WHAT EXPLAINS BEHAVIORS AND ATTITUDES TOWARDS NEIGHBORHOOD ENVIRONMENTS? AN INTEGRATED MODEL OF INDIVIDUAL RESPONSES TO URBAN ENVIRONMENTAL PROBLEMS

by

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Abstract

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Urban scholars argue that a strong link exists between civic engagement, informal ties, community identity and environmental problems. However, there is considerable disagreement on how these relationships emerged and affect different dynamics impacting people's decision to participate in environmental improvement activities. For this reason, the purpose of this cross-sectional study is to better understand the relationships between perception of environmental problems and neighborhood dynamics in explaining people's responses to environmental problems. In this study, an environmental psychology framework was adopted which suggested that environmental problems emerge as a result of dialectic interactions between people and places. This framework allowed considering hypotheses and explanations relating neighborhood environmental problems to neighborhood dynamics from different disciplines.

To understand these relationships, a survey instrument was developed taking into consideration relevant topics identified by the literature as contributors to environmental awareness and actions. The sample for the survey consisted of

408 community college students from the City University of New York (CUNY) where more than half of the student population is part of an ethnic minority group and have low incomes. The neighborhoods where the survey respondents live as well as their socio-demographic characteristics were identified to provide a context to interpret descriptive statistics and the structural equation analysis.

The results of this study revealed that when people perceived a good quality of life in their neighborhood, they develop stronger emotional connections with the area and are more likely to have social relations with neighbors. In addition, the findings suggest that environmental problems need to be visible and perceived as a threat for people to develop a respond. The SEM developed supports the argument that neighborhood revitalization activities should include aspects of place-based redevelopment and people-focused strategies for them to be successful. However, the impact and applicability of this study is limited due to issues related to sampling method and the contextualization of the variables under study. Regardless of its limitations, this research provides evidence that neighborhood social and place dynamics interactions influence people's responses to environmental problems.

ACKNOWLEDGEMENTS

I grew up in a neighborhood located near a landfill where I could sometimes experience the smell of trash or the ashes when the garbage was being burned. That hill of trash, that was growing while I was growing up, was part of my neighborhood and my childhood. We accepted the landfill as part of our neighborhood and we did not do anything to change it. Living this experience motivated me to write this dissertation to try to understand how our neighborhoods experiences could trigger (or not) a desire to take action and improve living conditions.

Many people supported this quest for knowledge and I am very grateful to all of them. I would especially like to thank the dissertation committee for their critical feedback that allowed me to grow as a researcher. I am also thankful to the professors and students of Bronx Community College and Queensborough Community College who helped me to collect the data for this study.

I am also very thankful to my family, friends, and co-workers who supported me by listening to my ideas, reading drafts of this dissertation and encouraging me to always do my best. I would like to particularly mention my mother Luz Idalia Espinosa and "*mi corazón de melón*" Mitch Hemann who always had faith in me.

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Chapter 1

Introduction

Researchers interested in urban dynamics have documented how neighborhood environmental conditions have an impact on people's desire to take action (Edelstein & Wasserman, 1987; Edelstein 1988; Levine, 1982; Rich, et al., 1995). Usually, these studies adopt a qualitative research design that provides an in-depth description of specific environmental problems and how individuals and communities respond to them. Through these studies we learned that factors associated with social and physical environments have influenced people's responses to environmental problems. However, these studies do not explain how these factors operate or influenced these responses. For example, Edelstein (1988) studied the impact of residential toxic exposure and identified social support and social networks as important factors affecting these responses; however, the used of a qualitative design did not allow an examination of these relationships in terms of possible cause and effects. For this reason, the purpose of this cross-sectional study is to better understand the relationships between perceptions of environmental problems and neighborhood dynamics in explaining people's responses to environmental problems.

Urban scholars have considered neighborhood dynamics describing individuals' senses of place, social capital, and their perceptions of neighborhood

quality as important factors contributing to neighborhood well-being especially in low income neighborhoods (Hays & Kogl, 2007, Leavitt & Saegert, 1990; Saegert, et al., 2001; Portney & Berry, 1997). They argue that a strong link exists between civic engagement, informal ties, community identity and environmental conditions and that these relationships can be used to design place-based activities that empower individuals in disadvantaged neighborhoods. However, there is considerable disagreement on how these relationships emerged and affect different dynamics impacting people's decisions to participate in environmental improvement activities. For this reason, the overarching question guiding this research is: **How do environmental dynamics (sense of place, social capital, and neighborhood quality) mediate the relationship between people's perceptions of environmental problems and their responses?** The answer to this question requires an understanding of how people perceive their environment and which factors influence these perceptions.

Given the complexity of this question, a set of sub-questions was also developed to guide different steps of this research. They are: 1) what is the role of demographic characteristics - ethnicity and socio-economic status - when examining perceptions of environmental problems? 2) what kind of environmental problems are considered threatening? 3) what are the indicators associated with sense of place, neighborhood quality and social capital? To answer these questions, the research design combines both quantitative and qualitative data analysis. A survey was used to measure the relationship between environmental perception, neighborhood quality, sense of place, and social capital as

contributors to peoples' responses. Qualitative interviews were used to inform survey constructs and guide decisions concerning statistical analysis. In addition, US census data were used to describe the neighborhoods in which survey participants reside.

This study also adopts an environmental psychology framework to understand people's responses to environmental problems. Using this framework implies examining theory and research from different fields – sociology, community psychology, neighborhood health and environmental justice – to understand how people connect to their neighborhood surroundings. It also implies that relationships between peoples' perceptions of environmental problems and their responses will be empirically examined and interpreted through an interdisciplinary framework. This will allow for the addition of many contributions to the development of theories and models that incorporate explanations from different disciplines; thus, broadening our understanding of how people-environment connections have an impact on responses to environmental problems.

