	194	189	193	191	192	194	194	190	194	190	194	180	192
V7	Corr	.261**	.000	.115	-.04	-.05	-.10	.051	.051	-.45**	1	.806**	.259**	-.07	-.07	.124	.005
	Sig.	.000	.995	.099	.529	.509	.171	.464	.465	.000	.	.000	.000	.306	.313	.088	.947
	N	205	207	208	209	204	208	205	207	194	209	205	209	205	208	189	205
V8	Corr	.216**	.013	.055	.030	-.05	-.02	-.01	.049	-.33**	.806**	1	.169*	-.05	-.12	.122	.078
	Sig.	.002	.848	.437	.668	.490	.774	.869	.488	.000	.000	.	.015	.521	.098	.097	.270
	N	202	204	205	206	201	205	202	204	190	205	206	206	203	205	186	202
V9	Corr	.172*	.065	.218**	-.08	-.06	-.14*	-.12	.351**	-.17*	.259**	.169*	1	-.06	-.24**	.094	-.03
	Sig.	.013	.353	.002	.277	.403	.044	.087	.000	.019	.000	.015	.	.369	.001	.198	.663
	N	206	208	209	210	205	209	206	208	194	209	206	210	206	209	190	206
V10	Corr	-.06	-.14*	-.11	.053	-.05	-.04	-.07	-.12	-.06	-.07	-.05	-.06	1	.067	.037	-.07
	Sig.	.420	.046	.119	.449	.456	.605	.323	.089	.374	.306	.521	.369	.	.342	.617	.342
	N	202	204	205	206	201	205	202	204	190	205	203	206	206	205	186	202
V11	Corr	-.08	-.09	-.01	.023	.00	-.03	.00	-.17*	.035	-.07	-.12	-.24**	.067	1	-.03	.086
	Sig.	.264	.210	.849	.736	.975	.620	.979	.014	.631	.313	.098	.001	.342	.	.649	.221
	N	205	207	208	209	204	208	205	207	194	208	205	209	205	209	190	205
V12	Corr	.039	-.05	.024	.090	-.03	-.05	-.04	.105	-.24**	.124	.122	.094	.037	-.03	1	-.11
	Sig.	.601	.464	.743	.214	.639	.480	.614	.150	.001	.088	.097	.198	.617	.649	.	.123
	N	186	189	189	190	186	189	186	190	180	189	186	190	186	190	190	190
V13	Corr	-.07	-.06	-.04	.042	.017	.000	.183**	-.11	-.09	.005	.078	-.03	-.07	.086	-.11	1
	Sig.	.339	.424	.584	.553	.812	.999	.009	.115	.217	.947	.270	.663	.342	.221	.123	.
	N	202	204	205	206	201	205	202	204	192	205	202	206	202	205	190	206

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX F

REGRESSION OUTPUT - SAON

Regression-SAON-Full Model w/ Interactive Terms

Descriptive Statistics

	Mean	Std. Deviation	N
Supportive Acts of Neighboring	20.80	4.729	200
Expected years to live in neighborhood	2.84	.955	200
Need a car to get around in neighborhood	.48	.501	200
Number of children under 12 yrs old	1.02	1.051	200
Full-time homemaker	.20	.401	200
Neighborhood design	.51	.501	200
Design*Expected Yr. to Live in Neigh	1.54	1.668	200
Design*Need Car to get Around	.15	.358	200
Design*Number of Children <12	.54	.934	200
Design*Full-Time Homemaker	.11	.307	200

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
1	.503[a]	.253	.218	4.182	.253	7.165	9	190	.000	1.830

a. Predictors: (Constant), Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1127.628	9	125.292	7.165	.000[a]
	Residual	3322.372	190	17.486		
	Total	4450.000	199			

a. Predictors: (Constant), Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	14.625	1.651		8.858	.000			
	Expected years to live in neighborhood	1.861	.491	.376	3.791	.000	.282	.265	.238
	Need a car to get around in neighborhood	-1.819	.912	-.193	-1.994	.048	-.217	-.143	-.125
	Number of children under 12 yrs old	.746	.434	.166	1.718	.087	.262	.124	.108
	Full-time homemaker	2.881	1.127	.244	2.556	.011	.170	.182	.160
	Neighborhood design	3.231	2.238	.342	1.444	.150	.238	.104	.091
	Design*Expected Yr. to Live in Neigh	-.947	.652	-.334	-1.453	.148	.261	-.105	-.091
	Design*Need Car to get Around	1.224	1.303	.093	.939	.349	.092	.068	.059
	Design*Number of Children <12	.620	.590	.123	1.051	.295	.301	.076	.066
	Design*Full-Time Homemaker	-2.706	1.561	-.176	-1.733	.085	.108	-.125	-.109

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Case Number	Std. Residual	Supportive Acts of Neighboring
127	-3.609	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

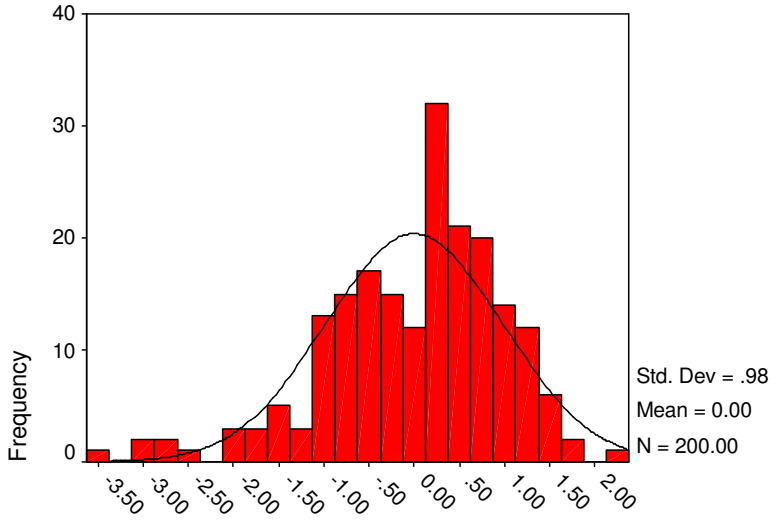
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14.67	27.92	20.80	2.380	200
Residual	-15.09	9.47	.00	4.086	200
Std. Predicted Value	-2.576	2.993	.000	1.000	200
Std. Residual	-3.609	2.265	.000	.977	200

a. Dependent Variable: Supportive Acts of Neighboring

Charts

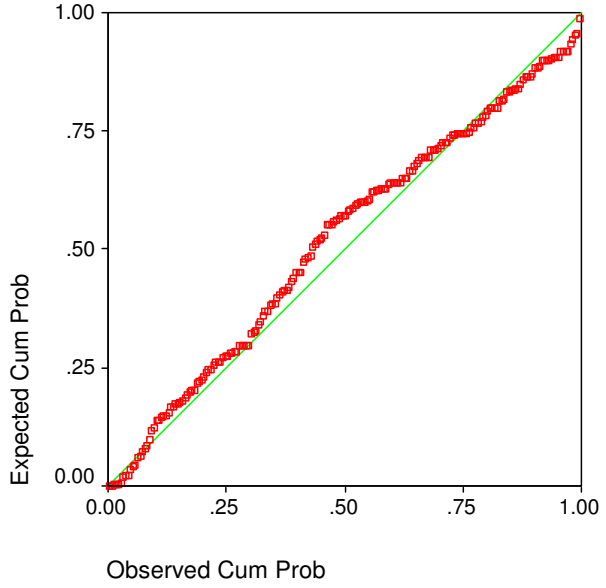
Histogram

Dependent Variable: Supportive Acts of Neighboring



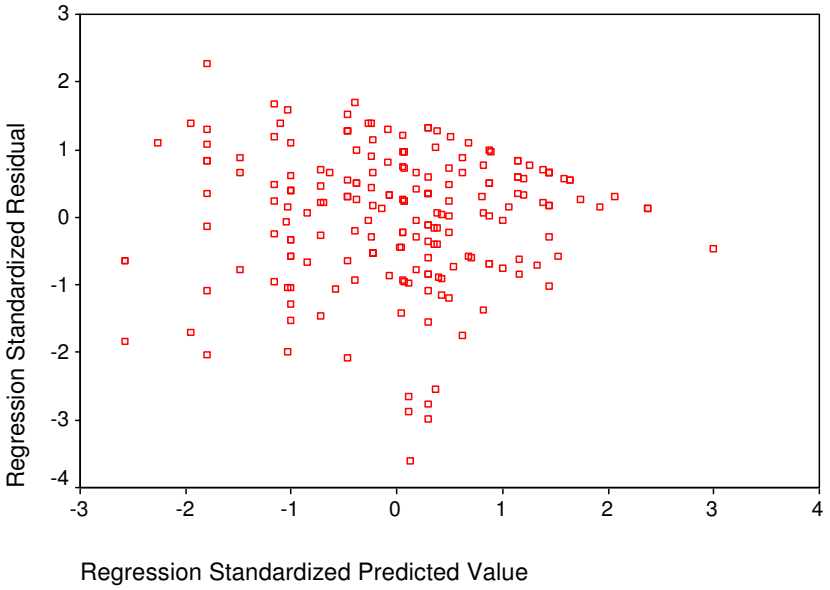
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring



Scatterplot

Dependent Variable: Supportive Acts of Neighboring



Regression-SAON-Reduced 1 (drop Design*Need for a Car to Get Around)

Descriptive Statistics

	Mean	Std. Deviation	N
Supportive Acts of Neighboring	20.80	4.729	200
Expected years to live in neighborhood	2.84	.955	200
Need a car to get around in neighborhood	.48	.501	200
Number of children under 12 yrs old	1.02	1.051	200
Full-time homemaker	.20	.401	200
Neighborhood design	.51	.501	200
Design*Expected Yr. to Live in Neigh	1.54	1.668	200
Design*Number of Children <12	.54	.934	200
Design*Full-Time Homemaker	.11	.307	200

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.500[a]	.250	.219	4.180	.250	7.955	8	191	.000	1.807

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1112.201	8	139.025	7.955	.000[a]
	Residual	3337.799	191	17.475		
	Total	4450.000	199			

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Number of Children <12, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	14.087	1.548		9.100	.000			
	Expected years to live in neighborhood	1.907	.488	.385	3.905	.000	.282	.272	.245
	Need a car to get around in neighborhood	-1.219	.651	-.129	-1.87	.063	-.217	-.134	-.117
	Number of children under 12 yrs old	.743	.434	.165	1.712	.089	.262	.123	.107
	Full-time homemaker	2.990	1.121	.254	2.667	.008	.170	.189	.167
	Neighborhood design	3.921	2.113	.416	1.855	.065	.238	.133	.116
	Design*Expected Yr. to Live in Neigh	-.992	.650	-.350	-1.53	.129	.261	-.110	-.096
	Design*Number of Children <12	.671	.587	.133	1.142	.255	.301	.082	.072
	Design*Full-Time Homemaker	-2.921	1.544	-.190	-1.89	.060	.108	-.136	-.119

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Case Number	Std. Residual	Supportive Acts of Neighboring
117	-3.031	9
127	-3.473	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

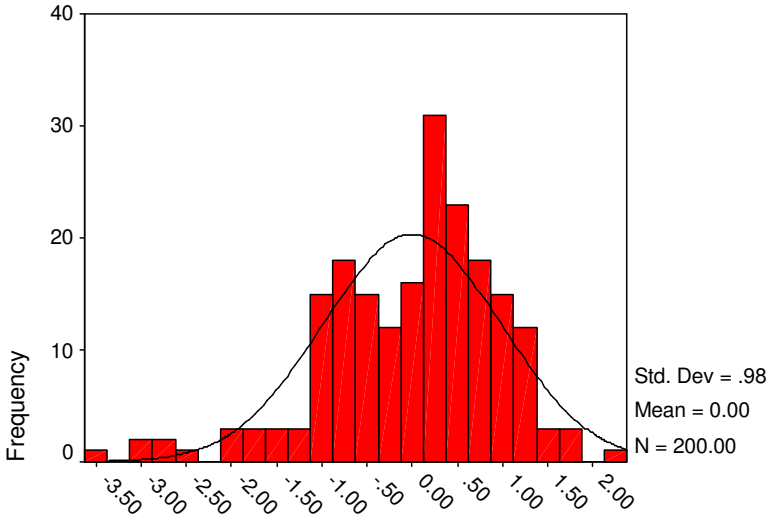
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14.78	27.59	20.80	2.364	200
Residual	-14.52	9.32	.00	4.095	200
Std. Predicted Value	-2.549	2.872	.000	1.000	200
Std. Residual	-3.473	2.229	.000	.980	200

a. Dependent Variable: Supportive Acts of Neighboring

Charts

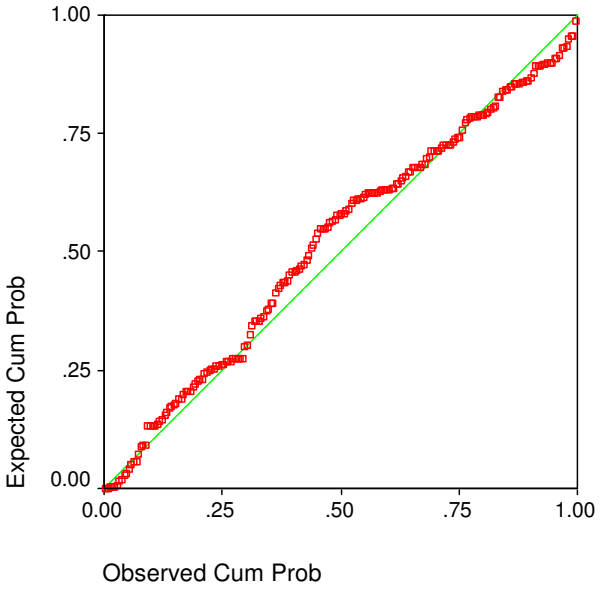
Histogram

Dependent Variable: Supportive Acts of Neighboring



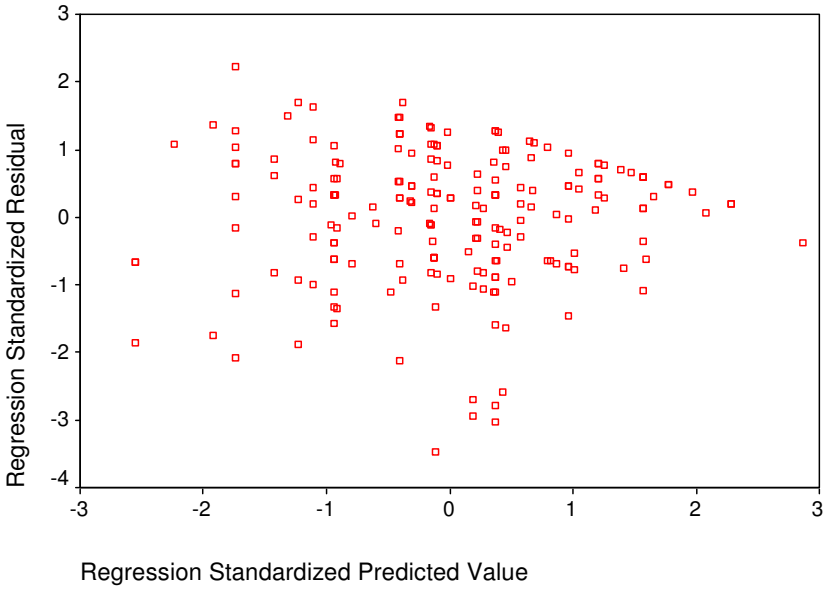
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring



Scatterplot

Dependent Variable: Supportive Acts of Neighboring



Regression-SAON-Reduced 2 (drop Design*Child<12)

Descriptive Statistics

	Mean	Std. Deviation	N
Supportive Acts of Neighboring	20.80	4.729	200
Expected years to live in neighborhood	2.84	.955	200
Need a car to get around in neighborhood	.48	.501	200
Number of children under 12 yrs old	1.02	1.051	200
Full-time homemaker	.20	.401	200
Neighborhood design	.51	.501	200
Design*Expected Yr. to Live in Neigh	1.54	1.668	200
Design*Full-Time Homemaker	.11	.307	200

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.495[a]	.245	.217	4.184	.245	8.892	7	192	.000	1.777

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1089.405	7	155.629	8.892	.000[a]
	Residual	3360.595	192	17.503		
	Total	4450.000	199			

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	13.706	1.513		9.060	.000			
	Expected years to live in neighborhood	1.918	.489	.387	3.926	.000	.282	.273	.246
	Need a car to get around in neighborhood	-1.160	.649	-.123	-1.79	.076	-.217	-.128	-.112
	Number of children under 12 yrs old	1.109	.293	.247	3.785	.000	.262	.263	.237
	Full-time homemaker	2.733	1.099	.232	2.486	.014	.170	.177	.156
	Neighborhood design	4.658	2.014	.494	2.313	.022	.238	.165	.145
	Design*Expected Yr. to Live in Neigh	-1.031	.649	-.364	-1.59	.114	.261	-.114	-.100
	Design*Full-Time Homemaker	-2.508	1.502	-.163	-1.67	.097	.108	-.120	-.105

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Case Number	Std. Residual	Supportive Acts of Neighboring
117	-3.086	9
127	-3.580	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

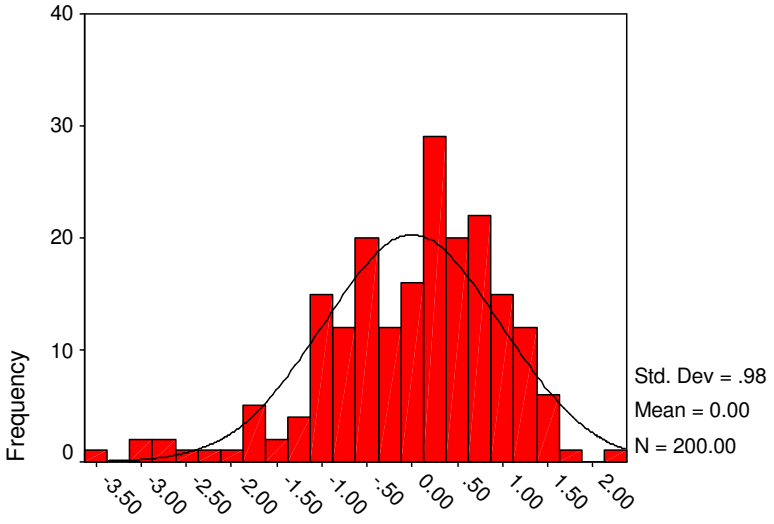
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14.46	26.52	20.80	2.340	200
Residual	-14.98	9.62	.00	4.109	200
Std. Predicted Value	-2.708	2.445	.000	1.000	200
Std. Residual	-3.580	2.299	.000	.982	200

a. Dependent Variable: Supportive Acts of Neighboring

Charts

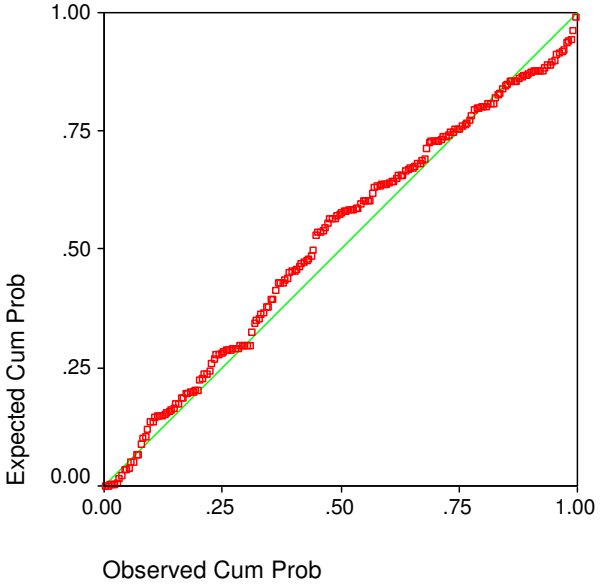
Histogram

Dependent Variable: Supportive Acts of Neighboring



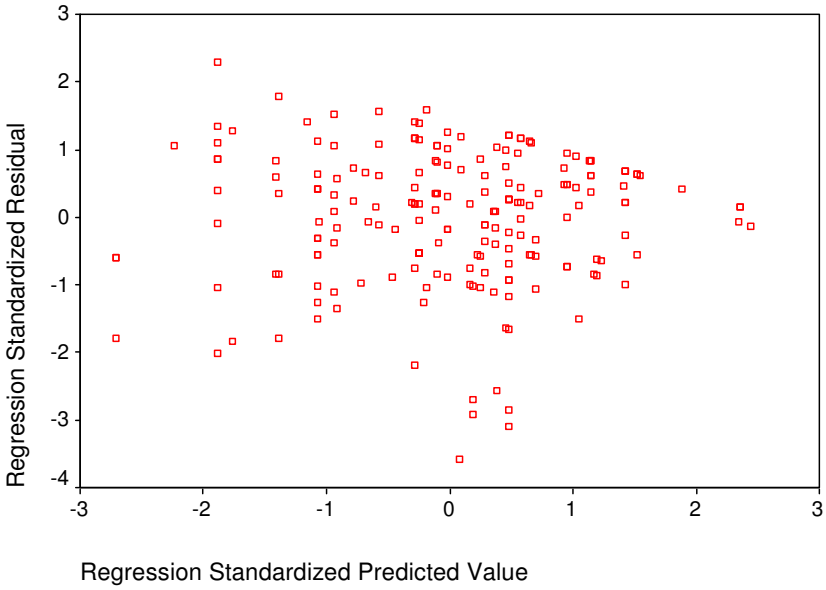
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring



Scatterplot

Dependent Variable: Supportive Acts of Neighboring



Regression-SAON-Reduced 3 (drop Design*Expected yrs to live in neighborhood)

Descriptive Statistics

	Mean	Std. Deviation	N
Supportive Acts of Neighboring	20.80	4.729	200
Expected years to live in neighborhood	2.84	.955	200
Need a car to get around in neighborhood	.48	.501	200
Number of children under 12 yrs old	1.02	1.051	200
Full-time homemaker	.20	.401	200
Neighborhood design	.51	.501	200
Design*Full-Time Homemaker	.11	.307	200

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.485[a]	.235	.211	4.200	.235	9.875	6	193	.000	1.762

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1045.258	6	174.210	9.875	.000[a]
	Residual	3404.742	193	17.641		
	Total	4450.000	199			

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	15.30	1.135		13.48	.000			
	Expected years to live in neighborhood	1.335	.323	.270	4.127	.000	.282	.285	.260
	Need a car to get around in neighborhood	-1.237	.650	-.131	-1.903	.059	-.217	-.136	-.120
	Number of children under 12 yrs old	1.128	.294	.251	3.839	.000	.262	.266	.242
	Full-time homemaker	2.652	1.102	.225	2.406	.017	.170	.171	.151
	Neighborhood design	1.670	.721	.177	2.318	.022	.238	.165	.146
	Design*Full-Time Homemaker	-2.201	1.495	-.143	-1.472	.143	.108	-.105	-.093

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Case Number	Std. Residual	Supportive Acts of Neighboring
117	-3.169	9
127	-3.696	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

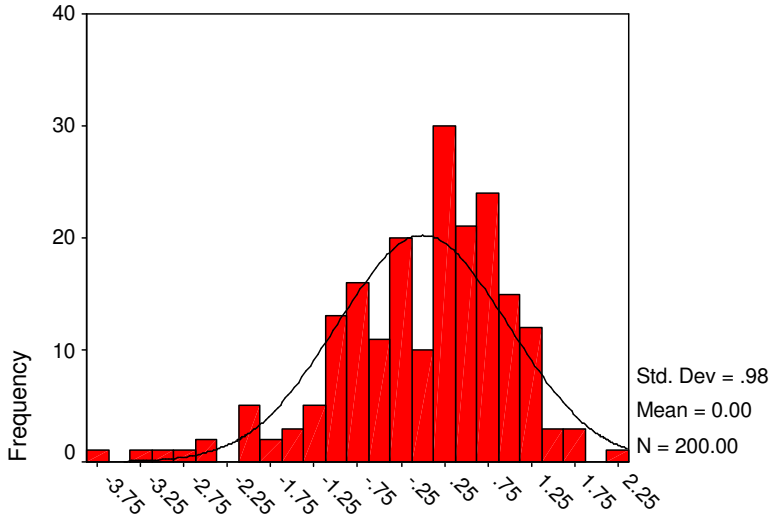
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	15.40	27.17	20.80	2.292	200
Residual	-15.53	9.27	.00	4.136	200
Std. Predicted Value	-2.357	2.778	.000	1.000	200
Std. Residual	-3.696	2.206	.000	.985	200

a. Dependent Variable: Supportive Acts of Neighboring

Charts

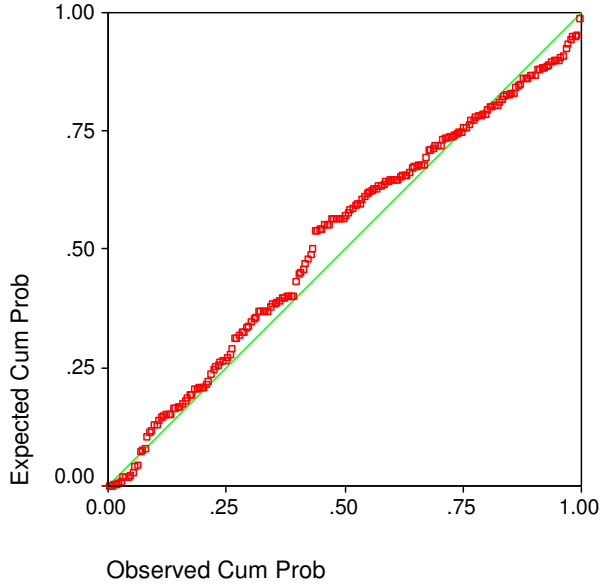
Histogram

Dependent Variable: Supportive Acts of Neighboring



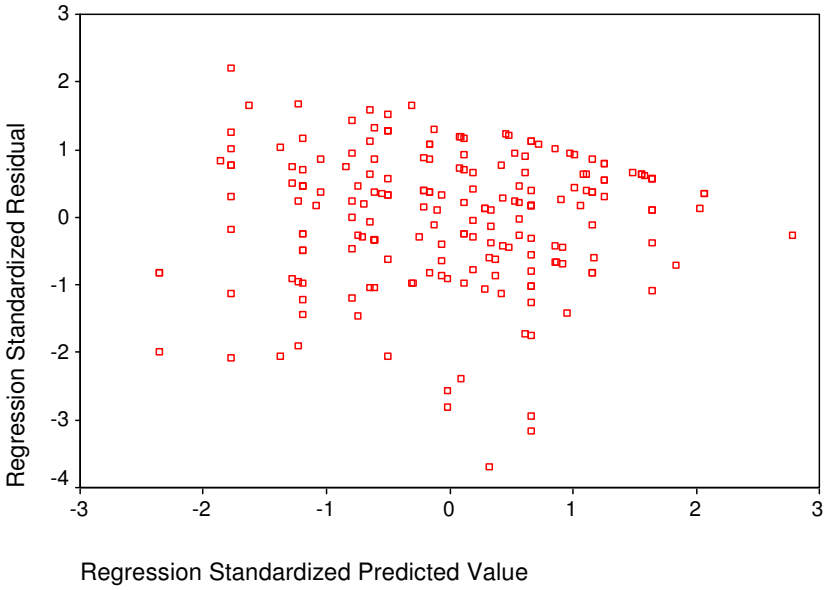
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring



Scatterplot

Dependent Variable: Supportive Acts of Neighboring



Regression-SAON-Reduced 4 (drop design*Full-time homemaker)

Descriptive Statistics

	Mean	Std. Deviation	N
Supportive Acts of Neighboring	20.80	4.729	200
Expected years to live in neighborhood	2.84	.955	200
Need a car to get around in neighborhood	.48	.501	200
Number of children under 12 yrs old	1.02	1.051	200
Full-time homemaker	.20	.401	200
Neighborhood design	.51	.501	200

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.476[a]	.226	.206	4.213	.226	11.349	5	194	.000	1.761

a. Predictors: (Constant), Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1007.057	5	201.411	11.349	.000[a]
	Residual	3442.943	194	17.747		
	Total	4450.000	199			

a. Predictors: (Constant), Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Number of children under 12 yrs old, Need a car to get around in neighborhood

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	15.387	1.137		13.531	.000			
	Expected years to live in neighborhood	1.382	.323	.279	4.283	.000	.282	.294	.270
	Need a car to get around in neighborhood	-1.251	.652	-.132	-1.918	.057	-.217	-.136	-.121
	Number of children under 12 yrs old	1.148	.294	.255	3.897	.000	.262	.269	.246
	Full-time homemaker	1.507	.783	.128	1.924	.056	.170	.137	.122
	Neighborhood design	1.208	.651	.128	1.857	.065	.238	.132	.117

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Case Number	Std. Residual	Supportive Acts of Neighboring
117	-3.115	9
127	-3.888	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

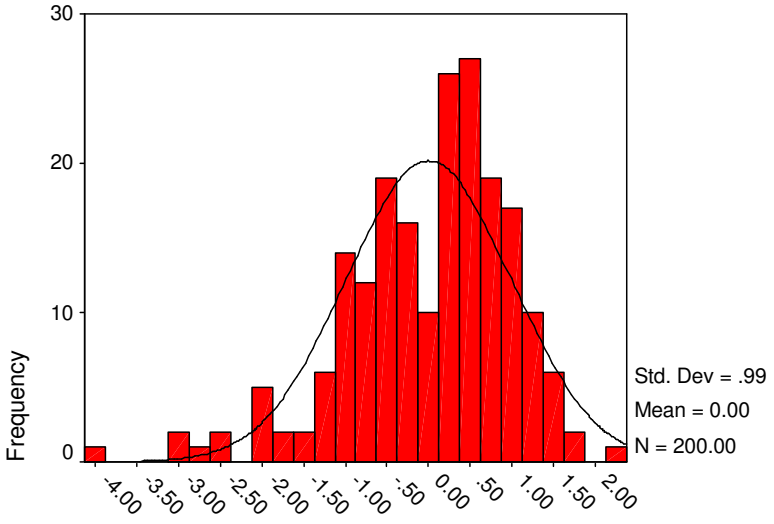
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	15.52	28.12	20.80	2.250	200
Residual	-16.38	9.10	.00	4.159	200
Std. Predicted Value	-2.348	3.253	.000	1.000	200
Std. Residual	-3.888	2.160	.000	.987	200

a. Dependent Variable: Supportive Acts of Neighboring

Charts

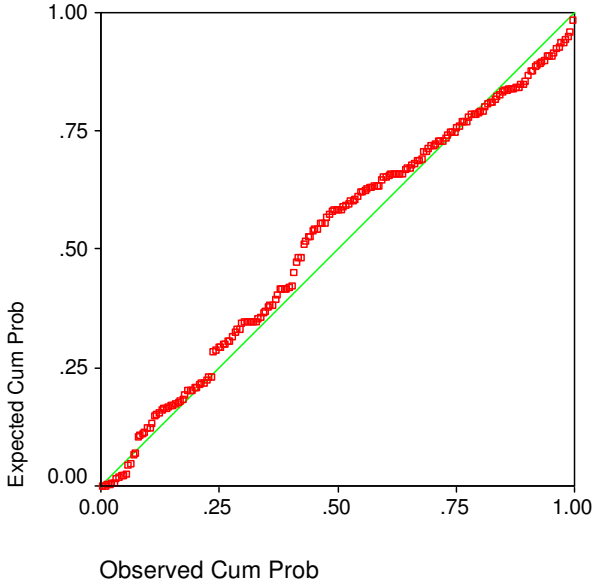
Histogram

Dependent Variable: Supportive Acts of Neighboring



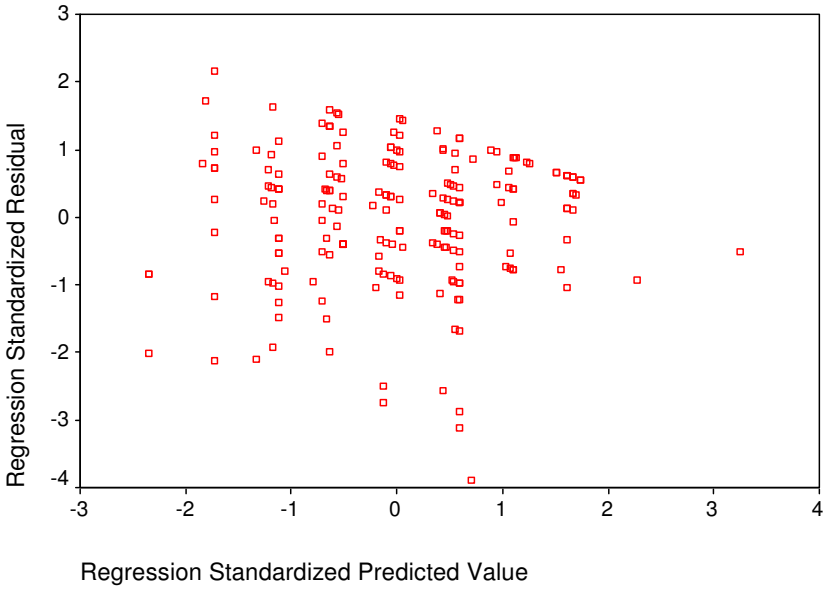
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring



Scatterplot

Dependent Variable: Supportive Acts of Neighboring



APPENDIX G

REGRESSION OUTPUT - LONA

Regression-LONA-Full Model w/ interactive terms

Descriptive Statistics

	Mean	Std. Deviation	N
Lack of Neighbor Annoyance	6.97	1.467	203
Expected years to live in neighborhood	2.82	.948	203
Work within community area	.23	.420	203
Neighborhood design	.51	.501	203
Design*Expected Yr. to Live in Neigh	1.53	1.657	203
Design*Work Within Community Area	.12	.324	203

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Work Within Community Area, Expected years to live in neighborhood, Neighborhood design, Work within community area, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Lack of Neighbor Annoyance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.263[a]	.069	.046	1.433	.069	2.935	5	197	.014	1.867

a. Predictors: (Constant), Design*Work Within Community Area, Expected years to live in neighborhood, Neighborhood design, Work within community area, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Lack of Neighbor Annoyance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.142	5	6.028	2.935	.014[a]
	Residual	404.616	197	2.054		
	Total	434.759	202			

a. Predictors: (Constant), Design*Work Within Community Area, Expected years to live in neighborhood, Neighborhood design, Work within community area, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Lack of Neighbor Annoyance

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	6.515	.472		13.792	.000			
	Expected years to live in neighborhood	.234	.169	.151	1.387	.167	.198	.098	.095
	Work within community area	-.347	.347	-.099	-.998	.319	-.140	-.071	-.069
	Neighborhood design	-.657	.660	-.225	-.996	.320	-.063	-.071	-.068
	Design*Expected Yr. to Live in Neigh	.148	.221	.168	.673	.502	.030	.048	.046
	Design*Work Within Community Area	-.189	.483	-.042	-.390	.697	-.148	-.028	-.027

a. Dependent Variable: Lack of Neighbor Annoyance

Residuals Statistics[a]

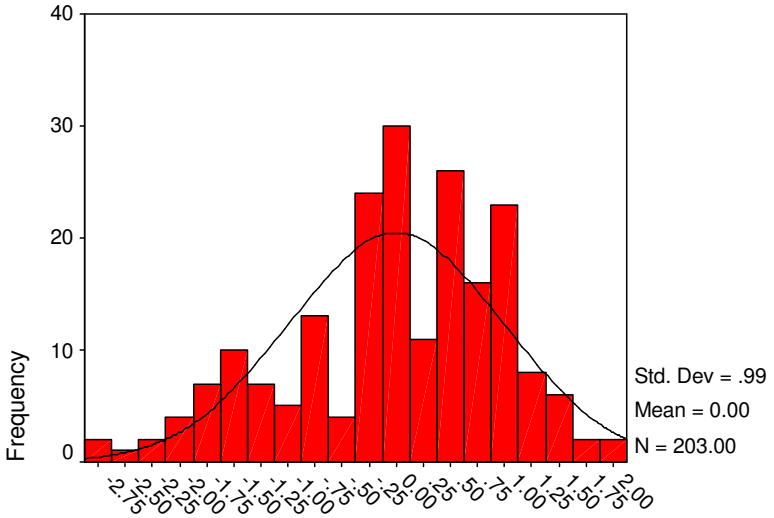
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.09	7.45	6.97	.386	203
Residual	-4.01	2.91	.00	1.415	203
Std. Predicted Value	-2.272	1.261	.000	1.000	203
Std. Residual	-2.795	2.032	.000	.988	203

a. Dependent Variable: Lack of Neighbor Annoyance

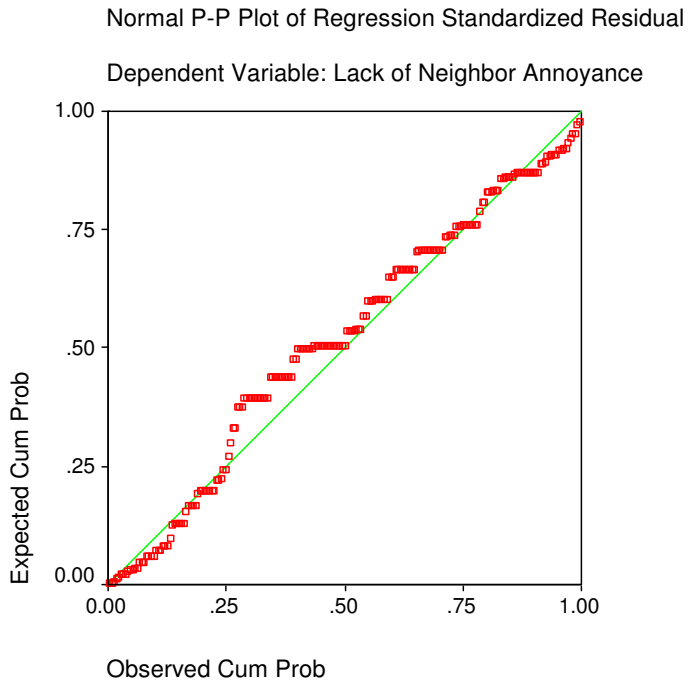
Charts

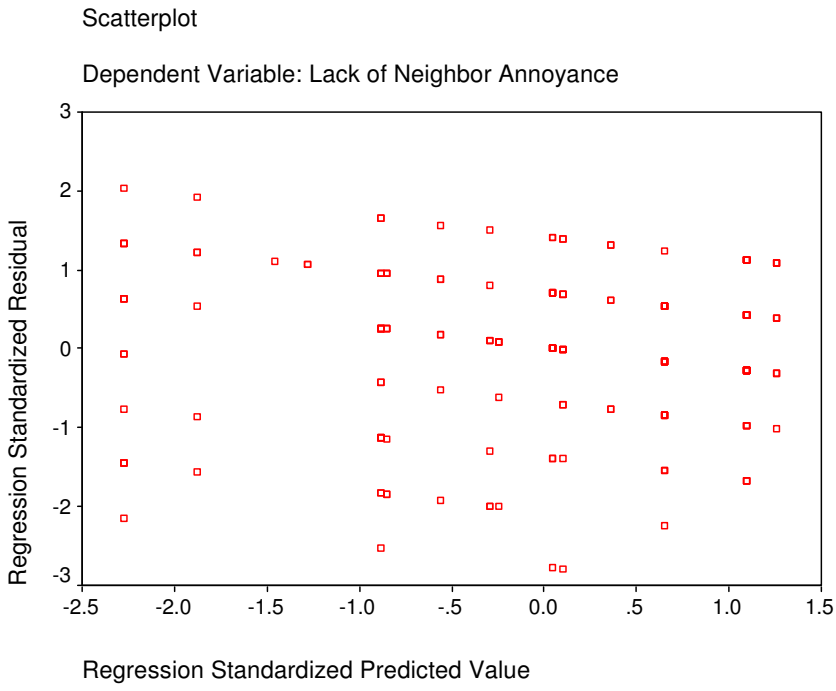
Histogram

Dependent Variable: Lack of Neighbor Annoyance



Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Lack of Neighbor Annoyance
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00


Scatterplot
Dependent Variable: Lack of Neighbor Annoyance
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-2.5
-2.0
-1.5
-1.0
-.5
0.0
.5
1.0
1.5

Regression-LONA-Reduced 1

Descriptive Statistics

	Mean	Std. Deviation	N
Lack of Neighbor Annoyance	6.98	1.461	207
Expected years to live in neighborhood	2.83	.950	207
Neighborhood design	.51	.501	207
Design*Expected Yr. to Live in Neigh	1.52	1.660	207