Chapter 2

Literature Review

This literature review includes theoretical approaches and empirical evidence documenting how neighborhood attributes, personal experiences, and demographic characteristics affect people's responses to environmental problems. Specifically, this review examines how people's perceptions of neighborhood environmental problems can be considered threats to peoples' health and neighborhood dynamics may trigger two responses: 1) an awareness of the environment and desire to do something to improve it; and 2) a desire to move away from the neighborhood. To discuss this literature, an environmental psychology framework was adopted which suggested that environmental problems emerge as a result of dialectic interactions between people and places. This framework allowed considering hypotheses and explanations relating neighborhood environmental problems to neighborhood dynamics from different disciplines. Literature in the following areas was examined: environmental concern, environmental justice, social capital, sense of place, neighborhood quality, and risk perception.

People's responses when perceiving environmental problems

Previous studies have documented the relationship between perception of environmental problems and their effects on individuals and community

responses (Cable & Cable, 1995; Cable & Deguitis, 1991; Edelstein & Wandersman, 1987; Edelstein, 1988; Levine, 1982; Rich, et al., 1995; Taylor, 1997). Overall, these studies argue that risks, toxic environments, and neighborhood environmental decay are events that have an impact on people's everyday lives. Adopting a case study methodology, the bulk of these studies understand these problems as sources of stress in people's lives and explain people's responses in terms of action or inaction (Cable & Cable, 1995; Edelstein, 1988; Hohm, 1976; Levine, 1982; McGee, 1999). They also argue that the combination of how an environmental problem is perceived, neighborhood conditions, and individual experiences will affect the type of response expressed (action or inaction) and its level (individual or collective). To explain these responses, risk-perception theories argue that different ways of experiencing environmental problems lead to cognitive interpretations and behaviors that explain the nature of these responses at individual or community levels (Baum, et al., 1983; Baum, et al., 1992; Edelstein & Wandersman, 1987; Edelstein, 1988; Elliot et al., 1997; Hartman, 1998; Johnson & Scicchitano, 2000; Kates, 1987; Priestley & Evans, 1996; Rich et al., 1995; Robinson, 2002; Slovic, et al., 1979; Slovic, 1997, Turner, 1978; Whyte, 1986).

When explaining inaction, studies of risk-perception suggest that coping strategies explain why some people do not do anything to address an environmental problem (Elliot et al., 1997; Slovic, et al., 1979). To maintain a feeling of personal control over their lives, people prefer not to confront these problems or define the situation as non-threatening. Other studies suggest that

not confronting the problem acts as a mechanism of defense because an inability to deal with the problem causes personal anxiety (Beck, 1992; Giddens, 1990; Johnson & Scicchitano, 2000; Turner, 1978). Not doing anything when confronted with an environmental problem is a response that can be commonly observed when environmental problems are not publicly acknowledged as threats, when information is not available to the public, or when communities and individuals do not have the resources to deal effectively with the problem (Edelstein, 1988).

Risk perception studies stress that a public acknowledgement of the environmental problem is a pre-requisite for individual or community engagement in activities that can lead to a solution (Edelstein & Wandersman, 1987; Edelstein, 1988; Levine, 1982; Reguillo, 1999; Rich, et al. 1995; Slovic, 2000; Weisendfield & Guiliani, 2000, 2002). For example, Reguillo (1999) conducted a qualitative study describing the public response to the gas explosions that occurred in Guadalajara, Mexico in 1992 and found that public opinion about the event affected collective responses. In this study, the author documented how people's involvement in activities demanding interventions from formal institutions (e.g. rallies, protests, creation of grassroots organizations) was greater when the public perceived that the explosions could happen at any moment. In this case cognitive interpretations made by the public affected collective behavioral responses.

According to the empirical evidence, people engage in cognitive and/or behavioral responses to environmental problems if they are perceived as a threat

to their health and/or as a threat to their community (Cable & Cable, 1995; Edelstein & Wandersman, 1987; Edelstein, 1988; Fischer, 2000; Freudenberg, 1984; Jasanoff, 1997; Levine, 1982; McGee, 1999; Reguillo, 1999;). Cognitive responses are expressed through thoughts, feelings and emotions that could include re-interpretations of the situation to make a person feel better. Behavioral responses include active involvement in activities designed to reduce the effects of the environmental problem. Cognitive and behavioral responses are not independent from each other. A study describing chronic environmental lead contamination in a mining community in Australia documented how cognitive interpretations of an environmental problem influence people's behaviors (McGee, 1999). In this study, people's cognitive responses were expressed through the belief that lead contamination was not relevant to them and that the community was not responsible for its resolution. This cognitive response facilitated individual and private coping strategies rather than collective actions to alleviate the problem. These individual actions included collecting information about lead contamination and participating in health intervention programs. In the study described above, only the people who believed that lead contamination had an adverse effect on their health engaged in an active individual response. However, collective responses that may have been expressed when the community addressed the contamination as a public threat were not observed.

Another response to environmental problems could involve planning to move away from the neighborhood. There are different reasons that may explain peoples' desires to move from a neighborhood but previous studies have found a

relationship between environmental conditions and residential stability (Schieman, 2005; Schulz, et al. 2006). Usually, people moved from their homes as a response to an environmental problem when they perceived an inability to change current conditions and perceived them as a threat to their health. Plans regarding residential mobility could be reflected by individual isolation, lack of support to deal with the problem, lack of collective agreement about the severity of the problem, and/or lack of collective agreement about the possible solutions to the problem. Experiencing an environmental problem, such as poorly maintained buildings, traffic problems, cockroach infestation, or chemical contamination could trigger a desire to move away from the neighborhood. When the environmental problem is a part of people's everyday lives, it is more difficult to acknowledge it collectively as a problem, because doing so could threaten people's sense of safety or well-being. Moreover, people living in disadvantaged neighborhoods could express a desire to move away but find themselves unable to execute their plans since they might not have the financial capability to afford to move to a place in a better neighborhood (Sampson & Morenoff, 2006). On many occasions, low-income and working class households find themselves trapped in disadvantaged neighborhoods with few resources to improve current conditions. Independent of the reasons that trigger a desire to move, plans regarding residential mobility limit the possibility of a collective response to environmental problems. It is important to note that not all responses involving moving from the neighborhood are individual responses to the problem or an indication of lack of public acknowledgement. Some moving

responses to environmental problems can be originated by collective efforts to solve the problem. For example, residents of Comunidad Cristiana in Puerto Rico and Love Canal in New York moved from their homes leaving the suburban neighborhoods deserted after discovering mercury contamination (Levine, 1982; Robinson, 2002; www.atsdr.gov/HAC/PHA/frontera/fro_p1.html). In these cases, the situations were publicly acknowledged and considered a major threat to people's health. Residents from these communities received government assistance for re-location and also garnered public support, both of which facilitated a public community response.

Involvement in community activities that promote a healthy environment is another way of responding to environmental problems. These activities could include clean-ups or rallies demanding some type of action from formal institutions. Usually, these responses are channeled by the creation of grassroots organizations and/or non-governmental organizations (NGOs) that provide social support, information and resources to deal with the problem (Austin & Schill, 1991; Cable & Cable, 1995; Edelstein & Wandersman, 1987; Edelstein, 1988; Fischer, 2000; Freudenberg, 1984; Jasanoff, 1997; Kaufman & Alfonso, 1997; Levine, 1982; Miller, Hallstein & Quass, 1996; Reguillo, 1999; Rich, et al., 1995). In many cases, the success of these responses depends on the willingness of individuals to be part of the organizations and/or the activities that they are promoting (Fischer, 2000; Hohm, 1976), and a personal awareness of the benefits of a healthy environment to themselves and others (Stern & Dietz, 1994; Stern, et al. 1995). The presence of these two aspects would increase the

probability that people would assume an active role in resolving the environmental problems that affect them. Thus, willingness to act and personal commitment to contribute to a healthy environment is a useful response to examine because it considers the effectiveness of pro-environmental attitudes and pro-social behaviors.

By participating in environmental improvement activities, people act to transform their experiences with the adverse environmental conditions affecting them. As the literature previously presented indicates, people respond to environmental problems depending on their cognitive interpretation. In other words, the extent to which environmental problems are perceived as a threat to people's health will facilitate responses involving action or inaction. For this reason, it is important to examine the theories and models that are available to understand people's responses to environmental problems as well as the factors affecting those responses.

Theories and models predicting and explaining responses to environmental problems

When studying people's responses to environmental problems, we found that researchers use theories explaining environmental concerns and attitudes to develop models that identify the processes involved in these responses. As a result, a dominant theme within this literature has been the identification of the types of people who are most concerned about environmental problems and the reasons for these concerns. The literature provides evidence that pro-

environmental attitudes, like environmental concerns, predict pro-environmental behaviors such as participation in clean-ups or recycling activities (Meinhold & Malkus, 2005). Assuming that environmental concern is a pre-requisite to engage in any type of response, I will examine two theories used to understand people's pro-environmental behaviors as well as a widely used model explaining people's responses to environmental problems.

Theories explaining people's pro-environmental behaviors

Maslow's Hierarchy of Needs (1970) has been used to inform theories of how people relate to their environment and to understand people's positions towards environmental matters. This theory suggests that people universally satisfy their basic needs in a hierarchical order. Maslow (1970) used a pyramid that consists of five levels (1) biological, 2) safety, 3) sense of belonging, 4) self esteem, and 5) self-actualization needs) to illustrate how humans develop through the hierarchical fulfillment of needs. This theory suggests that human basic needs (i.e. food and shelter) are satisfied before a higher order need like sense of belonging (i.e. getting married). This theory has been criticized for its rigid view that every human satisfies their needs in the same order because it has not taken into consideration cultural and individual differences (Clarke & Dutt, 1991; Mohai & Bryant, 1998, 2006). Nevertheless, the theory has been widely influential in explaining people's behaviors and attitudes toward the environment (Hershey & Hill, 1977; Mohai & Bryant, 1998; Whittaker, et al. 2005). Maslow's theory (1970) suggests that, to understand people's responses

to environmental problems, we need to first identify which level of the pyramid they are in. If people are struggling to satisfy basic needs like food and water, they won't be interested in participating in activities addressing environmental issues, like global warming, because these issues are related to a higher level need. This theory also suggests that poor, working class and minority groups are struggling to fulfill day to day needs and are less likely to have the time and money to deal with environmental issues. Maslow's "Hierarchy of Needs" (1970) supports the argument that ethnic minorities and low income households do not participate in environmental improvement activities because they are busy trying to fulfill lower order needs like food or shelter, whereas Whites and people with more resources usually have the time and money to care about quality of life issues (Hershey & Hill, 1977). An explanation like this assumes that environmental problems do not threaten people's livelihoods and the argument itself is patronizing. Empirical evidence contradicting Maslow's theory suggests that environmental problems could become survival concerns and that ethnic minorities and low income households are more concerned about these problems when they are found in their neighborhoods (Lowe & Pinhey, 1982; Van Liere & Dunlap, 1980). Lowe & Pinhey (1982) found that a polluted environment concerned the people living in it, independent of the environmental conditions of their previous place of residence. They concluded that people's levels of environmental concerns are a result of their interaction with the environment and are not dependent on people's developmental stages. Maslow's "Hierarchy of Needs" (1970) is not able to explain these results or why

disadvantaged groups express their environmental concerns and participate in environmental grassroots organizations.