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Expected Yr. to Live in Neigh, Expected years to live in neighborhood, Neighborhood design[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Lack of Neighbor Annoyance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.233[a]	.054	.040	1.432	.054	3.890	3	203	.010	1.869

a. Predictors: (Constant), Design*Expected Yr. to Live in Neigh, Expected years to live in neighborhood, Neighborhood design

b. Dependent Variable: Lack of Neighbor Annoyance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.917	3	7.972	3.890	.010[a]
	Residual	416.006	203	2.049		
	Total	439.923	206			

a. Predictors: (Constant), Design*Expected Yr. to Live in Neigh, Expected years to live in neighborhood, Neighborhood design

b. Dependent Variable: Lack of Neighbor Annoyance

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	6.523	.462		14.134	.000			
	Expected years to live in neighborhood	.205	.165	.133	1.242	.216	.200	.087	.085
	Neighborhood design	-.906	.638	-.311	-1.421	.157	-.059	-.099	-.097
	Design*Expected Yr. to Live in Neigh	.222	.216	.252	1.027	.306	.036	.072	.070

a. Dependent Variable: Lack of Neighbor Annoyance

Residuals Statistics[a]

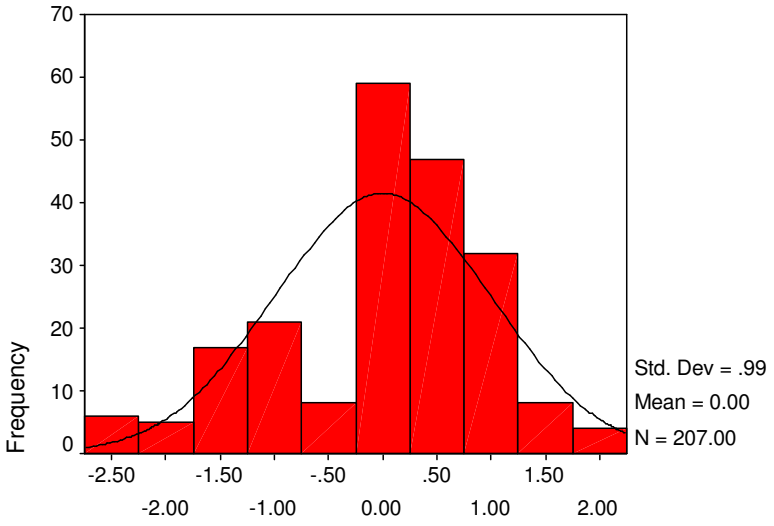
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.04	7.34	6.98	.341	207
Residual	-3.93	2.96	.00	1.421	207
Std. Predicted Value	-2.749	1.068	.000	1.000	207
Std. Residual	-2.748	2.065	.000	.993	207

a. Dependent Variable: Lack of Neighbor Annoyance

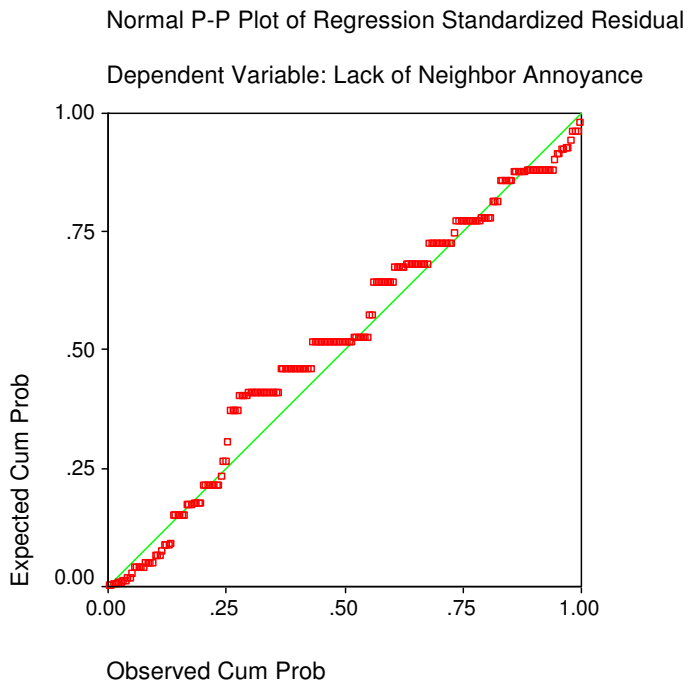
Charts

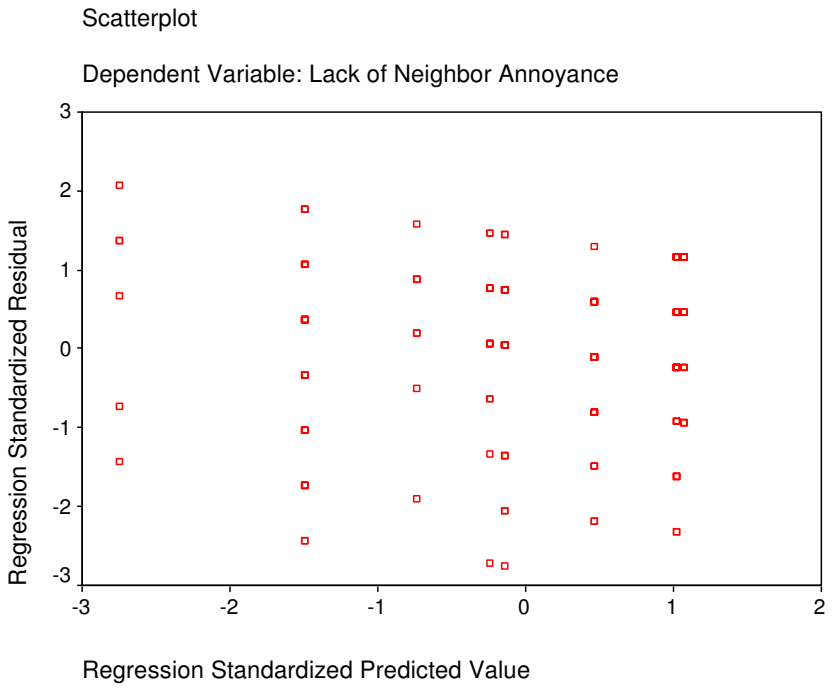
Histogram

Dependent Variable: Lack of Neighbor Annoyance



Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Lack of Neighbor Annoyance
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00


Scatterplot
Dependent Variable: Lack of Neighbor Annoyance
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3

Regression-Reduced 2

Descriptive Statistics

	Mean	Std. Deviation	N
Lack of Neighbor Annoyance	6.98	1.461	207
Expected years to live in neighborhood	2.83	.950	207
Neighborhood design	.51	.501	207

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Neighborhood design, Expected years to live in neighborhood[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Lack of Neighbor Annoyance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.222[a]	.049	.040	1.432	.049	5.307	2	204	.006	1.870

a. Predictors: (Constant), Neighborhood design, Expected years to live in neighborhood

b. Dependent Variable: Lack of Neighbor Annoyance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.756	2	10.878	5.307	.006[a]
	Residual	418.166	204	2.050		
	Total	439.923	206			

a. Predictors: (Constant), Neighborhood design, Expected years to live in neighborhood

b. Dependent Variable: Lack of Neighbor Annoyance

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	6.179	.317		19.490	.000			
	Expected years to live in neighborhood	.335	.107	.218	3.139	.002	.200	.215	.214
	Neighborhood design	-.285	.202	-.098	-1.410	.160	-.059	-.098	-.096

a. Dependent Variable: Lack of Neighbor Annoyance

Residuals Statistics[a]

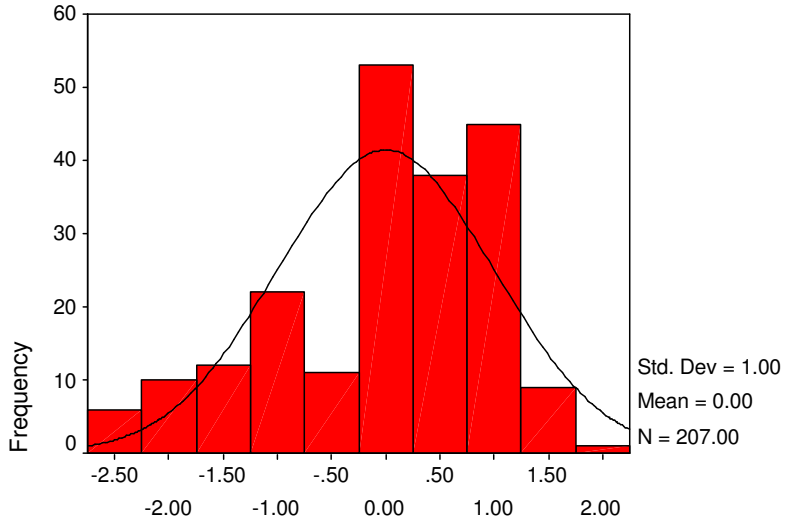
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.23	7.52	6.98	.325	207
Residual	-3.90	2.77	.00	1.425	207
Std. Predicted Value	-2.315	1.655	.000	1.000	207
Std. Residual	-2.723	1.936	.000	.995	207

a. Dependent Variable: Lack of Neighbor Annoyance

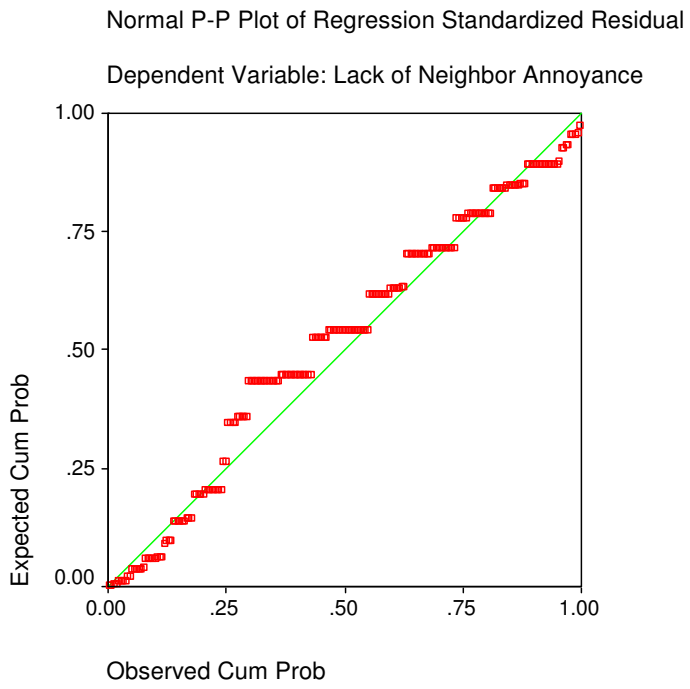
Charts

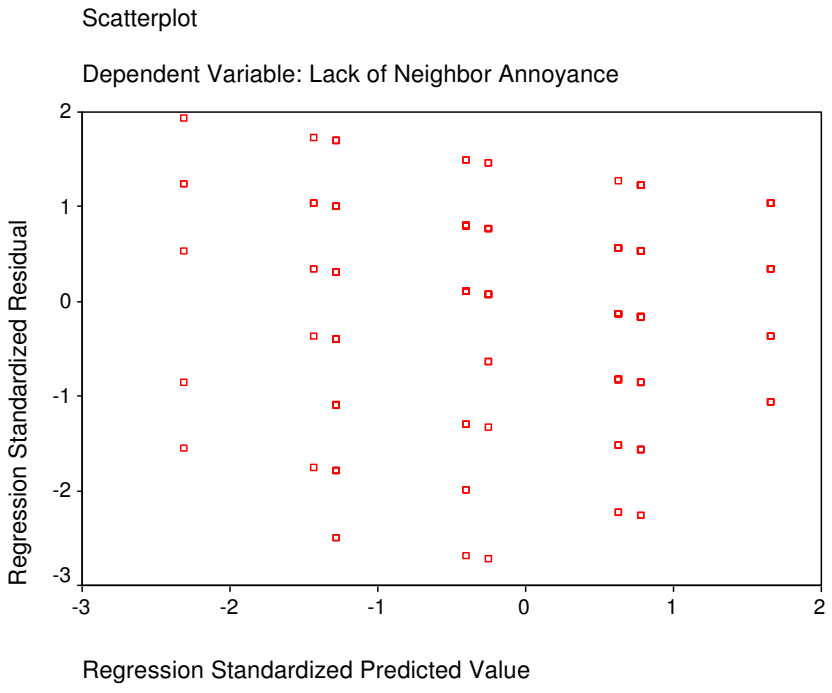
Histogram

Dependent Variable: Lack of Neighbor Annoyance



Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Lack of Neighbor Annoyance
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00


Scatterplot
Dependent Variable: Lack of Neighbor Annoyance
Regression Standardized Residual
Regression Standardized Predicted Value
2
1
0
-1
-2
-3

Regression-Reduced 3

Descriptive Statistics

	Mean	Std. Deviation	N
Lack of Neighbor Annoyance	6.98	1.461	207
Expected years to live in neighborhood	2.83	.950	207

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Expected years to live in neighborhood[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Lack of Neighbor Annoyance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.200[a]	.040	.036	1.435	.040	8.583	1	205	.004	1.861

a. Predictors: (Constant), Expected years to live in neighborhood

b. Dependent Variable: Lack of Neighbor Annoyance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.680	1	17.680	8.583	.004[a]
	Residual	422.243	205	2.060		
	Total	439.923	206			

a. Predictors: (Constant), Expected years to live in neighborhood

b. Dependent Variable: Lack of Neighbor Annoyance

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	6.109	.314		19.462	.000			
	Expected years to live in neighborhood	.309	.105	.200	2.930	.004	.200	.200	.200

a. Dependent Variable: Lack of Neighbor Annoyance

Residuals Statistics[a]

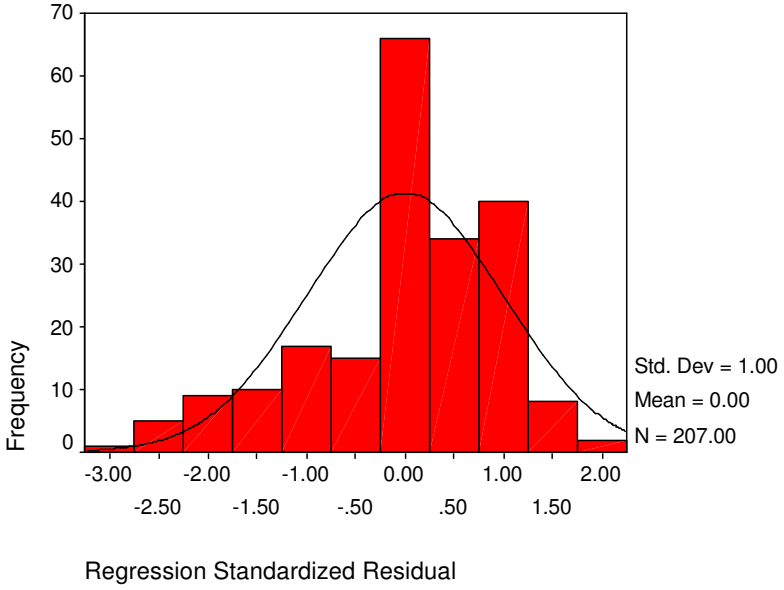
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.42	7.34	6.98	.293	207
Residual	-4.03	2.58	.00	1.432	207
Std. Predicted Value	-1.923	1.236	.000	1.000	207
Std. Residual	-2.811	1.800	.000	.998	207

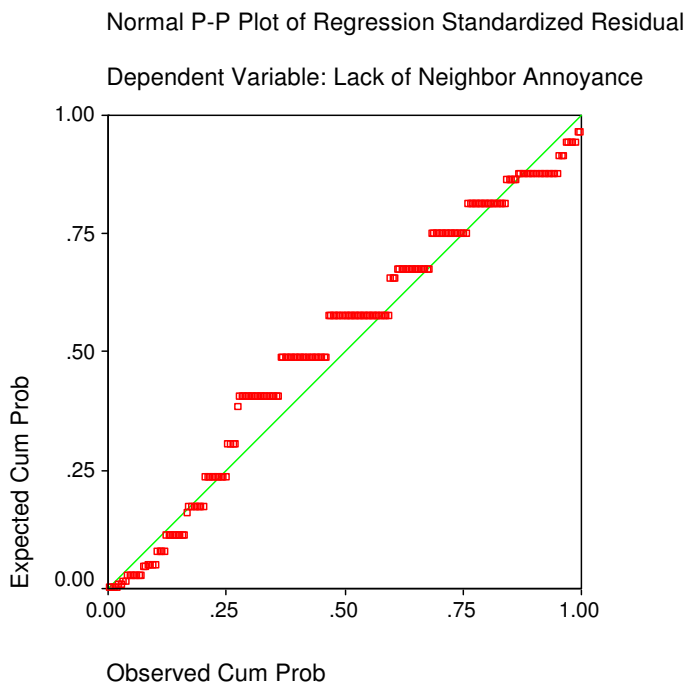
a. Dependent Variable: Lack of Neighbor Annoyance

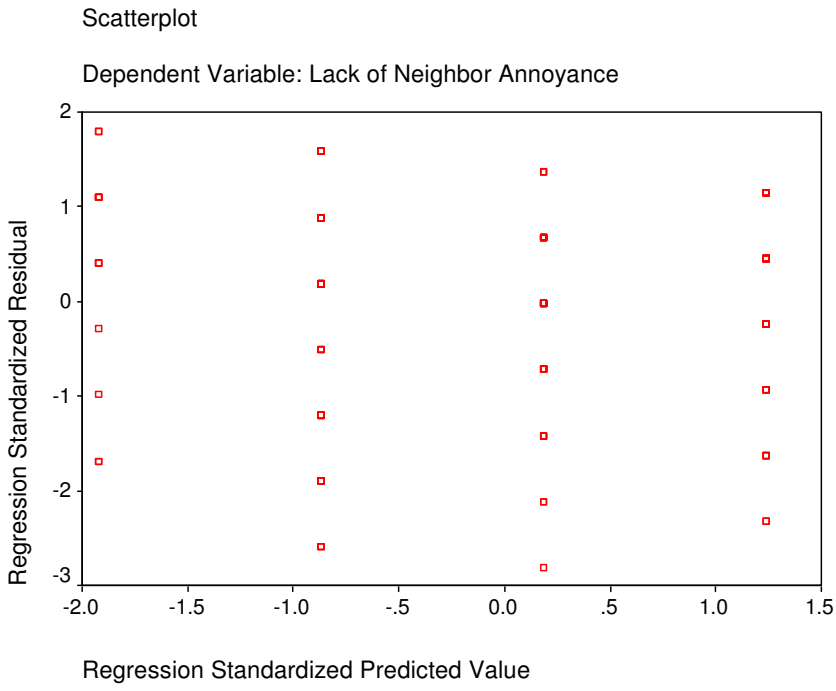
Charts

Histogram

Dependent Variable: Lack of Neighbor Annoyance




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Lack of Neighbor Annoyance
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00


Scatterplot
Dependent Variable: Lack of Neighbor Annoyance
Regression Standardized Residual
Regression Standardized Predicted Value
2
1
0
-1
-2
-3
-2.0
-1.5
-1.0
-.5
0.0
.5
1.0
1.5

APPENDIX H

REGRESSION OUTPUT – NA&WST

Regression-NA&WST-Full Model w/ Interactive Terms

Descriptive Statistics

	Mean	Std. Deviation	N
Neighborhood Attachment & Weak Social Ties	16.95	3.177	204
Expected years to live in neighborhood	2.82	.946	204
Need a car to get around in neighborhood	.47	.500	204
Full-time homemaker	.20	.398	204
Neighborhood design	.51	.501	204
Design*Expected Yr. to Live in Neigh	1.54	1.659	204
Design*Need Car to get Around	.15	.355	204
Design*Full-Time Homemaker	.11	.311	204

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.540[a]	.292	.266	2.721	.292	11.522	7	196	.000	2.059

a. Predictors: (Constant), Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	597.177	7	85.311	11.522	.000[a]
	Residual	1451.230	196	7.404		
	Total	2048.407	203			

a. Predictors: (Constant), Design*Full-Time Homemaker, Design*Need Car to get Around, Expected years to live in neighborhood, Need a car to get around in neighborhood, Full-time homemaker, Neighborhood design, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	12.161	1.044		11.645	.000			
	Expected years to live in neighborhood	1.550	.323	.461	4.794	.000	.377	.324	.288
	Need a car to get around in neighborhood	-1.079	.584	-.170	-1.848	.066	-.273	-.131	-.111
	Full-time homemaker	2.286	.716	.286	3.194	.002	.215	.222	.192
	Neighborhood design	2.567	1.396	.405	1.839	.067	.299	.130	.111
	Design*Expected Yr. to Live in Neigh	-.558	.425	-.292	-1.314	.190	.350	-.093	-.079
	Design*Need Car to get Around	.452	.832	.051	.544	.587	.051	.039	.033
	Design*Full-Time Homemaker	-.607	.984	-.059	-.616	.538	.205	-.044	-.037