The environmental deprivation theory was developed as a response to Maslow's Hierarchy of Needs (1970) when researchers recognized that Maslow's theory was not able to explain their results (Lowe & Pinhey, 1982; Van Liere & Dunlap, 1980). Deprivation theory argues that day to day concerns to fulfill lower order needs related to people's survival like (e.g. shelter) would lend themselves to an awareness of the environment and the need to solve any environmentally related problem. This theory focuses on levels of exposure arguing that, people living in polluted neighborhoods will be more concerned about local environmental problems and that people living in less polluted neighborhoods will be more concerned about global environmental problems. Thus, environmental deprivation theory suggests that people exposed to immediate environmental inequalities will be more likely to participate in environmental improvement activities because they are more concerned about local environmental conditions.

Several studies provide support for this theory by demonstrating that living conditions can trigger environmental concerns that can lead to the manifestation of pro-environmental responses (Mohai & Bryant, 1992, 1998; Whittaker, et al. 2005). For example, Mohai & Bryant (1998) tested environmental deprivation theory by examining attitudes towards environmental protection in relation to ethnicity. These researchers conducted a survey of residents in the Detroit metropolitan area and found that African Americans are more concerned about

neighborhood environmental problems than Whites. When asked to rate neighborhood environmental problems (e.g. noise, litter or garbage, abandoned or boarded-up houses) African Americans were more likely than Whites to rate these as serious problems and were significantly more concerned. Mohai & Bryant's (1998) results support likelihood that African Americans live in poorer environmental conditions than Whites. As the researchers pointed out, the racial differences that they found are a function of the disproportionate burden in African American neighborhoods (i.e. poverty), not a characteristic of African Americans as an ethnic group. As a result, their study supports the environmental deprivation explanation.

Environmental deprivation theory explains how and why disadvantaged groups react to environmental problems by taking into consideration social and physical interactions. From an Environmental Deprivation point of view, people's responses to environmental problems are related to their environmental experiences, specifically to their levels of exposure to these problems, and not to an innate tendency guiding human development. Unlike Maslow's theory developmental perspective, Environmental Depravation theory offers an ecological perspective to understand environmental problems. For this reason, researchers examining people's responses to environmental problems use this theory to develop models that incorporate people's physical and social context (Edelstein, 1988; Edelstein & Wandersman, 2002; Evans & Cohen, 1987; McGee, 1999).

A model explaining people's responses to environmental problems: "Exploratory Map of Community Response to Toxic Contamination"

Using an environmental deprivation framework, Edelstein (1988) developed the "Exploratory Map of Community Response to Toxic Contamination." This model illustrates how communities respond to toxic contamination and how some community resources are affected depending on their levels of exposure and public acknowledgement. According to Edelstein (1988), exposure to an environmental problem changes how victims view their health, home, environment, personal control of the future, and ability to trust formal and informal institutions. To explain this phenomenon, he developed a five stage model in which the occurrence of any complex event, such as toxic exposure, has an impact at various levels of society (individual, family, and relational groups) collectively and over time. He argues that neighborhood toxic contamination isolates residents from their usual networks (e.g. family and friends), forcing them to establish connections with people who are facing a similar situation. Overall, the model argues that effective responses to toxic contamination are collective and channeled through grassroots organizations. The stages that communities go through when confronted with a toxic event are:

1. Discovery and announcement of toxic threat to the area: this stage includes a public acknowledgement of the threat to the self and to the community.
2. Environmental turbulence: during this stage the toxic event provokes situations of uncertainty and chaos. Usually, this stage includes public

acknowledgement of the environmental problem in which victims are confronted with new events that involve the community.

3. Initial coping efforts: people at this stage try to rely on family members and friends but soon realize that they cannot help because they do not understand the situation. In some cases, victims are negatively stigmatized if people from outside the community do not understand the problem.
4. Frustration: people discover that the usual resources designed to cope with difficult situations are ineffective and they are forced to create new ones. In some instances, the frustrations are caused by interpersonal and intra-organizational conflicts.
5. Dissensus or formation of grassroots organizations within the contaminated area: In this stage, coping strategies are created to deal with the toxic event; they could include isolation from the community, family and/or friends as well as the creation of resources, like grassroots organizations.

Edelstein's model suggests that environmental problems have a significant impact on people's lifestyles and that neighborhood dynamics and patterns of community living are changed after a toxic exposure or an environmental problem is disclosed. One of the model's strengths is that it breaks down the steps involved in people's responses to toxic contamination. This allows an understanding of the reasons for adopting a specific coping strategy. In addition, the model offers explanations that address factors associated with the physical

and social environments affecting the people involved in the situation. For example, the model stresses the importance of informal and formal social relations - social networks, sense of community, organizational membership - in developing effective community responses to toxic contamination. Edelstein (1988, 2002) explains that good social relations between neighbors opened up lines of communication that facilitated collective support and effective responses. The model also recognized that specific characteristics associated with the physical environment have also an effect on people's responses. For example, ecological factors like demarcation of physical neighborhood boundaries could affect people's sense of identification with the problem and, consequently, this will effect their level of participation in activities designed to solve toxic contamination (Edelstein & Wadersman, 1987),. By describing the process involved in community responses to environmental problems, this model effectively identifies physical and social factors contributing to the success of these responses. The factors considered in this model are: social networks, social support, neighboring activities, participation in community organizations, individual differences, sense of community and environmental quality.

However, the model only explains responses to toxic contamination and does not address day to day environmental problems like litter, traffic or buildings in poor condition. Also, the model does not consider individual responses to environmental problems. These weaknesses are not related to the usefulness of the model but to its applicability. In addition, taking into consideration that the model has proven to be useful in explaining community responses to toxic

contamination and its contributing factors, one goal of this research is to expand this model by considering individual responses and explaining relationships between previously identified factors affecting these responses.

Factors contributing to people's responses to environmental problems

The literature addressing individual and community responses to environmental problems argues that demographic characteristics as well as neighborhood dynamics are factors contributing to these responses. Traditionally, relying on survey techniques to explore relationships between social and demographic variables, researchers have widely studied how demographic variables - age, gender, income, education, place of residence – are correlates of indicators of environmental concern like exposure and perceptions of environmental problems and pro-environmental behaviors and neighborhood dynamics (Edelstein, 2002; Greenberg, 1999; Greenberg & Shneider, 1996; Lauria, 1998; Quinn, et al. 2003; Wakefield, et al. 2001). For this reason, in this section the interrelationships among environmental perceptions, demographic variables, and neighborhood dynamics that influence people's responses to environmental problems are examined.

Perceptions of environmental problems

When people are confronted with environmental problems, the research literature suggests that they judge and evaluate them when deciding to participate in neighborhood activities. Based on the information available, people

judge the impact of the environmental problem on their lives and consider the outcomes of engaging in a specific response (Douglas & Wildavsky, 1982; Kuhn, 2000). This process involves people's cultural values, past experiences, personal characteristics and knowledge. Douglas & Wildavsky (1982) developed a theory addressing how socio-cultural factors relate to people's perceptions of environmental problems. They argue that culture and shared beliefs play a role in providing a set of tools (values, symbols, traditions, rituals) that contribute to the evaluation of an environmental problem as threatening or not. According to their theory, every culture or group would have its own way of dealing with human-environment relationships because every group uses different parameters and indicators to define and measure risks and problems. According to these authors, risks (environmental problems are included in their definition of risks) become points of reference in peoples' lives that contribute to the development of collective identities and social membership. Every culture and/or group would have its own way of dealing with environmental problems depending on how much they are perceived as a threat or not (Bronfman & Cifuentes, 2003; Lai, et al., 2003). In other words, individuals who share similar experiences - for example, people living in similar places or people sharing similar characteristics like ethnicity or socio-economic status- will be most likely to make similar evaluations of an environmental problem.

To illustrate, studies addressing how disadvantaged groups experience the environment have documented that ethnicity, socioeconomic status and place of residence contribute to people's perceptions of and concerns about

environmental problems (Burger, et al. 2004; Burningham & Thrush 2003; Hershey & Hill, 1977; Mohai & Bryant, 1998; Whittaker, et al. 2005). Burningham & Thrush (2003) conducted focus groups to examine people's perception and concerns about the local environment in three disadvantaged neighborhoods. These neighborhoods were classified as disadvantaged because they included a high percentage of ethnic minorities, unemployed people, low income households, older people, and people with long-term illnesses or disabilities. The researchers found that participants in these focus groups were unfamiliar with the language of "environmentalism" and were more concerned with local environmental issues like dog mess, litter, safety and the effects of local problems on health than with global environmental issues like global warming or conservation of endangered species. However, despite their concerns about the local environment, these neighbors expressed the feeling that they can do little to improve their immediate surroundings. In this case, the researchers concluded that the environmental perceptions and concerns of disadvantaged groups are experienced as part of their social marginalization and lack of political power. In this case, disadvantaged groups shared similar experiences with respect to environmental problems that shaped their perceptions and possible responses.

Ethnicity, socio-economic status and exposure to environmental problems: Environmental justice findings

Studies addressing environmental problems and their effects on health consistently report that ethnicity, socio-economic status and exposure to the

problem are factors strongly influencing perceptions (Adeola 2000; Bullard 1990, 1992; Corburn et al. 2006; Evans & Kantrowitz, 2002; Freudenberg 1984; Jones & Rainey 2006; Mohai & Bryant, 1992; Sampson & Morenoff, 2005). Because perceptions of environmental problems is a factor affecting people's responses (Farquar, et al. 2005; Burningham & Thrush, 2003), it is important to address the relationship between ethnicity, socio-economic status and exposure to environmental problems. The environmental justice literature has documented this relationship by showing that minority, working class and low income households in the US are exposed to more environmental problems in their neighborhoods. These studies examined the extent to which the spatial location of the hazardous waste facilities correlates with minority enclaves and its impact on people's health, providing evidence that ethnicity and socio-economic status are factors contributing to neighborhood environmental inequality (Bowen, et al. 1995; Bullard, 1990, 1992, 1993, 2000; Corburn et al. 2006; Mohai & Bryant, 1992; Pastor, 2001; Pollock & Vittas, 1995). These studies also look at the effects of everyday environmental problems (i.e. noise, deterioration, and litter) in neighborhoods and their relationship to ethnicity, income and residents' health (Evans & Kantrowitz, 2002; Sampson & Morenoff, 2005).

Some studies suggest that poor minority groups perceived more environmental problems than affluent White groups because they are more exposed to these problems (Burger, et al. 2004; Burningham & Thrush, 2003; Downey & Van Willegen, 2005; Mohai & Bryant, 1998; Pastor, Morello-Frosch & Sadd, 2005; Whittaker, et al. 2005). The relationships among ethnicity, socio-

economic status and levels of exposure are relevant to this study because people in the same ethnic and income groups share similar experiences that could provoke similar responses to environmental problems.

Studies addressing the relationships among ethnicity, household income, and environmental exposure in New York City found that poor and minority communities have higher concentrations of polluting facilities in their neighborhoods (Corburn, 2006; Kinney et al., 2000; Olden, 1996). To illustrate, Corburn et al. (2006) found a positive correlation between social and physical neighborhood characteristics and asthma hospitalization rates in New York City. Using a measure of stationary sources of pollution (air polluting facilities, polluting land uses, and truck routes) the study confirmed that poor and minority communities have higher concentrations of polluting facilities in their neighborhoods and their asthma hospitalization rates are higher when compared to neighborhoods with less polluting facilities. The neighborhoods where a positive correlation between neighborhood characteristics – low median household incomes, high percentages of minorities, public and inadequate housing, polluting facilities, polluting land uses and truck routes – and asthma hospitalization rates for children was found are: Morrisania/Belmont, Central/East Harlem, the South Bronx and Central Brooklyn. In addition, the New York City Department of Health report “Health Disparities in New York City 2004” presents evidence of social disparities by ethnicity and income in New York City neighborhoods. This report argues that these variables contribute to an understanding of residents’ health in NYC neighborhoods. For instance, the

report provides evidence that Black and Hispanic New Yorkers are generally poorer than White New Yorkers by arguing that ethnic comparisons become comparisons between poorer and wealthier groups. Also, the report establishes a connection between ethnicity and SES by identifying the South Bronx, East and Central Harlem, and North and Central Brooklyn as the poorest neighborhoods in NYC and describing their ethnic composition as mostly Black and Hispanic.