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Casewise Diagnostics[a]

Case Number	Std. Residual	Neighborhood Attachment & Weak Social Ties
157	-3.937	6

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Residuals Statistics[a]

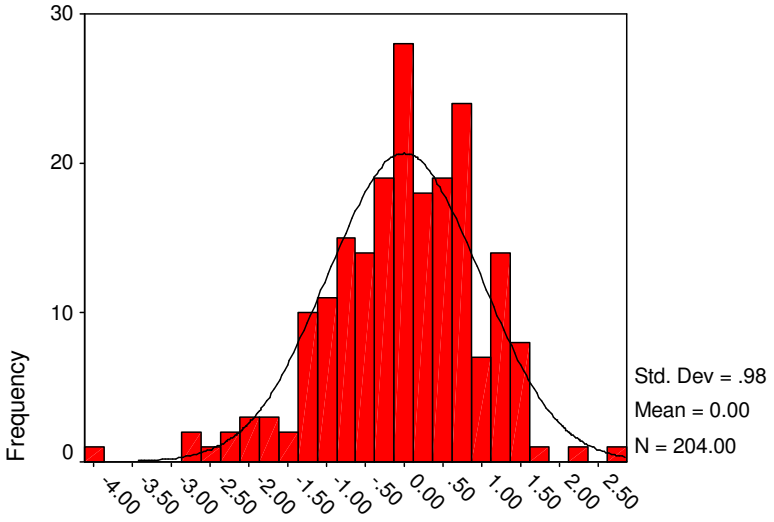
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	12.63	20.65	16.95	1.715	204
Residual	-10.71	7.37	.00	2.674	204
Std. Predicted Value	-2.515	2.157	.000	1.000	204
Std. Residual	-3.937	2.708	.000	.983	204

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Charts

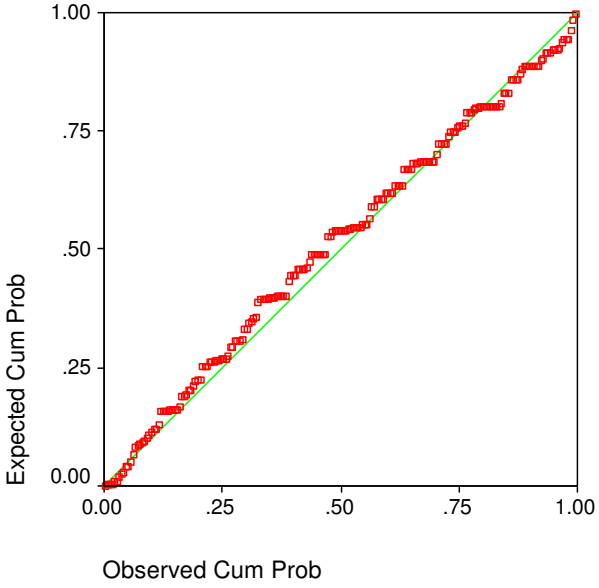
Histogram

Dependent Variable: Neighborhood Attachment & Weak Social Ties



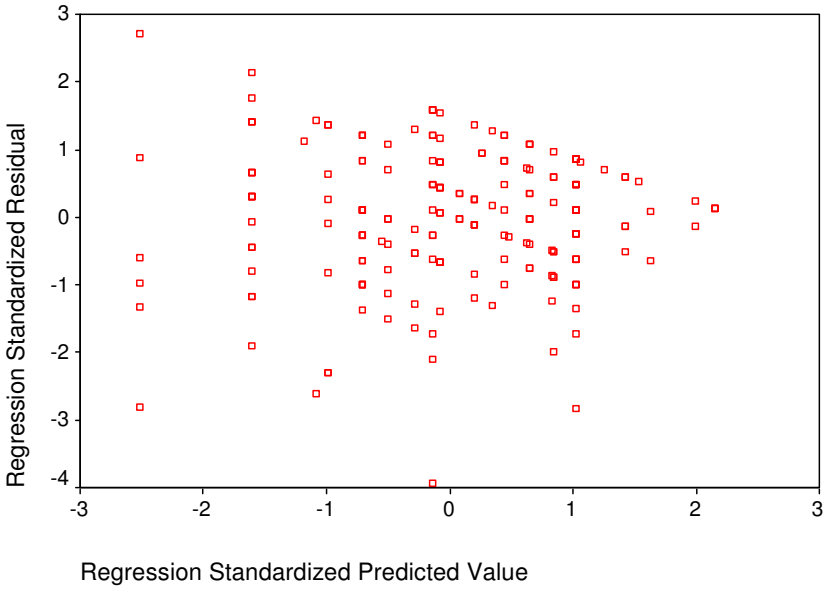
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Neighborhood Attachment & Weak So



Scatterplot

Dependent Variable: Neighborhood Attachment & Weak Social Ties



Regression-NA&WST-Reduced 1

Descriptive Statistics

	Mean	Std. Deviation	N
Neighborhood Attachment & Weak Social Ties	16.95	3.177	204
Expected years to live in neighborhood	2.82	.946	204
Need a car to get around in neighborhood	.47	.500	204
Full-time homemaker	.20	.398	204
Neighborhood design	.51	.501	204
Design*Expected Yr. to Live in Neigh	1.54	1.659	204
Design*Full-Time Homemaker	.11	.311	204

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Full-Time Homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.539[a]	.290	.269	2.716	.290	13.441	6	197	.000	2.046

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	594.987	6	99.164	13.441	.000[a]
	Residual	1453.420	197	7.378		
	Total	2048.407	203			

a. Predictors: (Constant), Design*Full-Time Homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood, Neighborhood design, Full-time homemaker, Design*Expected Yr. to Live in Neigh

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	11.966	.979		12.228	.000			
	Expected years to live in neighborhood	1.566	.321	.466	4.876	.000	.377	.328	.293
	Need a car to get around in neighborhood	-.856	.415	-.135	-2.063	.040	-.273	-.145	-.124
	Full-time homemaker	2.317	.712	.290	3.252	.001	.215	.226	.195
	Neighborhood design	2.835	1.304	.447	2.174	.031	.299	.153	.130
	Design*Expected Yr. to Live in Neigh	-.575	.423	-.300	-1.359	.176	.350	-.096	-.082
	Design*Full-Time Homemaker	-.667	.976	-.065	-.684	.495	.205	-.049	-.041

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Casewise Diagnostics[a]

Case Number	Std. Residual	Neighborhood Attachment & Weak Social Ties
157	-3.970	6

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Residuals Statistics[a]

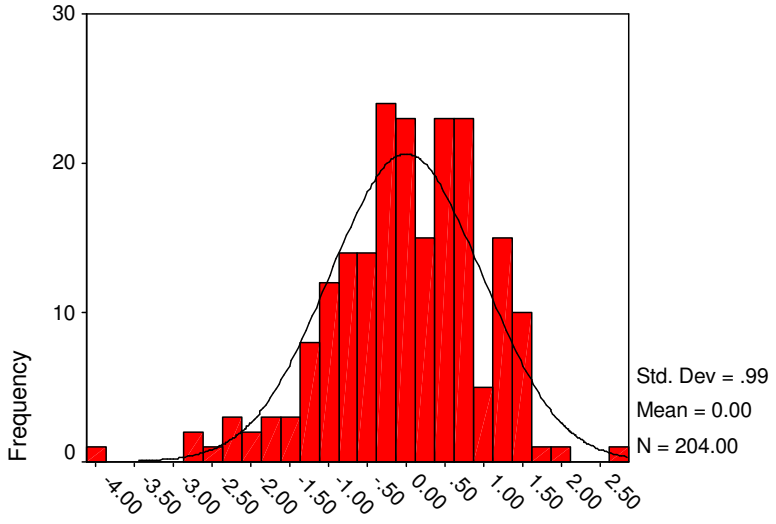
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	12.68	20.55	16.95	1.712	204
Residual	-10.78	7.32	.00	2.676	204
Std. Predicted Value	-2.494	2.103	.000	1.000	204
Std. Residual	-3.970	2.697	.000	.985	204

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Charts

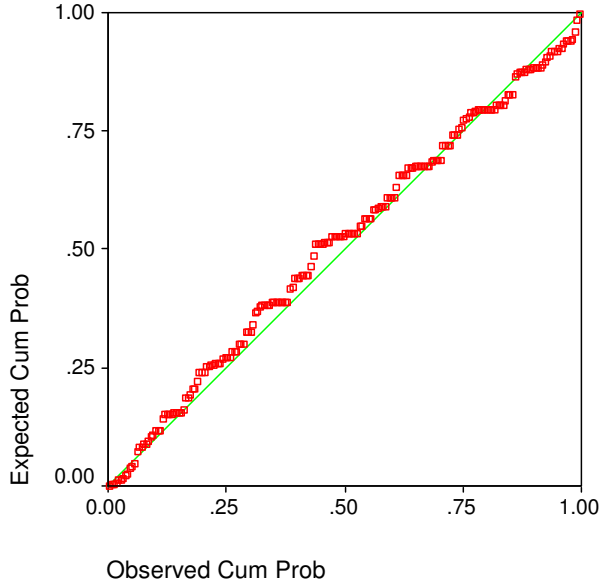
Histogram

Dependent Variable: Neighborhood Attachment & Weak Social Ties



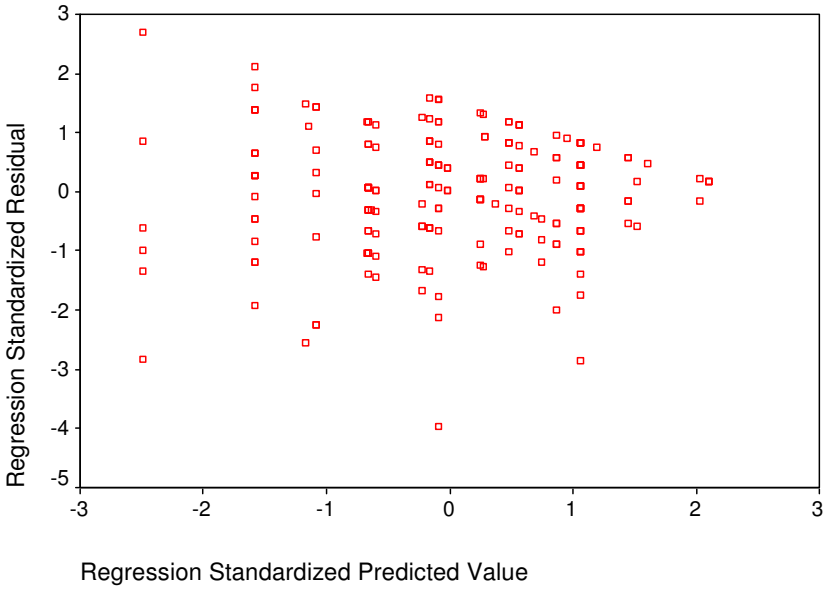
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Neighborhood Attachment & Weak So



Scatterplot

Dependent Variable: Neighborhood Attachment & Weak Social Ties



Regression-NA&WST-Reduced 2

Descriptive Statistics

	Mean	Std. Deviation	N
Neighborhood Attachment & Weak Social Ties	16.95	3.177	204
Expected years to live in neighborhood	2.82	.946	204
Need a car to get around in neighborhood	.47	.500	204
Full-time homemaker	.20	.398	204
Neighborhood design	.51	.501	204
Design*Expected Yr. to Live in Neigh	1.54	1.659	204

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Design*Expected Yr. to Live in Neigh, Full-time homemaker, Need a car to get around in neighborhood, Expected years to live in neighborhood, Neighborhood design[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.537[a]	.289	.271	2.713	.289	16.079	5	198	.000	2.038

a. Predictors: (Constant), Design*Expected Yr. to Live in Neigh, Full-time homemaker, Need a car to get around in neighborhood, Expected years to live in neighborhood, Neighborhood design

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	591.538	5	118.308	16.079	.000[a]
	Residual	1456.869	198	7.358		
	Total	2048.407	203			

a. Predictors: (Constant), Design*Expected Yr. to Live in Neigh, Full-time homemaker, Need a car to get around in neighborhood, Expected years to live in neighborhood, Neighborhood design

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	12.064	.967		12.482	.000			
	Expected years to live in neighborhood	1.553	.320	.463	4.850	.000	.377	.326	.291
	Need a car to get around in neighborhood	-.857	.414	-.135	-2.067	.040	-.273	-.145	-.124
	Full-time homemaker	1.963	.490	.246	4.010	.000	.215	.274	.240
	Neighborhood design	2.581	1.248	.407	2.068	.040	.299	.145	.124
	Design*Expected Yr. to Live in Neigh	-.532	.418	-.278	-1.274	.204	.350	-.090	-.076

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Casewise Diagnostics[a]

Case Number	Std. Residual	Neighborhood Attachment & Weak Social Ties
157	-3.940	6

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Residuals Statistics[a]

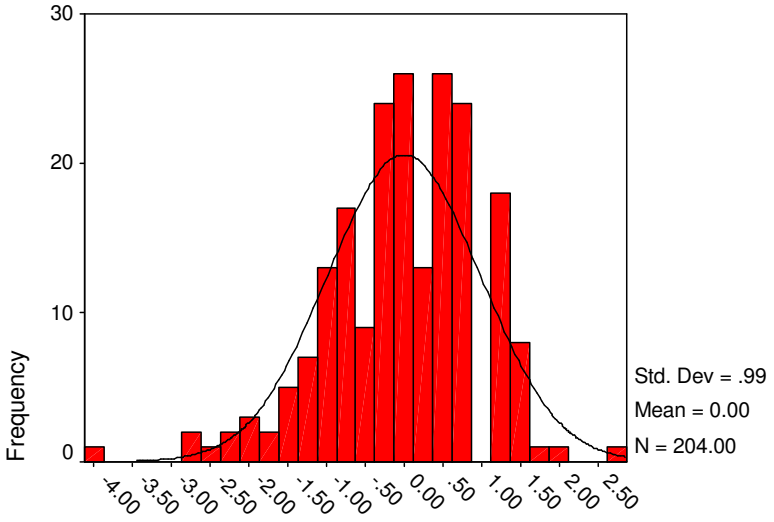
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	12.76	20.69	16.95	1.707	204
Residual	-10.69	7.24	.00	2.679	204
Std. Predicted Value	-2.452	2.196	.000	1.000	204
Std. Residual	-3.940	2.669	.000	.988	204

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Charts

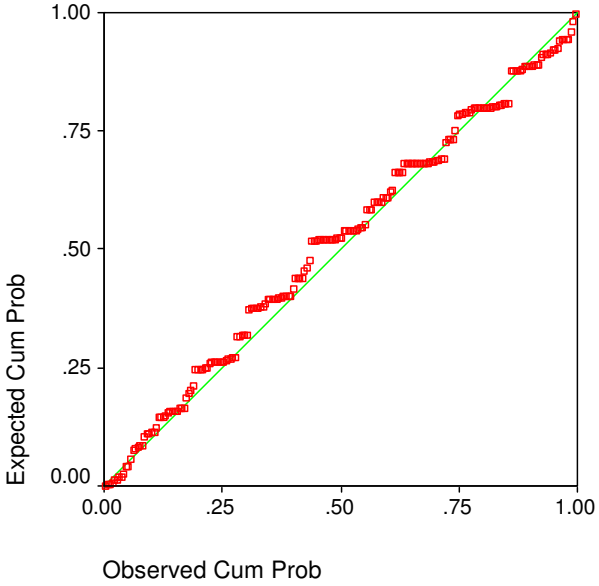
Histogram

Dependent Variable: Neighborhood Attachment & Weak Social Ties



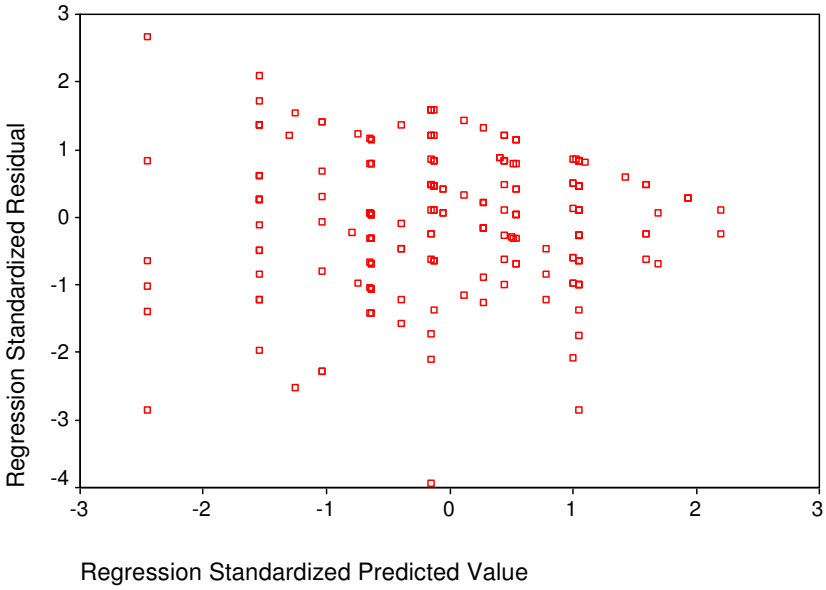
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Neighborhood Attachment & Weak So



Scatterplot

Dependent Variable: Neighborhood Attachment & Weak Social Ties



Regression-NA&WST-Reduced 3

Descriptive Statistics

	Mean	Std. Deviation	N
Neighborhood Attachment & Weak Social Ties	16.95	3.177	204
Expected years to live in neighborhood	2.82	.946	204
Need a car to get around in neighborhood	.47	.500	204
Full-time homemaker	.20	.398	204
Neighborhood design	.51	.501	204

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.532[a]	.283	.269	2.717	.283	19.632	4	199	.000	2.034

a. Predictors: (Constant), Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	579.605	4	144.901	19.632	.000[a]
	Residual	1468.802	199	7.381		
	Total	2048.407	203			

a. Predictors: (Constant), Neighborhood design, Full-time homemaker, Expected years to live in neighborhood, Need a car to get around in neighborhood

b. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	12.904	.708		18.226	.000			
	Expected years to live in neighborhood	1.243	.208	.370	5.969	.000	.377	.390	.358
	Need a car to get around in neighborhood	-.895	.414	-.141	-2.163	.032	-.273	-.152	-.130
	Full-time homemaker	2.001	.490	.251	4.087	.000	.215	.278	.245
	Neighborhood design	1.082	.415	.171	2.607	.010	.299	.182	.156

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Casewise Diagnostics[a]

Case Number	Std. Residual	Neighborhood Attachment & Weak Social Ties
27	-3.037	5
157	-3.855	6

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Residuals Statistics[a]

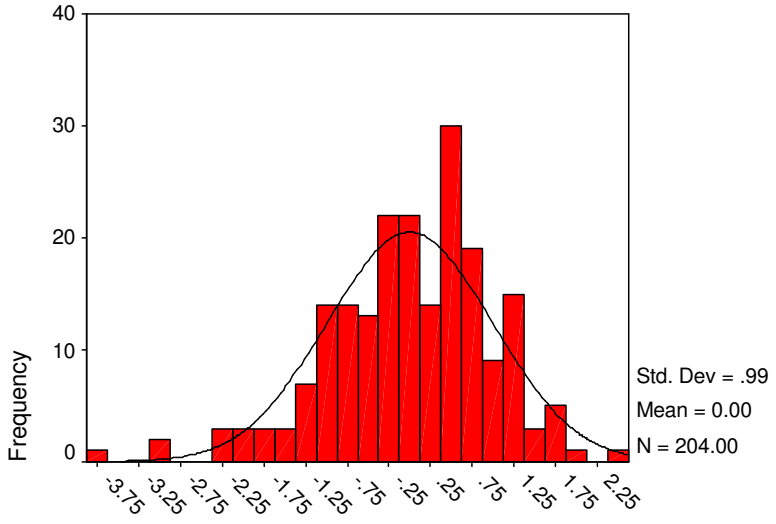
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	13.25	20.96	16.95	1.690	204
Residual	-10.47	6.75	.00	2.690	204
Std. Predicted Value	-2.186	2.375	.000	1.000	204
Std. Residual	-3.855	2.484	.000	.990	204

a. Dependent Variable: Neighborhood Attachment & Weak Social Ties

Charts

Histogram

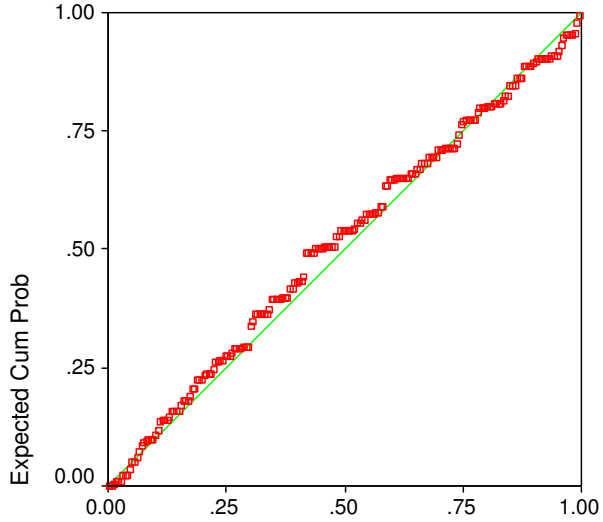
Dependent Variable: Neighborhood Attachment & Weak Social Ties