As said previously, the environmental justice literature suggests that poor minority groups are exposed to more environmental problems in their neighborhoods. If minority groups are more exposed to environmental problems as part of their daily life, it is reasonable to expect that these problems influence people's perceptions of their neighborhood. These perceptions, consequently, could have an impact on people's willingness to take part in neighborhood pro-environmental activities. As a result, ethnicity and household income are variables that could contribute to an understanding of people's responses to environmental problems in NYC poor and working class neighborhoods.

Neighborhood quality

Previous research studies have documented a relationship between the quality of the physical environment, neighborhood conditions and people's responses to environmental problems (Adeola 2000; Cable & Cable, 1995; Burningham & Thrush, 2003; Farquhar, et al. 2005; Greenberg, et al. 1994; Greenberg, 1999; Keller-Olaman, 2005; Levine, 1982; Paigen et al. 1985; Yen, 2006). These studies suggest that neighborhood conditions have an effect on

people's evaluations of neighborhood quality[1] and that these evaluations influence people's decision to participate in environmental improvement activities. According to the literature, people's evaluations of neighborhood quality depend on resident awareness of noxious structures in their neighborhood (Cable & Cable, 1995; Edelstein, 1988; Fisher, 2000; Greenberg, et al. 1994; Greenberg, 1999; Keller-Olaman, 2005; Levine, 1982). For example, Greenberg, Schneider and Choi (1994) conducted a survey of households living in heavily industrialized areas to test the relationship between neighborhood quality and the presence of technological and behavioral hazards. The researchers, using a multi-step data analysis process, divided their sample into six zones and then compared the proportion of respondents in each zone who rated their neighborhood quality as excellent, good, fair, or poor in relationship to the number of distressing characteristics (i.e. heavy traffic, proximity to an incinerator, petroleum refineries, litter, and inadequate street lighting). Their results indicate that respondents who rated their neighborhood quality as poor identified more bothersome characteristics than people who rated their neighborhood as good. This study provides support for the argument that neighborhood physical structural conditions are used as an indicator of neighborhood quality because they affect peoples' evaluations.

People's evaluations of neighborhood quality may or may not trigger individual or collective responses to resolve environmental problems. Several hypotheses explored in the literature attempt to explain this relationship. One

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[1] This concept incorporates humans' needs for the social and physical environment to allow

hypothesis argues that people do not engage in a collective or individual response because they perceive the quality of the neighborhood as good. As a consequence, a response addressing improvement to current conditions is not needed (Edelstein, 1988; Reguillo, 1999). Another hypothesis explaining non-participation in environmental improvement activities states people who perceived the quality of their neighborhood as bad do not feel they have either the resources or economic and political power to support these actions. Several studies have documented how the capacity of ethnic and disadvantaged groups to respond to environmental problems has been affected by the lack of resources to resolve these problems or a sense of powerlessness to demand action from formal institutions (Burger, et al. 2004; Burningham & Thrush, 2003; Clark & Gerlak, 1998). On the other hand, a hypothesis explaining action argues that when people perceived the quality of the neighborhood structures as bad, they might have a reason to engage in environmental improvement activities (Edelstein & Wandersman, 1987; Paigen, et al. 1985; Reguillo, 1999; Whittaker, et al. 2005). To illustrate, Paigen et al. (1985) documented how the discovery of the effects of toxic contamination on the health of residents at Love Canal motivated residents to take action by organizing themselves to improve their living conditions. In this case, collective efforts and improvement initiatives were reported because residents perceived a decline in the quality of the physical environment as a consequence of industrial/toxic contamination as a threat to their health.

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human growth and developmental processes to occur in a healthy way.

Individuals' relationships with place: place attachment and sense of community

Acknowledging an environmental problem could provoke a disruption of a sense of place and the self that can motivate responses to these problems. Sense of place refers to the subjective relationship between individuals and their environments taking into consideration the psycho-social context as well as the practices of individuals within a place (Pretty, et al., 2003). It has been argued that a disruption in sense of place as a result of an environmental problem could motivate neighborhood activism or adaptation to changes (Brown & Perkins, 1992). Usually, the concept of sense of place is explored by examining place attachment[2] and sense of community[3] dynamics in the neighborhood.

The literature also points out that people with strong feelings of place attachment and sense of community will participate intensively in the activities designed to improve neighborhood conditions (Bachrach & Zautra, 1985; Brown & Perkins, 1992; Brown, Perkins & Brown, 2003; Crenshaw & St. John, 1989; Edelstein, 1988; Greenberg & Schneider, 1996; Kassarda & Janowitz, 1974; Saegert, 1989; Taylor, 1996; Vorkinn & Riese, 2001). To illustrate, a qualitative study conducted by Saegert (1989) documented how older women who felt attached to a neighborhood in poor physical condition took charge of leading the revitalization of landlord-abandoned housing in Harlem. Saegert's (1989) study

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[2] Altman & Low (1992) define place attachment as an emotional bond that develops between people and their environment that involves personal, group and/or cultural processes.