Regression Standardized Residual

Normal P-P Plot of Regression Standardized Residual

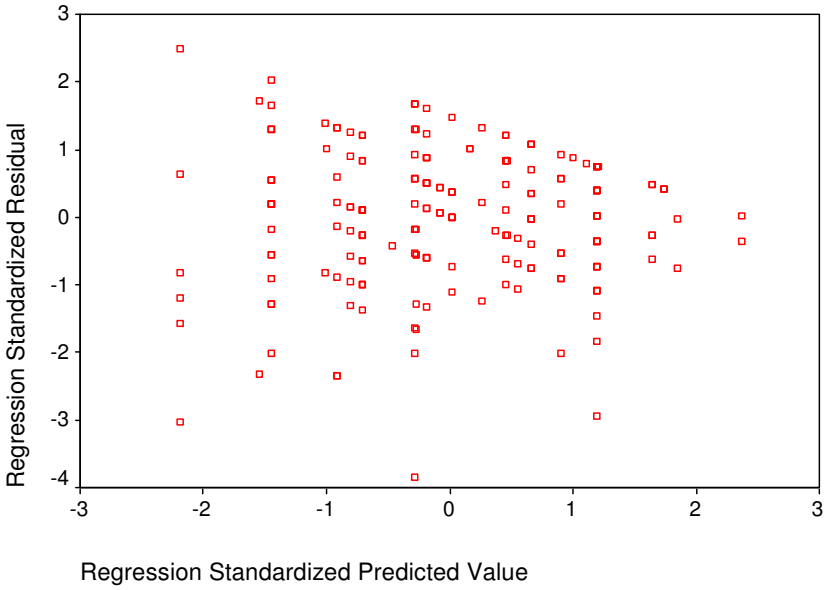
Dependent Variable: Neighborhood Attachment & Weak So



Observed Cum Prob

Scatterplot

Dependent Variable: Neighborhood Attachment & Weak Social Ties



APPENDIX I

TRANSFORMATIONS OF VARIABLES

Regression with Exponential Transformation of Child < 12

Descriptive Statistics

Neighborhood design reverse		Mean	Std. Deviation	N
pedestrian oriented	Supportive Acts of Neighboring	21.90	4.751	100
	Length of residency	2.96	1.044	100
	Expected years to live in neighborhood	3.02	1.005	100
	Need a car to get around in neighborhood	.29	.456	100
	CH12EXP	6.10	15.310	100
	Full-time homemaker	.21	.409	100
typical suburb	Supportive Acts of Neighboring	19.57	4.490	95
	Length of residency	2.20	1.117	95
	Expected years to live in neighborhood	2.66	.883	95
	Need a car to get around in neighborhood	.65	.479	95
	CH12EXP	4.67	5.377	95
	Full-time homemaker	.20	.402	95

Variables Entered/Removed[b]

Neighborhood design reverse	Model	Variables Entered	Variables Removed	Method
pedestrian oriented	1	Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, CH12EXP[a]	.	Enter
typical suburb	1	Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, CH12EXP[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[c]

Neighborhood design reverse	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
pedestrian oriented	.229[a]	.053	.002	4.746	.053	1.044	5	94	.396	1.742
Suburb	.582[b]	.338	.301	3.754	.338	9.096	5	89	.000	1.934

a. Predictors: (Constant), Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, CH12EXP

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, CH12EXP

c. Dependent Variable: Supportive Acts of Neighboring

ANOVA[c]

Neighborhood design reverse	Model		Sum of Squares	df	Mean Square	F	Sig.
pedestrian oriented	1	Regression	117.621	5	23.524	1.044	.396[a]
		Residual	2117.379	94	22.525		
		Total	2235.000	99			
typical suburb	1	Regression	640.960	5	128.192	9.096	.000[b]
		Residual	1254.345	89	14.094		
		Total	1895.305	94			

a. Predictors: (Constant), Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, CH12EXP

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, CH12EXP

c. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

Neighborhood design reverse		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
pedestrian oriented	(Constant)	19.741	2.087		9.460	.000			
	Length of residency	-.102	.465	-.022	-.219	.827	-.029	-.023	-.022
	Expected years to live in neighborhood	.704	.492	.149	1.431	.156	.142	.146	.144
	Need a car to get around in neighborhood	-.252	1.080	-.024	-.233	.816	.009	-.024	-.023
	CH12EXP	.052	.033	.167	1.570	.120	.177	.160	.158
	Full-time homemaker	.434	1.245	.037	.349	.728	.042	.036	.035
typical suburb	(Constant)	15.566	1.673		9.306	.000			
	Length of residency	-.319	.348	-.079	-.915	.362	-.123	-.097	-.079
	Expected years to live in neighborhood	1.884	.446	.370	4.227	.000	.395	.409	.364
	Need a car to get around in neighborhood	-2.113	.836	-.225	-2.53	.013	-.303	-.259	-.218
	CH12EXP	.087	.075	.105	1.166	.247	.156	.123	.101
	Full-time homemaker	3.290	1.004	.295	3.278	.001	.331	.328	.283

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Neighborhood design reverse	Case Number	Std. Residual	Supportive Acts of Neighboring
pedestrian oriented	25	-3.452	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

Neighborhood design reverse		Minimum	Maximum	Mean	Std. Deviation	N
pedestrian oriented	Predicted Value	19.94	30.21	21.90	1.090	100
	Residual	-16.38	5.88	.00	4.625	100
	Std. Predicted Value	-1.799	7.620	.000	1.000	100
	Std. Residual	-3.452	1.238	.000	.974	100
typical suburb	Predicted Value	14.47	26.40	19.57	2.611	95
	Residual	-8.78	9.33	.00	3.653	95
	Std. Predicted Value	-1.953	2.616	.000	1.000	95
	Std. Residual	-2.340	2.485	.000	.973	95

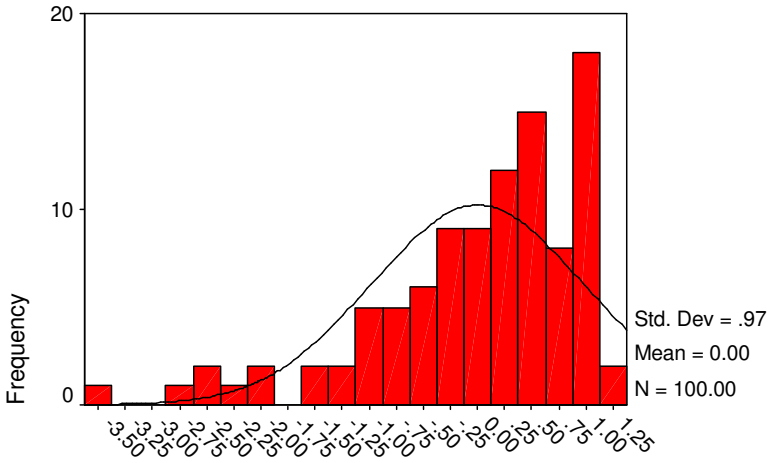
a. Dependent Variable: Supportive Acts of Neighboring

Histograms

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

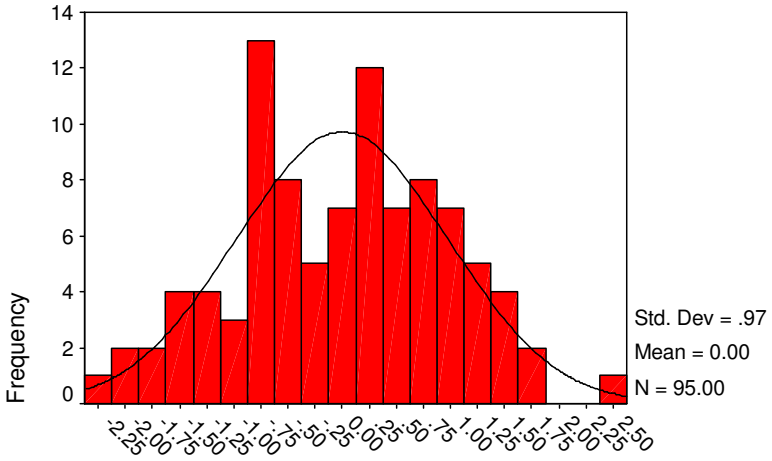


Regression Standardized Residual

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



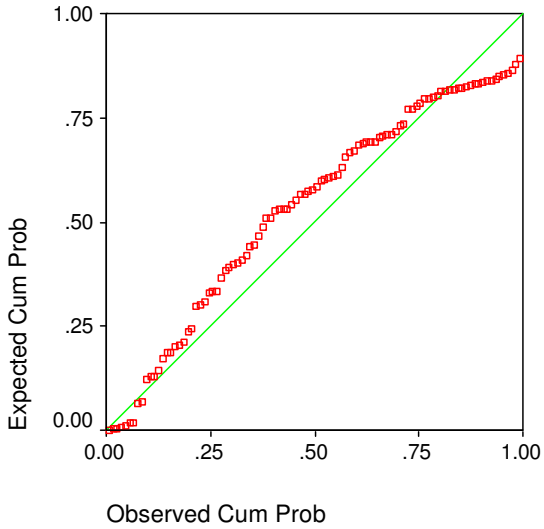
Regression Standardized Residual

Normal P-P Plots

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

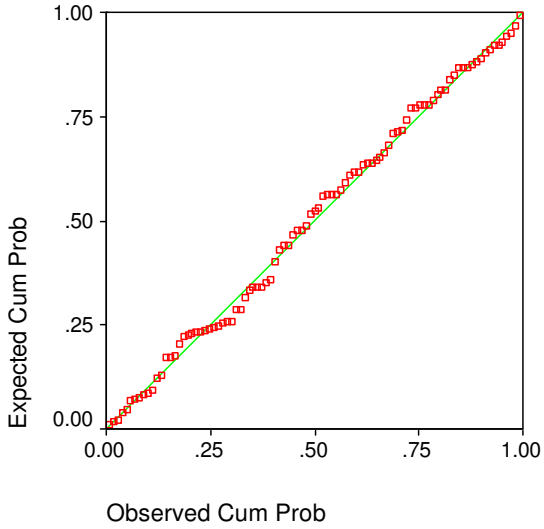
DESIGN_R: 0 pedestrian oriented



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

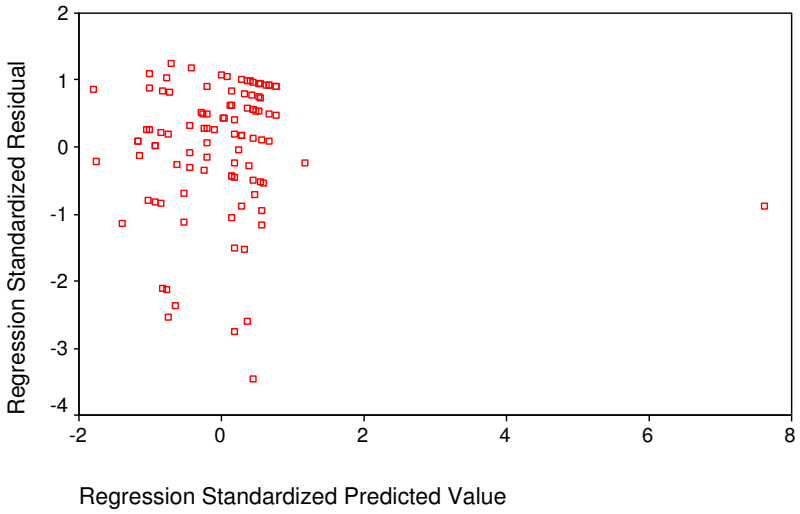


Scatterplots

Scatterplot

Dependent Variable: Supportive Acts of Neighboring

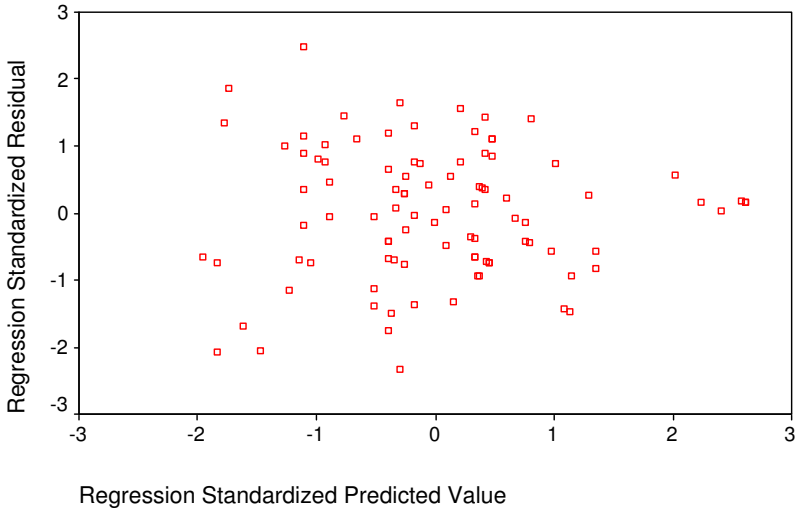
DESIGN_R: 0 pedestrian oriented



Scatterplot

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



Simple Regression-Using Dummy Variable for Child<12 (0=no child, 1=child 1+)

Descriptive Statistics

Neighborhood design reverse		Mean	Std. Deviation	N
pedestrian oriented	Supportive Acts of Neighboring	21.74	4.782	105
	child12yes/no	.57	.497	105
typical suburb	Supportive Acts of Neighboring	19.66	4.436	100
	child12yes/no	.57	.498	100

Variables Entered/Removed[b]

Neighborhood design reverse	Model	Variables Entered	Variables Removed	Method
pedestrian oriented	1	child12yes/no[a]	.	Enter
typical suburb	1	child12yes/no[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Neighborhood design reverse	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
pedestrian oriented	.192[a]	.037	.027	4.716	.037	3.934	1	103	.050	1.931
suburb	.295[a]	.087	.077	4.261	.087	9.314	1	98	.003	1.723

a. Predictors: (Constant), child12yes/no

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Neighborhood design reverse		Sum of Squares	df	Mean Square	F	Sig.
pedestrian oriented	Regression	87.479	1	87.479	3.934	.050[a]
	Residual	2290.578	103	22.239		
	Total	2378.057	104			
typical suburb	Regression	169.106	1	169.106	9.314	.003[a]
	Residual	1779.334	98	18.156		
	Total	1948.440	99			

a. Predictors: (Constant), child12yes/no

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

Neighborhood design reverse		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
pedestrian oriented	(Constant)	20.689	.703		29.430	.000			
	child12yes/no	1.844	.930	.192	1.983	.050	.192	.192	.192
typical suburb	(Constant)	18.163	.650		27.951	.000			
	child12yes/no	2.627	.861	.295	3.052	.003	.295	.295	.295

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Neighborhood design reverse	Case Number	Std. Residual	Supportive Acts of Neighboring
pedestrian oriented	25	-3.115	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

Neighborhood design reverse		Minimum	Maximum	Mean	Std. Deviation	N
pedestrian oriented	Predicted Value	20.69	22.53	21.74	.917	105
	Residual	-14.69	6.31	.00	4.693	105
	Std. Predicted Value	-1.149	.862	.000	1.000	105
	Std. Residual	-3.115	1.338	.000	.995	105
typical suburb	Predicted Value	18.16	20.79	19.66	1.307	100
	Residual	-11.79	7.84	.00	4.239	100
	Std. Predicted Value	-1.146	.864	.000	1.000	100
	Std. Residual	-2.767	1.839	.000	.995	100

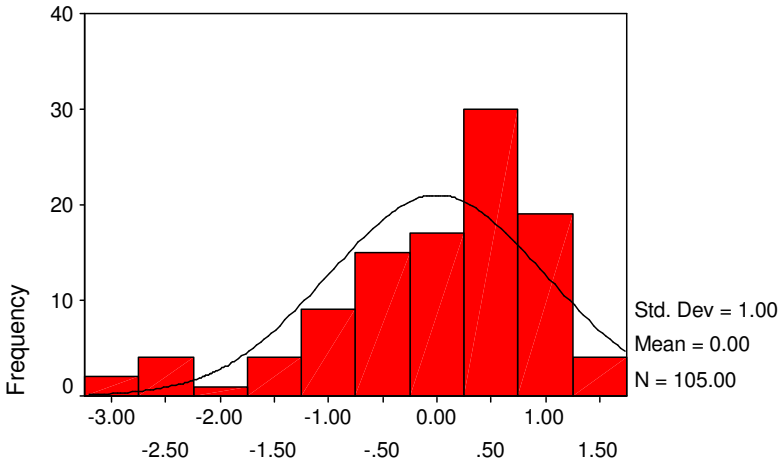
a. Dependent Variable: Supportive Acts of Neighboring

Histograms

Histogram

Dependent Variable: Supportive Acts of Neighboring

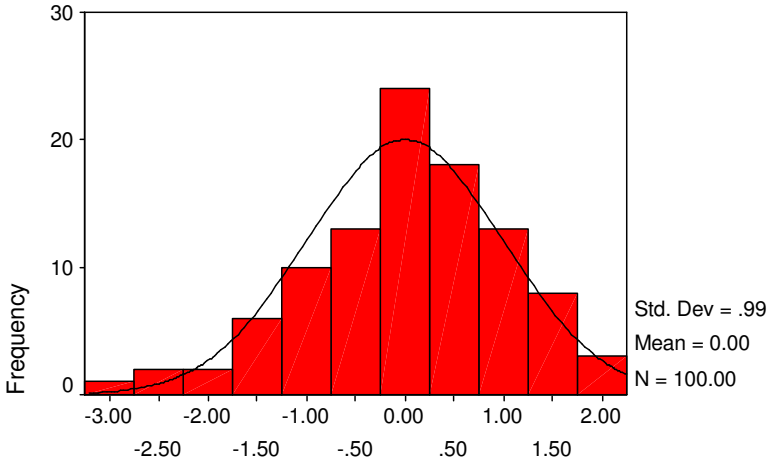
DESIGN_R: 0 pedestrian oriented



Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

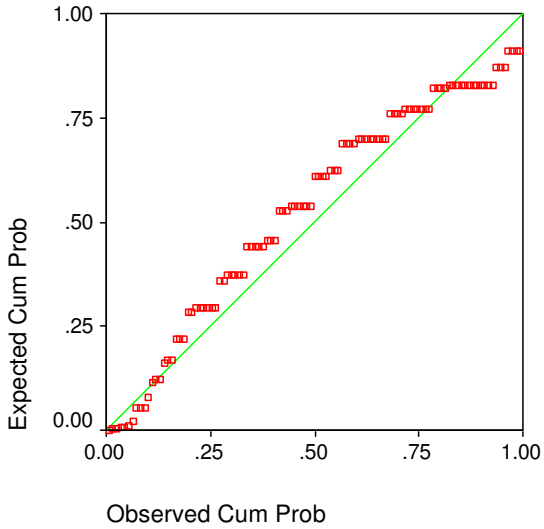


Normal P-P Plots

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

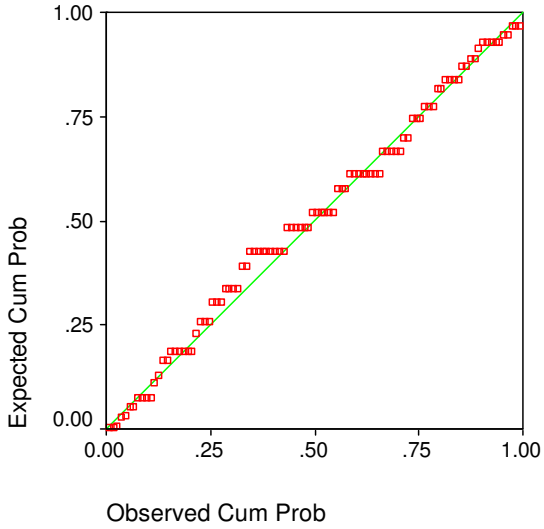
DESIGN_R: 0 pedestrian oriented



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

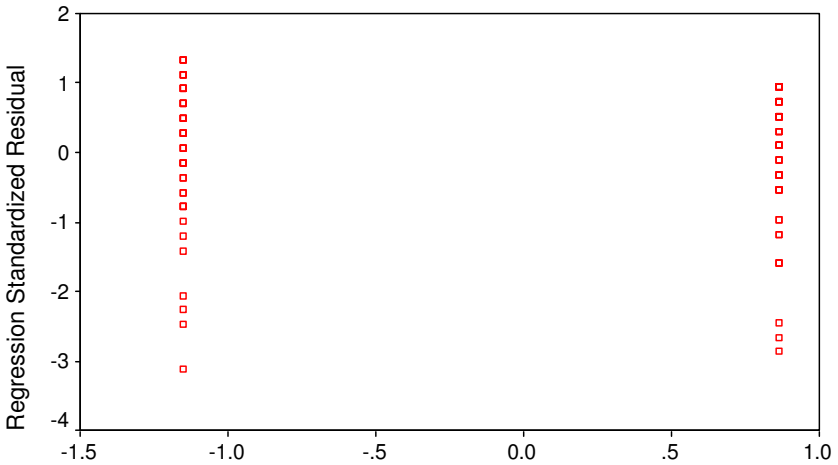


Scatterplots

Scatterplot

Dependent Variable: Supportive Acts of Neighboring

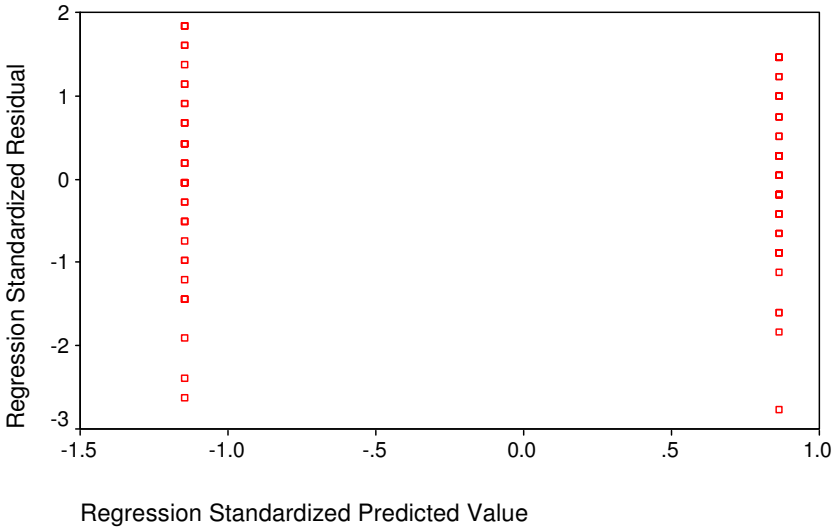
DESIGN_R: 0 pedestrian oriented



Scatterplot

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



Multiple Regression-Using Dummy Variable for Child<12 (0=no child, 1=child 1+)