[3] Mcmillan & Chavis (1986, pp 9), define sense of community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that

suggests that one source of the motivation and commitment of these women was the strong emotional feelings of attachment that they developed towards their living environment. In addition, Bachrach & Zautra (1985) found a relationship between sense of community and involvement in community organizations. The authors used a path analytic model to examine peoples' responses to the threat of a hazardous waste facility and concluded that a strong sense of community promotes problem-solving behaviors that lead to a higher sense of purpose and perceived control. These studies suggest that a strong place attachment and sense of community motivate people to adopt an active role when looking for solutions to environmental problems.

Social dynamics in place: Social capital

The concept of social capital is widely used in the community development field to understand people's relationship with their environment (DeFilippis, 2001; Kaufman & Alfonso, 1997; Morrow, 1999, 2001; Perkins, et al. 2002; Perkins & Long, 2002; Portes, 1998; Saegert & Winkel, 1998; Saegert, et al. 2001; Sampson, 1988; Schaefer-McDaniel, 2004; Temkin & Rohe, 1998). Its emphasis is on connections among individuals, social networks and norms of reciprocity and trustworthiness to promote cooperative action and a democratic society (Bourdieu, 1986; Coleman, 1988; Putnam, 1995). When examining people's responses to environmental problems, social capital can be considered a resource that helps to avoid (or not avoid) exposure to environmental problems

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members' needs will be met through their commitment to be together."

or a contributor to their solution. This conceptualization implies looking at the different social connections that people have and how these connections become resources (or not) to improve environmental conditions.

Previous research studies have documented the relationship between the physical environment and people's social capital (Brown, Perkins & Brown, 2003; Camacho, 1998; Danaire, et al. 2002; Edelstein, 1988, 2002; Fitzpatrick & LaGory, 2001; Saegert & Winkel, 1998). These studies stressed that the potential for local mobilization is dependent in the interconnectedness of residents in specific geographic areas, and consequently, social capital will have a primary role in facilitating collective action. Danaire, et al. (2002) conducted a study in Bangkok, Thailand exploring the role of social capital in the environmental management of polluted areas. Using survey methodology, they measured the social capital of community households in five Bangkok neighborhoods and found that an increase in household social interactions in neighborhoods is associated with increases in community participation in environmental projects and an increase of environmental knowledge. The results of this study suggest that social capital reinforces community participation and supports the implementation of the improvement activities.

The interaction between social capital and place characteristics also plays an important role in the definition and interpretation of environmental problems and their effect on people's responses. Wakefield, Elliot, Cole and Eyles (2001) suggest that community attachment and social capital are mediating factors in the perception of environmental problems. Adopting a social constructionist

approach, the authors looked at the relationship of environmental risk-perception, concern and action around the environmental issue of air quality by focusing on the roles of social capital and place attachment. The authors conducted 21 in-depth interviews and found that, in the area under study, social capital is a primary contributor to the decision to take certain kinds of action while place attachment plays a lesser role. However, their sample was too small to permit generalization or develop a model to help understand the processes of place attachment and social capital and their impact on risk-perception. Nevertheless, this study provides evidence that neighborhood and people's characteristics play a role when explaining environmental concerns and actions.

Neighborhood stability

Neighborhood stability is another factor that can have an effect on people's responses to environmental problems. Living in a stable neighborhood could facilitate a collective response because the probability that people know each other is higher. Stability allows the growth of social ties that can lead to active participation in neighborhood organizations (Sampson, 1988). In addition, long-term residence affects levels of place attachment and social capital (Kasarda & Janowitz, 1974). People who have lived longer in a place could

develop stronger emotional bonds that could motivate actions when the neighborhood status quo is threatened. On the other hand, living in a highly mobile neighborhood could make it more difficult to meet neighbors and participate in local groups. In transient neighborhoods, it is more difficult for

residents to know each other (Kasarda & Janowitz, 1974).

Socio-historical context: patterns of migration and land use regulations

Historical patterns of migration, segregation, and land uses are also factors contributing to varying levels of exposure to environmental problems and, as a result, they could influence people's responses (Angotti & Hanhardt, 2001; Krieg, 2005; Maantay, 2000; Mohai & Saha, 2005). For instance, the industrialization and commercial activity history of a city could explain migration patterns of minorities and wealthier populations to the urban cores. In addition, residential and labor market segregation based on zoning laws could also explain why some groups are excluded from living in the industrial sections of cities (Krieg, 2005).

To illustrate, Mohai & Saha (2005) conducted an historical analysis of hazardous facilities in Michigan and found that sociopolitical conditions play a key role when analyzing the siting patterns. They were able to relate siting decisions with important events within the environmental justice movement. Interestingly, the patterns discovered suggest that pre-"not in my backyard" (NIMBY) era facilities were located in wealthy neighborhoods with good infrastructure. In the early NIMBY and post-Love Canal era, facilities were located in disadvantaged neighborhoods. In addition, Maantay (2000), conducted a case study of New York City (NYC) in which she examined the history of zoning laws and its impact on the development of neighborhoods. In this study, the author identified a relationship between zoning and social

inequality by showing that poor and minority populations were concentrated in industrial areas because industrial zones in poorer neighborhoods were enlarged while industrial zones in affluent neighborhoods are rezoned for other uses. The implications of these zoning practices is that, by concentrating industrial and noxious activities in disadvantaged neighborhoods, a large number of poor and minority households will be exposed to their effects. These studies provide evidence that the history of land activity and land regulation practices have an impact on environmental disparities.