Descriptive Statistics

Neighborhood design reverse		Mean	Std. Deviation	N
pedestrian oriented	Supportive Acts of Neighboring	21.90	4.751	100
	child12yes/no	.58	.496	100
	Length of residency	2.96	1.044	100
	Expected years to live in neighborhood	3.02	1.005	100
	Need a car to get around in neighborhood	.29	.456	100
	Full-time homemaker	.21	.409	100
typical suburb	Supportive Acts of Neighboring	19.57	4.490	95
	child12yes/no	.57	.498	95
	Length of residency	2.20	1.117	95
	Expected years to live in neighborhood	2.66	.883	95
	Need a car to get around in neighborhood	.65	.479	95
	Full-time homemaker	.20	.402	95

Variables Entered/Removed[b]

Neighborhood design reverse	Model	Variables Entered	Variables Removed	Method
pedestrian oriented	1	Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, child12yes/no[a]	.	Enter
typical suburb	1	Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[c]

Neighborhood design reverse	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
pedestrian oriented	.272[a]	.074	.025	4.692	.074	1.505	5	94	.196	1.807
suburb	.616[b]	.379	.345	3.635	.379	10.885	5	89	.000	1.901

a. Predictors: (Constant), Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, child12yes/no

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no

c. Dependent Variable: Supportive Acts of Neighboring

ANOVA[c]

Neighborhood design reverse	Model		Sum of Squares	df	Mean Square	F	Sig.
pedestrian oriented	1	Regression	165.695	5	33.139	1.505	.196[a]
		Residual	2069.305	94	22.014		
		Total	2235.000	99			
typical suburb	1	Regression	719.209	5	143.842	10.9	.000[b]
		Residual	1176.096	89	13.215		
		Total	1895.305	94			

a. Predictors: (Constant), Full-time homemaker, Need a car to get around in neighborhood, Length of residency, Expected years to live in neighborhood, child12yes/no

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no

c. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

Neighborhood design reverse		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
pedestrian oriented	(Constant)	17.886	2.253		7.937	.000			
	child12yes/no	2.154	.993	.225	2.169	.033	.209	.218	.215
	Length of residency	.029	.467	.006	.062	.951	-.029	.006	.006
	Expected years to live in neighborhood	.847	.486	.179	1.744	.084	.142	.177	.173
	Need a car to get around in neighborhood	.066	1.042	.006	.063	.950	.009	.007	.006
	Full-time homemaker	.490	1.211	.042	.405	.686	.042	.042	.040
typical suburb	(Constant)	14.190	1.709		8.303	.000			
	child12yes/no	2.225	.820	.247	2.715	.008	.301	.277	.227
	Length of residency	-.422	.339	-.105	-1.244	.217	-.123	-.131	-.104
	Expected years to live in neighborhood	2.069	.434	.407	4.772	.000	.395	.451	.398
	Need a car to get around in neighborhood	-1.557	.811	-.166	-1.919	.058	-.303	-.199	-.160
	Full-time homemaker	2.739	.992	.245	2.762	.007	.331	.281	.231

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Neighborhood design reverse	Case Number	Std. Residual	Supportive Acts of Neighboring
pedestrian oriented	25	-3.398	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

Neighborhood design reverse		Minimum	Maximum	Mean	Std. Deviation	N
pedestrian oriented	Predicted Value	18.88	24.04	21.90	1.294	100
	Residual	-15.94	6.87	.00	4.572	100
	Std. Predicted Value	-2.337	1.655	.000	1.000	100
	Std. Residual	-3.398	1.465	.000	.974	100
typical suburb	Predicted Value	13.44	27.01	19.57	2.766	95
	Residual	-7.48	10.07	.00	3.537	95
	Std. Predicted Value	-2.217	2.690	.000	1.000	95
	Std. Residual	-2.059	2.771	.000	.973	95

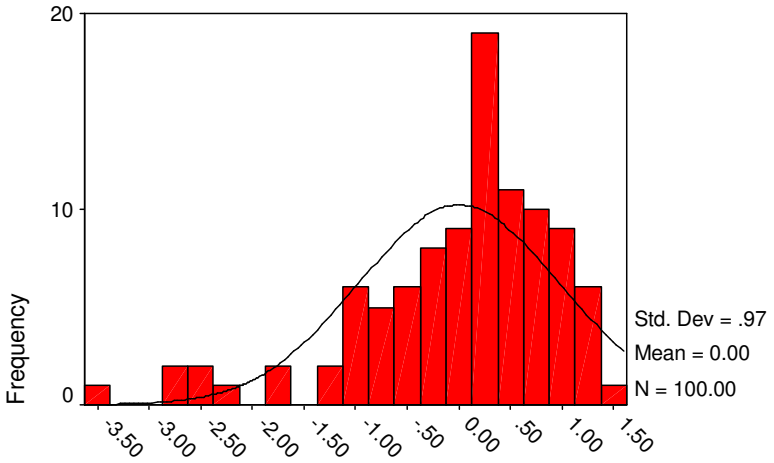
a. Dependent Variable: Supportive Acts of Neighboring

Histograms

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

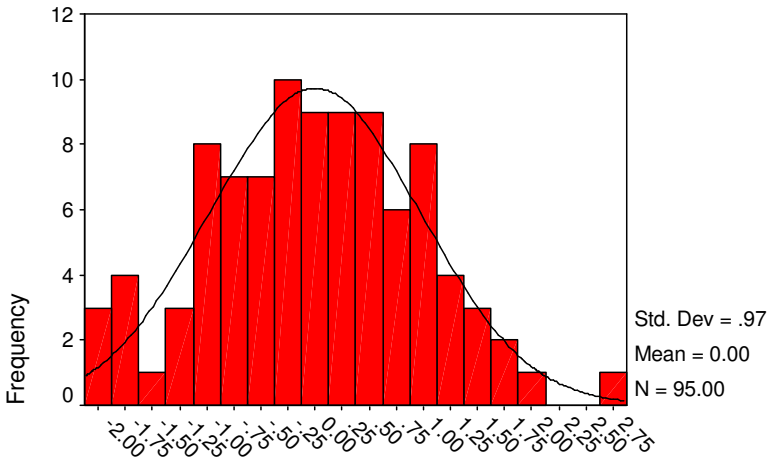


Regression Standardized Residual

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



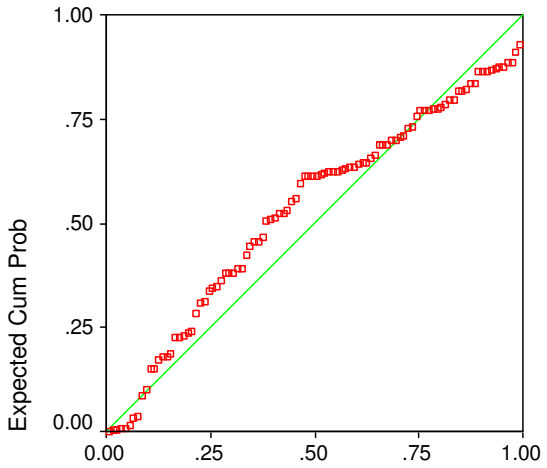
Regression Standardized Residual

Normal P-P Plots

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

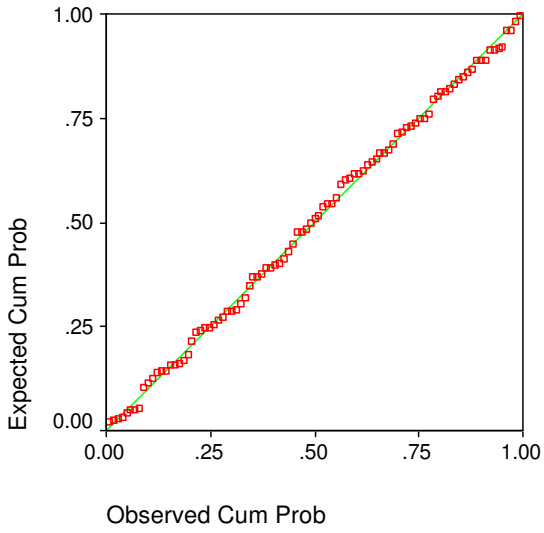


Observed Cum Prob

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

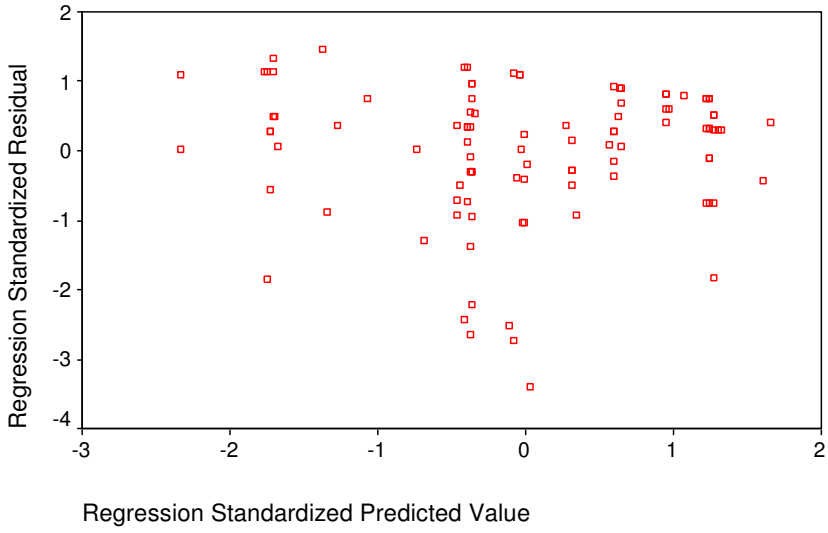


Scatterplots

Scatterplot

Dependent Variable: Supportive Acts of Neighboring

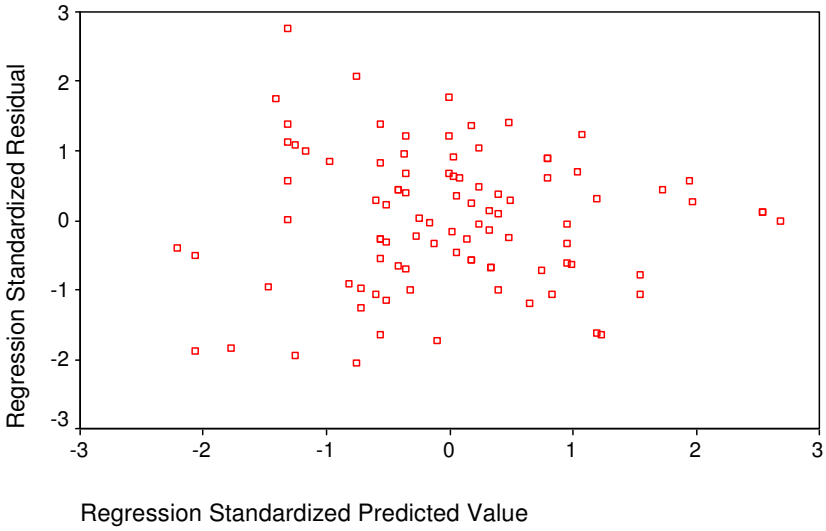
DESIGN_R: 0 pedestrian oriented



Scatterplot

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



Simple Regression-set outliers as missing value (4&5=99)

Descriptive Statistics

Neighborhood design reverse		Mean	Std. Deviation	N
pedestrian oriented	Supportive Acts of Neighboring	21.70	4.786	104
	child12yes/no	1.00	1.014	104
typical suburb	Supportive Acts of Neighboring	19.66	4.436	100
	child12yes/no	1.01	1.030	100

Variables Entered/Removed[b]

Neighborhood design reverse	Model	Variables Entered	Variables Removed	Method
pedestrian oriented	1	child12yes/no[a]	.	Enter
typical suburb	1	child12yes/no[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[b]

Neighborhood design reverse	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
pedestrian oriented	.266[a]	.071	.062	4.637	.071	7.762	1	102	.006	1.959
typical	.248[a]	.062	.052	4.319	.062	6.443	1	98	.013	1.728

a. Predictors: (Constant), child12yes/no

b. Dependent Variable: Supportive Acts of Neighboring

ANOVA[b]

Neighborhood design reverse		Sum of Squares	df	Mean Square	F	Sig.
pedestrian oriented	Regression	166.877	1	166.877	7.762	.006[a]
	Residual	2192.882	102	21.499		
	Total	2359.760	103			
typical suburb	Regression	120.205	1	120.205	6.443	.013[a]
	Residual	1828.235	98	18.655		
	Total	1948.440	99			

a. Predictors: (Constant), child12yes/no

b. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

Neighborhood design reverse		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part
pedestrian oriented	(Constant)	20.447	.640		31.951	.000			
	child12yes /no	1.255	.450	.266	2.786	.006	.266	.266	.266
typical suburb	(Constant)	18.579	.606		30.635	.000			
	child12yes /no	1.070	.422	.248	2.538	.013	.248	.248	.248

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Neighborhood design reverse	Case Number	Std. Residual	Supportive Acts of Neighboring
pedestrian oriented	25	-3.116	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

Neighborhood design reverse		Minimum	Maximum	Mean	Std. Deviation	N
pedestrian oriented	Predicted Value	20.45	24.21	21.70	1.273	104
	Residual	-14.45	6.55	.00	4.614	104
	Std. Predicted Value	-.986	1.971	.000	1.000	104
	Std. Residual	-3.116	1.413	.000	.995	104
typical suburb	Predicted Value	18.58	21.79	19.66	1.102	100
	Residual	-11.72	7.42	.00	4.297	100
	Std. Predicted Value	-.981	1.932	.000	1.000	100
	Std. Residual	-2.713	1.718	.000	.995	100

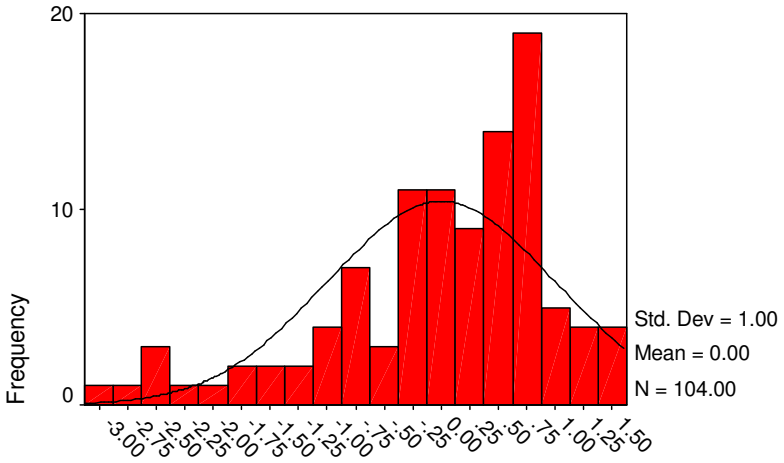
a. Dependent Variable: Supportive Acts of Neighboring

Histograms

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

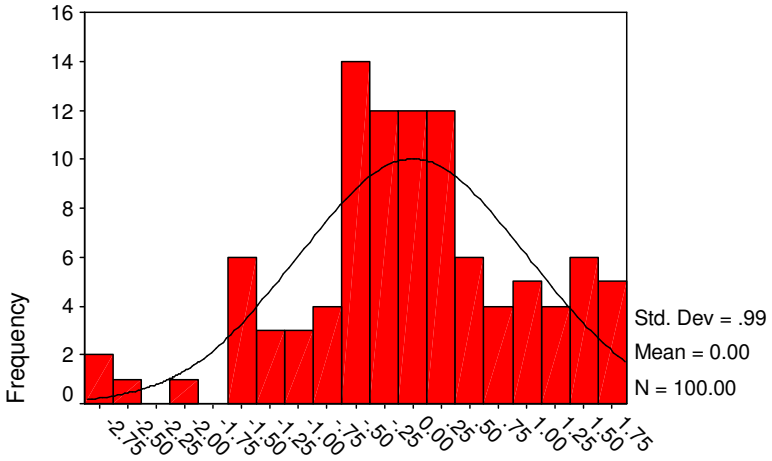


Regression Standardized Residual

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



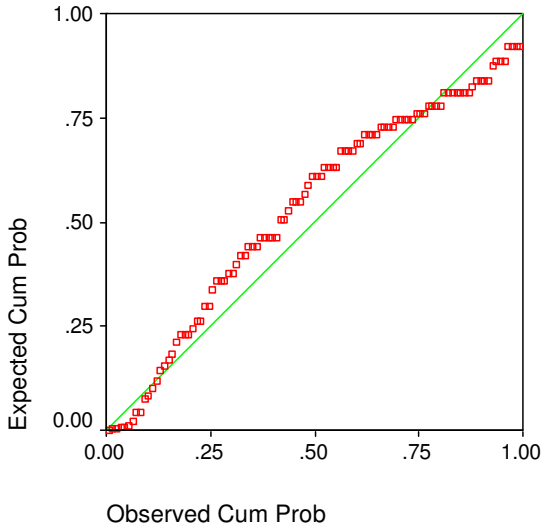
Regression Standardized Residual

Normal P-P Plots

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

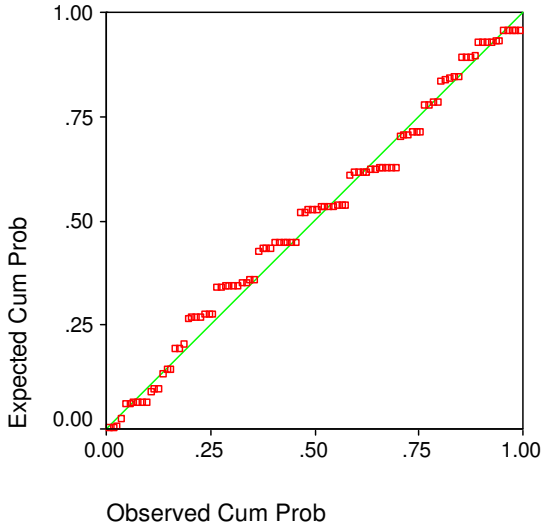
DESIGN_R: 0 pedestrian oriented



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

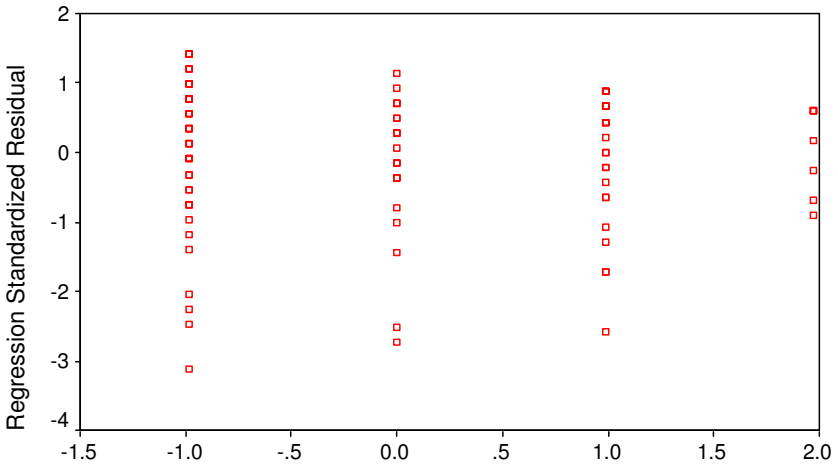


Scatterplots

Scatterplot

Dependent Variable: Supportive Acts of Neighboring

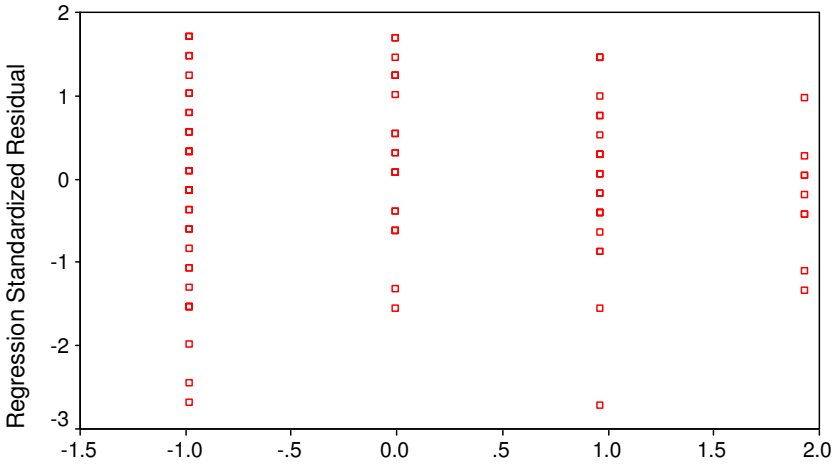
DESIGN_R: 0 pedestrian oriented



Scatterplot

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



Multiple Regression-Set outliers as missing values (4&5=99)

Descriptive Statistics

Neighborhood design reverse		Mean	Std. Deviation	N
pedestrian oriented	Supportive Acts of Neighboring	21.86	4.757	99
	child12yes/no	1.01	1.015	99
	Length of residency	2.97	1.044	99
	Expected years to live in neighborhood	3.01	1.005	99
	Need a car to get around in neighborhood	.28	.453	99
	Full-time homemaker	.20	.404	99
typical suburb	Supportive Acts of Neighboring	19.57	4.490	95
	child12yes/no	1.00	1.021	95
	Length of residency	2.20	1.117	95
	Expected years to live in neighborhood	2.66	.883	95
	Need a car to get around in neighborhood	.65	.479	95
	Full-time homemaker	.20	.402	95

Variables Entered/Removed[b]

Neighborhood design reverse	Model	Variables Entered	Variables Removed	Method
pedestrian oriented	1	Full-time homemaker, Length of residency, Need a car to get around in neighborhood, child12yes/no, Expected years to live in neighborhood[a]	.	Enter
typical suburb	1	Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Supportive Acts of Neighboring

Model Summary[c]

Neighborhood design reverse	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
pedestrian oriented	.350[a]	.122	.075	4.575	.122	2.590	5	93	.031	1.826
typical	.596[b]	.355	.319	3.705	.355	9.816	5	89	.000	1.895

a. Predictors: (Constant), Full-time homemaker, Length of residency, Need a car to get around in neighborhood, child12yes/no, Expected years to live in neighborhood

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no

c. Dependent Variable: Supportive Acts of Neighboring

ANOVA[c]

Neighborhood design reverse		Sum of Squares	df	Mean Square	F	Sig.
pedestrian oriented	Regression	271.103	5	54.221	2.590	.031[a]
	Residual	1946.917	93	20.935		
	Total	2218.020	98			
typical suburb	Regression	673.691	5	134.738	9.816	.000[b]
	Residual	1221.615	89	13.726		
	Total	1895.305	94			

a. Predictors: (Constant), Full-time homemaker, Length of residency, Need a car to get around in neighborhood, child12yes/no, Expected years to live in neighborhood

b. Predictors: (Constant), Full-time homemaker, Length of residency, Expected years to live in neighborhood, Need a car to get around in neighborhood, child12yes/no

c. Dependent Variable: Supportive Acts of Neighboring

Coefficients[a]

Neighborhood design reverse		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
pedestrian oriented	(Constant)	17.339	2.176		7.969	.000			
	child12yes/no	1.532	.473	.327	3.239	.002	.292	.318	.315
	Length of residency	.074	.453	.016	.162	.871	-.021	.017	.016
	Expected years to live in neighborhood	.925	.482	.195	1.919	.058	.135	.195	.186
	Need a car to get around in neighborhood	-.328	1.038	-.031	-.316	.753	-.005	-.033	-.031
	Full-time homemaker	.303	1.209	.026	.250	.803	.026	.026	.024
typical suburb	(Constant)	15.179	1.668		9.097	.000			
	child12yes/no	.762	.392	.173	1.944	.055	.239	.202	.165
	Length of residency	-.372	.345	-.093	-1.08	.283	-.123	-.114	-.092
	Expected years to live in neighborhood	1.926	.439	.379	4.392	.000	.395	.422	.374
	Need a car to get around in neighborhood	-1.969	.814	-.210	-2.42	.018	-.303	-.248	-.206
	Full-time homemaker	3.018	1.003	.270	3.010	.003	.331	.304	.256

a. Dependent Variable: Supportive Acts of Neighboring

Casewise Diagnostics[a]

Neighborhood design reverse	Case Number	Std. Residual	Supportive Acts of Neighboring
pedestrian oriented	25	-3.346	6

a. Dependent Variable: Supportive Acts of Neighboring

Residuals Statistics[a]

Neighborhood design reverse		Minimum	Maximum	Mean	Std. Deviation	N
pedestrian oriented	Predicted Value	18.16	25.08	21.86	1.663	99
	Residual	-15.31	7.36	.00	4.457	99
	Std. Predicted Value	-2.225	1.936	.000	1.000	99
	Std. Residual	-3.346	1.609	.000	.974	99
typical suburb	Predicted Value	14.02	26.68	19.57	2.677	95
	Residual	-8.29	9.68	.00	3.605	95
	Std. Predicted Value	-2.073	2.656	.000	1.000	95
	Std. Residual	-2.236	2.614	.000	.973	95

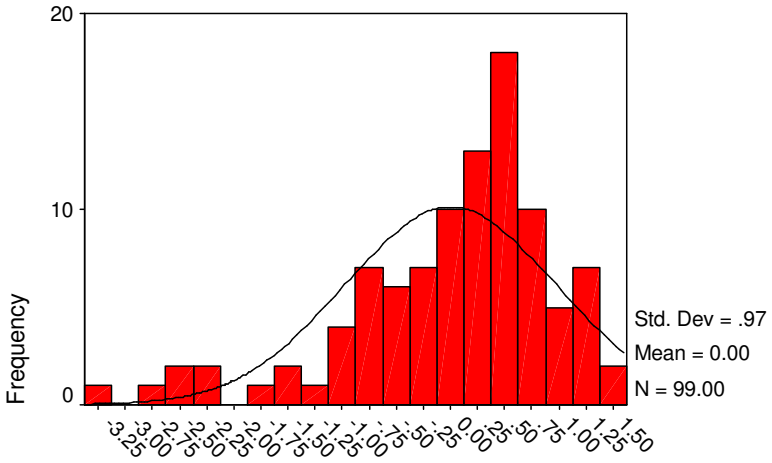
a. Dependent Variable: Supportive Acts of Neighboring

Histograms

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

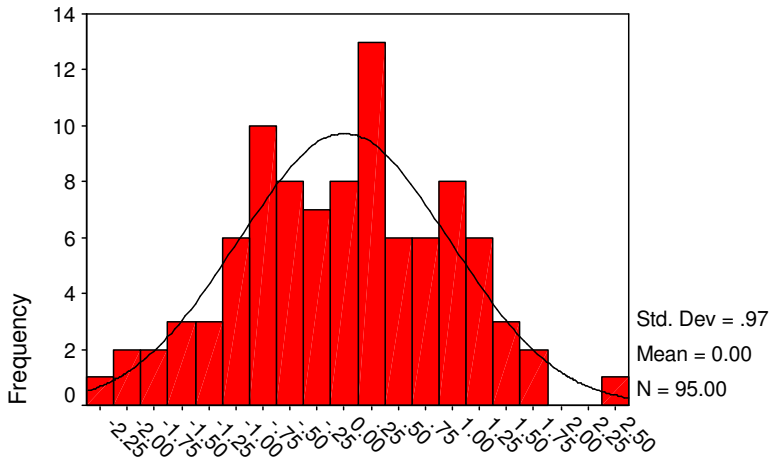


Regression Standardized Residual

Histogram

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



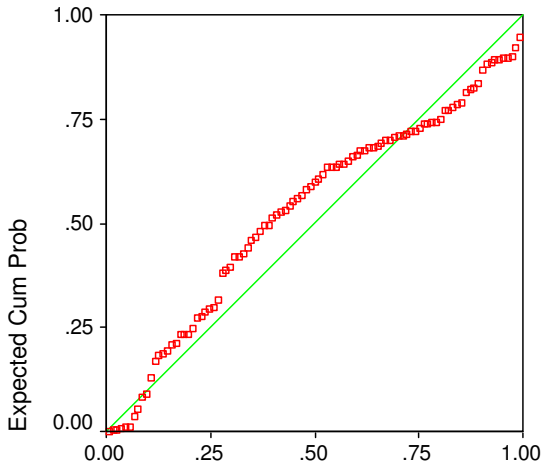
Regression Standardized Residual

Normal P-P Plots

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 0 pedestrian oriented

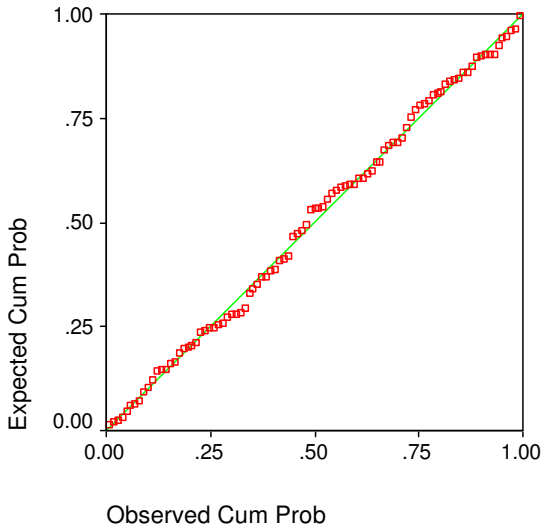


Observed Cum Prob

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb

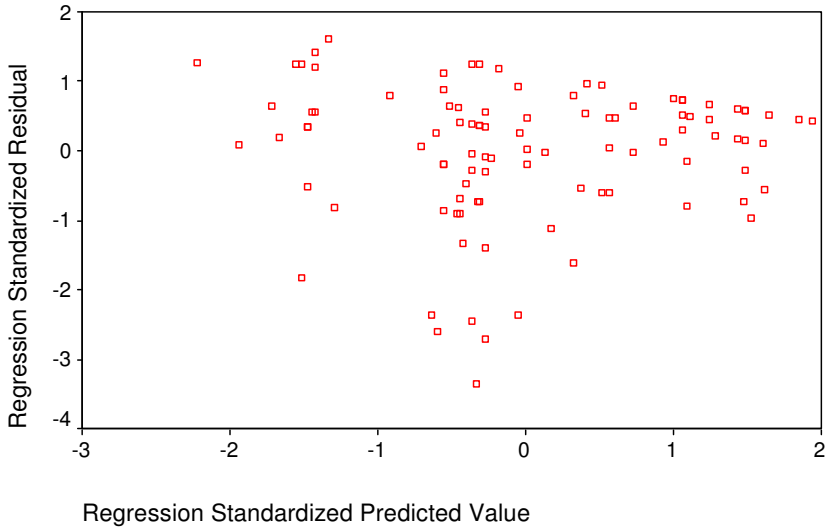


Scatterplots

Scatterplot

Dependent Variable: Supportive Acts of Neighboring

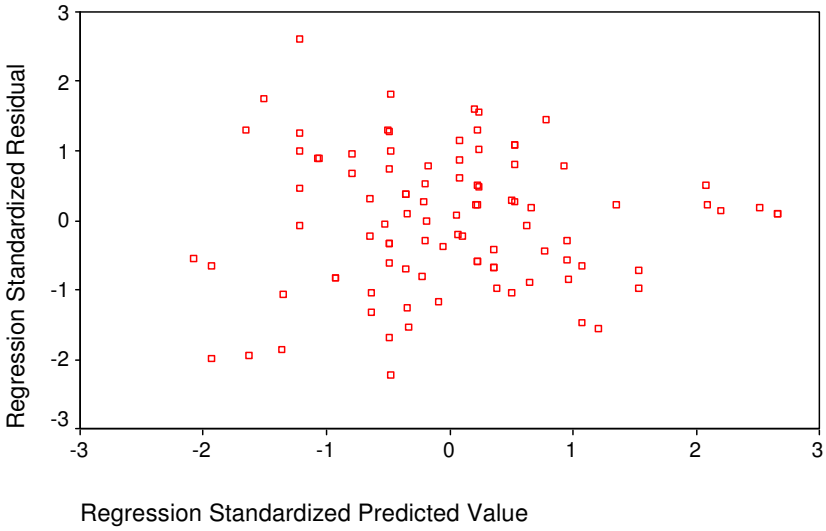
DESIGN_R: 0 pedestrian oriented



Scatterplot

Dependent Variable: Supportive Acts of Neighboring

DESIGN_R: 1 typical suburb



APPENDIX J

ANOVA BEFORE AND AFTER FOLLOW-UP

Oneway ANOVA comparing mean scores of before and after follow-ups

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Min	Max
Supportive Acts of Neighboring	Before followup	124	21.22	4.789	.430	20.37	22.07	6	27
	After first followup	69	20.42	4.519	.544	19.33	21.51	9	27
	After second followup	13	18.00	4.320	1.198	15.39	20.61	8	23
	Total	206	20.75	4.720	.329	20.10	21.40	6	27
Lack of Neighbor Annoyance	Before followup	126	7.17	1.378	.123	6.92	7.41	3	9
	After first followup	69	6.80	1.558	.188	6.42	7.17	3	9
	After second followup	13	6.15	1.345	.373	5.34	6.97	4	8
	Total	208	6.98	1.458	.101	6.78	7.18	3	9
Neighborhood Attachment & Weak Social Ties	Before followup	126	17.21	3.176	.283	16.65	17.77	5	21
	After first followup	70	16.79	3.055	.365	16.06	17.51	6	21
	After second followup	13	14.85	2.672	.741	13.23	16.46	9	20
	Total	209	16.92	3.145	.218	16.49	17.35	5	21

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Supportive Acts of Neighboring	Between Groups	132.941	2	66.471	3.043	.050
	Within Groups	4433.933	203	21.842		
	Total	4566.874	205			
Lack of Neighbor Annoyance	Between Groups	15.571	2	7.786	3.761	.025
	Within Groups	424.352	205	2.070		
	Total	439.923	207			
Neighborhood Attachment & Weak Social Ties	Between Groups	67.504	2	33.752	3.494	.032
	Within Groups	1990.113	206	9.661		
	Total	2057.617	208			

Post Hoc Tests

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Questionnaires returned after follow up	(J) Questionnaires returned after follow up	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Supportive Acts of Neighboring	Before followup	After first followup	.80	.702	.493	-.86	2.45
		After second followup	3.22*	1.362	.050	.00	6.43
	After first followup	Before followup	-.80	.702	.493	-2.45	.86
		After second followup	2.42	1.413	.203	-.92	5.76
	After second followup	Before followup	-3.22*	1.362	.050	-6.43	.00
		After first followup	-2.42	1.413	.203	-5.76	.92
Lack of Neighbor Annoyance	Before followup	After first followup	.37	.215	.202	-.14	.88
		After second followup	1.01*	.419	.043	.02	2.00
	After first followup	Before followup	-.37	.215	.202	-.88	.14
		After second followup	.64	.435	.303	-.38	1.67
	After second followup	Before followup	-1.01*	.419	.043	-2.00	-.02
		After first followup	-.64	.435	.303	-1.67	.38
Neighborhood Attachment & Weak Social Ties	Before followup	After first followup	.42	.463	.636	-.67	1.51
		After second followup	2.36*	.905	.026	.22	4.50
	After first followup	Before followup	-.42	.463	.636	-1.51	.67
		After second followup	1.94	.939	.099	-.28	4.16
	After second followup	Before followup	-2.36*	.905	.026	-4.50	-.22
		After first followup	-1.94	.939	.099	-4.16	.28

*. The mean difference is significant at the .05 level.

Homogeneous Subsets

Supportive Acts of Neighboring

Tukey HSD[a,b]

Questionnaires returned after follow up	N	Subset for alpha = .05	
		1	2
After second followup	13	18.00	
After first followup	69	20.42	20.42
Before followup	124		21.22
Sig.		.112	.785

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 30.157.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Lack of Neighbor Annoyance

Tukey HSD[a,b]

Questionnaires returned after follow up	N	Subset for alpha = .05	
		1	2
After second followup	13	6.15	
After first followup	69	6.80	6.80
Before followup	126		7.17
Sig.		.194	.579

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 30.196.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Neighborhood Attachment & Weak Social Ties

Tukey HSD[a,b]

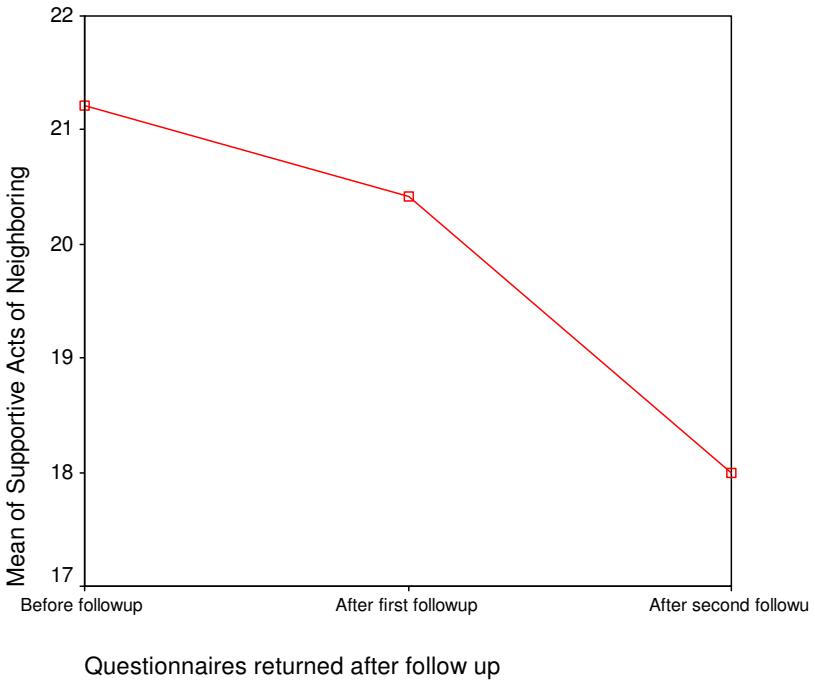
Questionnaires returned after follow up	N	Subset for alpha = .05	
		1	2
After second followup	13	14.85	
After first followup	70		16.79
Before followup	126		17.21
Sig.		1.000	.859

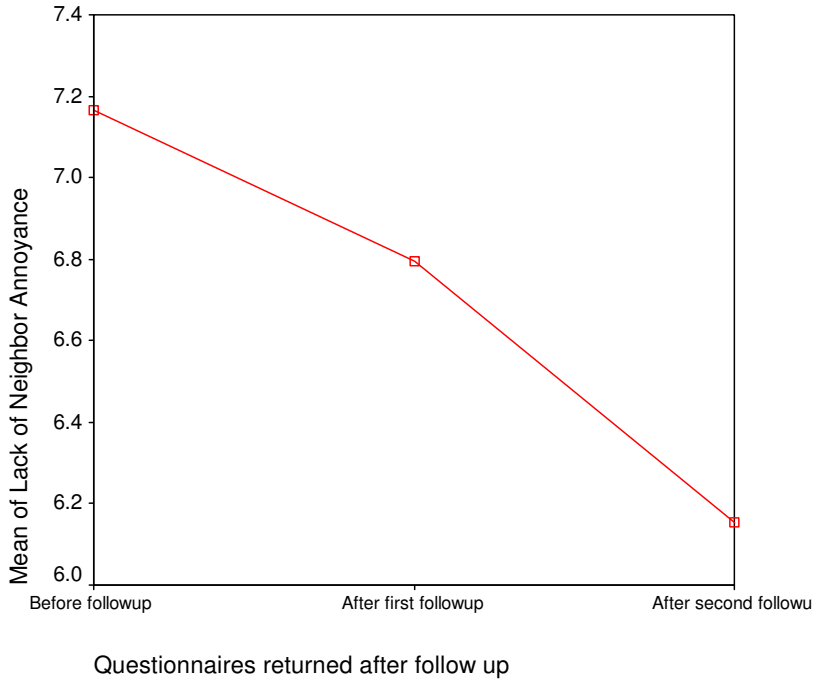
Means for groups in homogeneous subsets are displayed.

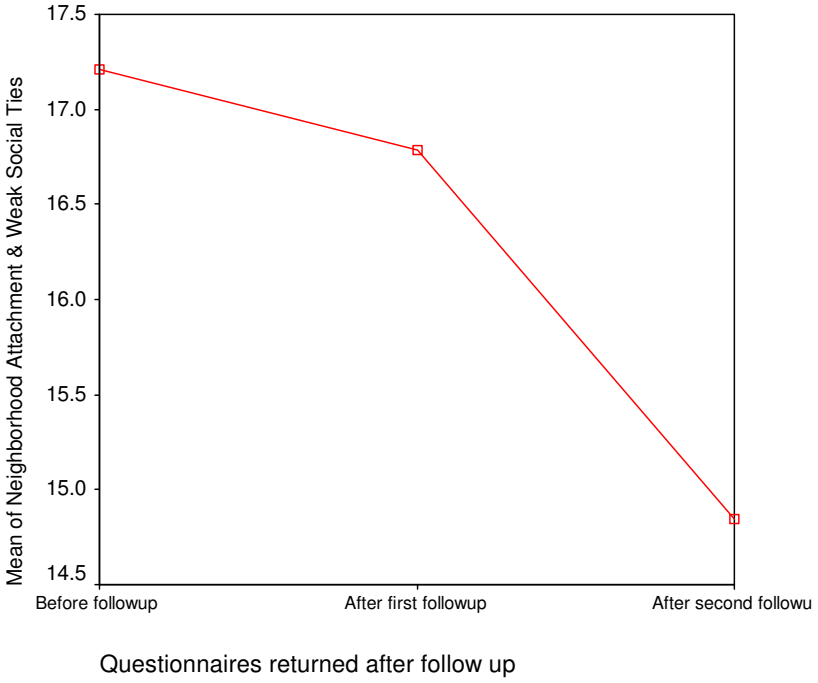
a. Uses Harmonic Mean Sample Size = 30.259.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Means Plots




7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
Mean of Lack of Neighbor Annoyance
Before followup
After first followup
After second followu
Questionnaires returned after follow up


17.5
17.0
16.5
16.0
15.5
15.0
14.5
Mean of Neighborhood Attachment & Weak Social Ties
Before followup
After first followup
After second followu
Questionnaires returned after follow up

APPENDIX K

THE OBSERVATIONS

Observation Results of Cottage Green

Observation Results
Cottage Green
Date of observation: Wednesday, May 3, 2006
Time: 5:00 - 6:00 PM
Weather: Partly cloudy, 85˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking		1	1	1	**3**
	Stroller					**-**
	Pet walking	1		2		**3**
	Jogging					**-**
	Biking/ Roller blading	1		2		**3**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	2	1	5	1	**9**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting	1		2		**3**
	Walking			2	1	**3**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			4		**4**
	Carwashing/ other works					**-**
	Parents with children playing	1		1		**2**
	Children playing w/o parents					**-**
	Summary	2	-	9	1	**12**
Neighborhood park usage	Reading			1		**1**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents	4				**4**
	Summary	4	-	1	-	**5**
	Grand Summary	8	1	15	2	**26**

Cottage Green
Date of observation: Saturday, May 6, 2006
Time: 6:10 - 7:20 PM
Weather: Sunny, 81˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking			2		**2**
	Stroller					**-**
	Pet walking	1		2		**3**
	Jogging					**-**
	Biking/ Roller blading	8		2		**10**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents	1		2		**3**
	Summary	10	-	8	-	**18**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting			1	5	**6**
	Walking	1				**1**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork				1	**1**
	Carwashing/ other works					**-**
	Parents with children playing					**-**
	Children playing w/o parents	3				**3**
	Summary	4	-	1	6	**11**
Neighborhood park usage	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	2		2		**4**
	Children playing w/o parents					**-**
	Summary	2	-	2	-	**4**
	Grand Summary	16	-	11	6	**33**

Cottage Green
Date of observation: Sunday, May 7, 2006
Time: 9:20 - 10:20 AM
Weather: Cloudy, 75˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking	2		2		**4**
	Stroller					**-**
	Pet walking			4		**4**
	Jogging					**-**
	Biking/ Roller blading	7				**7**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	9	-	6	-	**15**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking			2		**2**
	Sitting	1		2	2	**5**
	Walking			2	1	**3**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			2		**2**
	Carwashing/ other works			1		**1**
	Parents with children playing					**-**
	Children playing w/o parents	2				**2**
	Summary	3	-	9	3	**15**
Neighborhood park usage	Reading			1		**1**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	1		1		**2**
	Children playing w/o parents	2				**2**
	Summary	3	-	2	-	**5**
	Grand Summary	15	-	17	3	**35**

Observation Results of Grand Lakes

Observation Results
Grand Lakes
Date of observation: Tuesday, May 2, 2006
Time: 6:35 - 7:30 PM
Weather: Partly cloudy, 85˘ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking	2		1		**3**
	Stroller	1		1		**2**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking					**-**
	Parents with children playing	1		1		**2**
	Children playing w/o parents					**-**
	Summary	**4**	**-**	**3**	**-**	**7**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking			2		**2**
	Sitting			2		**2**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			1		**1**
	Carwashing/ other works					**-**
	Parents with children playing	2		2		**4**
	Children playing w/o parents	4				**4**
	Summary	**6**	**-**	**7**	**-**	**13**
Neighborhood park usage	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller	1		2		**3**
	Pet walking			1		**1**
	Jogging					**-**
	Biking/ Roller blading		1			**1**
	Picnicking					**-**
	Parents with children playing	2		1		**3**
	Children playing w/o parents	1	2			**3**
	Summary	**4**	**3**	**4**	**-**	**11**
	Grand Summary	**14**	**3**	**14**	**-**	**31**

Grand Lakes
Date of observation: Sunday, May 7, 2006
Time: 5:00 - 6:00 PM
Weather: Partly cloudy, 85˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
	Reading					**-**
	Talking					**-**
	Sitting					**-**
Street activities	Walking	2		3		**5**
	Stroller					**-**
	Pet walking			2		**2**
	Jogging					**-**
	Biking/ Roller blading	2				**2**
	Picnicking/ barbecue					**-**
	Parents with children playing	5		2		**7**
	Children playing w/o parents	2				**2**
	Summary	**11**	**-**	**7**	**-**	**18**
	Reading					**-**
	Talking					**-**
	Sitting			2		**2**
	Walking					**-**
Semi-private space usage	Stroller					**-**
(Porches, frontyards, alleys)	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue		1	1		**2**
	Gardening/ yardwork			2		**2**
	Carwashing/ other works			3		**3**
	Parents with children playing	3				**3**
	Children playing w/o parents					**-**
	Summary	**3**	**1**	**8**	**-**	**12**
	Reading					**-**
	Talking					**-**
	Sitting					**-**
Neighborhood park usage	Walking	1	1			**2**
	Stroller					**-**
	Pet walking			1		**1**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	6		5		**11**
	Children playing w/o parents					**-**
	Summary	**7**	**1**	**6**	**-**	**14**
	Grand Summary	**21**	**2**	**21**	**-**	**44**

Grand Lakes
Date of observation: Sunday, May 7, 2006
Time: 5:00 - 6:00 PM
Weather: Partly cloudy, 85˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
	Reading					**-**
	Talking					**-**
	Sitting					**-**
Street activities	Walking	3		3		**6**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**3**	**-**	**3**	**-**	**6**
	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
Semi-private space usage	Stroller					**-**
(Porches, frontyards, alleys)	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork	2		3		**5**
	Carwashing/ other works			5		**5**
	Parents with children playing	1				**1**
	Children playing w/o parents	7				**7**
	Summary	**10**	**-**	**8**	**-**	**18**
	Reading					**-**
	Talking					**-**
	Sitting					**-**
Neighborhood park usage	Walking	1		1		**2**
	Stroller					**-**
	Pet walking			1		**1**
	Jogging					**-**
	Biking/ Roller blading		3			**3**
	Picnicking/ barbecue					**-**
	Parents with children playing	3		1		**4**
	Children playing w/o parents					**-**
	Summary	**4**	**3**	**3**	**-**	**10**
	Grand Summary	**17**	**3**	**14**	**-**	**34**

Observation Results of Evangeline Oaks

Observation Results
Evangeline Oaks
Date of observation: Wednesday, May 3, 2006
Time: 6:15 - 7:15 PM
Weather: Partly cloudy, 85˘ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking			3		**3**
	Stroller					**-**
	Pet walking			1		**1**
	Jogging			1		**1**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents	1	1			**2**
	Summary	**1**	**1**	**5**	**-**	**7**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting	1		1		**2**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			1		**1**
	Carwashing/ other works					**-**
	Parents with children playing	7		1		**8**
	Children playing w/o parents	3				**3**
	Summary	**11**	**-**	**3**	**-**	**14**
Neighborhood park usage	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	1		1		**2**
	Children playing w/o parents	2				**2**
	Summary	**3**	**-**	**1**	**-**	**4**
	Grand Summary	**15**	**1**	**9**	**-**	**25**

Evangeline Oaks
Date of observation: Saturday, May 6, 2006
Time: 5:00 - 6:00 PM
Weather: Sunny, 81˜ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking	1		1		**2**
	Stroller					**-**
	Pet walking					**-**
	Jogging			1		**1**
	Biking/ Roller blading	1	1			**2**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**2**	**1**	**2**	**-**	**5**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			2		**2**
	Carwashing/ other works					**-**
	Parents with children playing	4		1		**5**
	Children playing w/o parents	6				**6**
	Summary	**10**	**-**	**3**	**-**	**13**
Neighborhood park usage	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	1		1		**2**
	Children playing w/o parents					**-**
	Summary	**1**	**-**	**1**	**-**	**2**
	Grand Summary	**13**	**1**	**6**	**-**	**20**

Evangeline Oaks
Date of observation: Sunday, May 7, 2006
Time: 10:30 - 11:30 AM
Weather: Cloudy, 75˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking	4		2	1	**7**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading	2		2		**4**
	Picnicking/ barbecue					**-**
	Parents with children playing	3		1		**4**
	Children playing w/o parents					**-**
	Summary	**9**	**-**	**5**	**1**	**15**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			6		**6**
	Carwashing/ other works			2		**2**
	Parents with children playing	4		3		**7**
	Children playing w/o parents	2				**2**
	Summary	**6**	**-**	**11**	**-**	**17**
Neighborhood park usage	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**-**	**-**	**-**
	Grand Summary	**15**	**-**	**16**	**1**	**32**

Observation Results of Heritage Colony

Observation Results
Heritage Colony
Date of observation: Tuesday, May 2, 2006
Time: 5:00 - 5:55 PM
Weather: Sunny, 85˘ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking			1		**1**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**1**	**-**	**1**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			2		**2**
	Carwashing/ other works					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**2**	**-**	**2**
Neighborhood park usage (nearest park)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**-**	**-**	**-**
	Grand Summary	**-**	**-**	**3**	**-**	**3**

Heritage Colony
Date of observation: Sunday, May 7, 2006
Time: 6:30 - 7:30 PM
Weather: Partly cloudy, 85˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking			1		**1**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**1**	**-**	**1**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			3		**3**
	Carwashing/ other works			1	1	**2**
	Parents with children playing	3		2		**5**
	Children playing w/o parents					**-**
	Summary	**3**	**-**	**6**	**1**	**10**
Neighborhood park usage (nearest park)	Reading					**-**
	Talking					**-**
	Sitting				2	**2**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing	3		5		**8**
	Children playing w/o parents					**-**
	Summary	**3**	**-**	**5**	**2**	**10**
	Grand Summary	**6**	**-**	**12**	**3**	**21**

Heritage Colony
Date of observation: Sunday, May 7, 2006
Time: 6:30 - 7:30 PM
Weather: Partly cloudy, 85˚ F

		Children <12 yrs	Youths	Adults	Elderly	**Summary**
Street activities	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking			1		**1**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**1**	**-**	**1**
Semi-private space usage (Porches, frontyards, alleys)	Reading					**-**
	Talking					**-**
	Sitting					**-**
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Gardening/ yardwork			2		**2**
	Carwashing/ other works			6		**6**
	Parents with children playing					**-**
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**8**	**-**	**8**
Neighborhood park usage (nearest park)	Reading					**-**
	Talking					**-**
	Sitting					
	Walking					**-**
	Stroller					**-**
	Pet walking					**-**
	Jogging					**-**
	Biking/ Roller blading					**-**
	Picnicking/ barbecue					**-**
	Parents with children playing					
	Children playing w/o parents					**-**
	Summary	**-**	**-**	**-**	**-**	**-**
	Grand Summary	**-**	**-**	**9**	**-**	**9**

APPENDIX L

IRB PROTOCOL APPROVALS

VPR
Office of the Vice President for Research

Office of Research Compliance

Administration and Special Programs

Academy for Advanced Telecommunication and Learning Technologies

Institute for Scientific Computation

Laboratory Animal Resources and Research

Microscopy and Imaging Center

Office of Business Administration

Office of Graduate Studies

Office of Sponsored Projects

Texas A&M University Research Park

Texas A&M University

1112 TAMU
118 Administration Building
College Station, Texas
77843-1112

979.845.8585
FAX 979.862.3176

May 27, 2002

MEMORANDUM

TO: Sineenart Sukolratanametee
Department of Landscape Architecture and Urban Planning
MS 3137

SUBJECT: Review of Exempt IRB Protocol "Can New Urbanism Enhance Sense of Community? A Comparative Study of Two Neighborhoods in the Woodlands, Texas" 2002-227E

Approval Date: May 27, 2002 – May 26, 2003

The Institutional Review Board – Human Subjects in Research, Texas A&M University has reviewed and approved the above referenced protocol. Your study has been approved for one year. As the principal investigator of this study, you assume the following responsibilities:

Renewal: Your protocol must be re-approved each year in order to continue the research. You must also complete the proper renewal forms in order to continue the study after the initial approval period.

Adverse events: Any adverse events or reactions must be reported to the IRB immediately.

Amendments: Any changes to the protocol, such as procedures, consent/assent forms, addition of subjects, or study design must be reported to and approved by the IRB.

Informed Consent/Assent: All subjects should be given a copy of the consent document approved by the IRB for use in your study.

Completion: When the study is complete, you must notify the IRB office and complete the required forms.

Dr. E. Murl Bailey, Chair
Institutional Review Board –
Human Subjects in Research

VPR
Office of the Vice President for Research

Office of Research Compliance

Administration and Special Programs

Academy for Advanced Telecommunication and learning Technologies

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979.845.8585
FAX 979.862.3176

April 22, 2003

MEMORANDUM

TO: Sineenart Sukolratanametee
Department of Landscape Architecture and Urban Planning
MS 3137

SUBJECT: Continuing Review of IRB Protocol "Can New Urbanism Enhance Sense of Community? A Comparative Study of Two Neighboorhoods in the Woodlans, Texas" 2002-227E

Approval Date: May 27, 2003 to May 26, 2004

The Institutional Review Board – Human Subjects in Research, Texas A&M University has reviewed and approved the above referenced protocol. Your study has been approved for one year. As the principal investigator of this study, you assume the following responsibilities:

Renewal: Your protocol must be re-approved each year in order to continue the research. You must also complete the proper renewal forms in order to continue the study after the initial approval period.

Adverse events: Any adverse events or reactions must be reported to the IRB immediately.

Amendments: Any changes to the protocol, such as procedures, consent/assent forms, addition of subjects, or study design must be reported to and approved by the IRB.

Informed Consent/Assent: All subjects should be given a copy of the consent document approved by the IRB for use in your study.

Completion: When the study is complete, you must notify the IRB office and complete the required forms.

Dr. E. Murl Bailey, CIP, Advisor
Institutional Review Board –
Human Subjects in Research

VPR Office of the Vice President for Research

Office of Research Compliance

Administration and Special Programs

Academy for Advanced Telecommunication and Learning Technologies

Institute for Scientific Computation

Laboratory Animal Resources and Research

Microscopy and Imaging Center

Office of Business Administration

Office of Graduate Studies

Office of Sponsored Projects

Texas A&M University Research Park

Date May 18, 2004

MEMORANDUM

TO: Sineenart Sukolratanameter
Landscape Architecture
MS 3137

FROM: Dr. E. Murl Bailey, CIP, Advisor
Institutional Review Board
MS 1112

SUBJECT: IRB Protocol Review

Title: Pedestrian-Oriented Neighborhood Design and Sense of Community: A Comparative Study

Protocol Number: 2002-227E
Review Category: Exempt from Full Review
Approval Date: May 18, 2004 **to** May 17, 2005

The approval determination was based on the following Code of Federal Regulations
http://ohrp.osophs.dhhs.gov/humansubjects/guidance/45cfr46.htm

_____ **46.101(b)(1)**	_____ **46.101(b)(4)**
✓ **46.101(b)(2)**	_____ **46.101(b)(5)**
_____ **46.101(b)(3)**	_____ **46.101(b)(6)**

Remarks:

The Institutional Review Board – Human Subjects in Research, Texas A&M University has reviewed and approved the above referenced protocol. Your study has been approved for one year. As the principal investigator of this study, you assume the following responsibilities:

***Renewal*:** Your protocol must be re-approved each year in order to continue the research. You must also complete the proper renewal forms in order to continue the study after the initial approval period.

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***Informed Consent/Assent*:** All subjects should be given a copy of the consent document approved by the IRB for use in your study.

***Completion*:** When the study is complete, you must notify the IRB office and complete the required forms.

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PART 46.101 PROTECTION OF HUMAN SUBJECTS

46.101

(a) Except as provided in paragraph (b) of this section, this policy applies to all research involving human subjects conducted, supported or otherwise subject to regulation by any Federal Department or Agency which takes appropriate administrative action to make the policy applicable to such research. This includes research conducted by Federal civilian employees or military personnel, except that each Department or Agency head may adopt such procedural modifications as may be appropriate from an administrative standpoint. It also includes research conducted, supported, or otherwise subject to regulation by the Federal Government outside the United States.

(1) Research that is conducted or supported by a Federal Department or Agency, whether or not it is regulated as defined in 46.102(e), must comply with all sections of this policy.

(2) Research that is neither conducted nor supported by a Federal Department or Agency but is subject to regulation as defined in 46.102(e) must be reviewed and approved, in compliance with 46.101, 46.102, and 46.107 through 46.117 of this policy, by an Institutional Review Board (IRB) thatoperates in accordance with the pertinent requirements of this policy.

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:[1]

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if:
(i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

(5) Research and demonstration projects which are conducted by or subject to the approval of Department or Agency heads, and which are designed to study, evaluate, or otherwise examine:
(i) Public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

(6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food isconsumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

VITA

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Education: Bachelor of Architecture, Honors (1993)
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Doctor of Philosophy (2006)
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