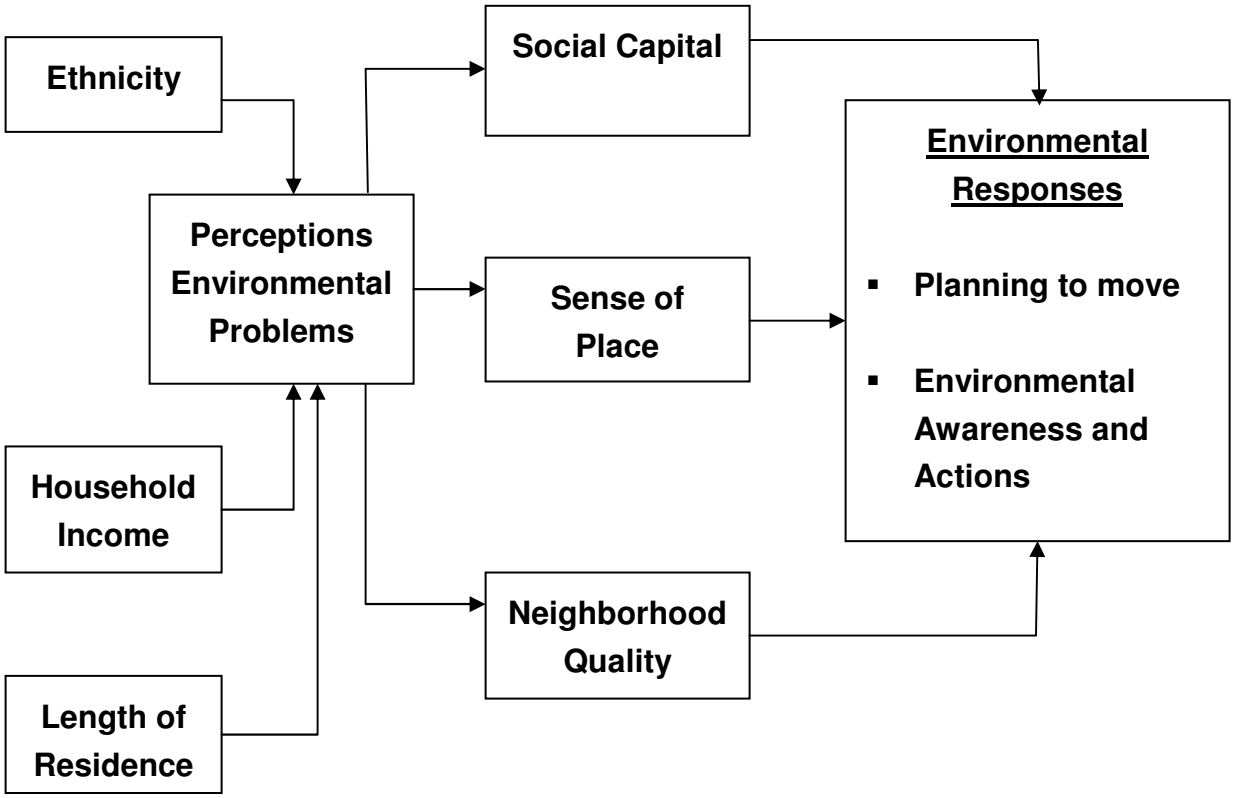
Other demographic variables: Age, gender and education

Age, gender and education have been examined in the literature as factors contributing to how people respond to environmental problems. However, the evidence is inconclusive when looking at the effects of these variables as predictors of environmental responses (Dietz, Stern & Guagnano, 1998; Greenberg, et al. 1994; Hershey & Hill, 1977; Jones & Dulap, 1992; Olli, 2001). A Meta-analysis examining the literature addressing pro-environmental behaviors indicates that some studies offered evidence of a positive correlation between these variables and pro-environmental behaviors while others found evidence of a negative correlation (Hines et al., 1986). The literature seems to suggest that the role of these variables in explaining people's responses to environmental problems depends on the socio-historic characteristics associated with specific events (Olli et al. 2001).

An Integrated model to understand people's responses to environmental problems

The model proposed in this dissertation argues that the relationships between demographic variables, neighborhood dynamics and perceptions of environmental problems explain people's responses to environmental problems. Specifically, the model considers ethnicity, household income and length of residence as factors predicting perceptions of environmental problems in neighborhoods. As previously demonstrated in the review of the environmental justice literature, low-income, working class and ethnic minorities experience greater exposure to environmental problems. Thus, it is expected that these factors influence people's perceptions of environmental problems. The environmental justice literature also indicates that perceptions of environmental problems will have an effect on different neighborhood dynamics. For this reason, the model argues that environmental perceptions predict neighborhood quality, social capital, and sense of place. The argument justifying this relationship is that environmental perceptions will have an impact on how individuals' interact with the physical and the social environment. The model also argues that the relationship between perceptions of environmental problems and people's responses operates through neighborhood quality, social capital and sense of place. The interrelations between these neighborhood dynamics will predict two different kinds of responses to environmental problems: plans regarding residential mobility and environmental awareness and actions. (See Figure 1).

Figure 1: An Integrated Neighborhood Model



Chapter 3

Research Questions, Methods and Sample Description

Research questions and hypotheses

The literature reviewed indicates that neighborhood dynamics and individual characteristics are relevant factors affecting people's responses to environmental problems and that these responses can be observed at both individual and community levels. However, explicit connections explaining how these neighborhood processes interact with each other in relation to responses to environmental problems have not been made. Therefore, this study tries to explore the possibility of these connections and how these processes affect people's awareness and actions with regard to neighborhood environmental conditions or the development of plans regarding residential mobility. The neighborhood processes examined in this study are: neighborhood quality, sense of place and social capital.

In this study, an individual level of response to environmental problems was investigated to better understand the role of factors contributing to people's responses to environmental problems. An individual level of response was adopted because it allowed the use of individual indicators of neighborhood quality, social capital and sense of place to understand two possible responses: plans regarding residential mobility or awareness and actions to resolve environmental problems. The research question guiding this study is: **How do neighborhood dynamics like sense of place, social capital and**

neighborhood quality mediate the relationship between perceptions of environmental problems and people's individual responses to these problems? This question assumes that indicators of sense of place, neighborhood quality and social capital could explain what happens in between the processes of perceiving an environmental problem and responding to it. Also, it implies that interactions between people and these neighborhood processes have an effect on making the decision of participating (or not) in neighborhood activities. Several hypotheses are tested within this question

H1: The processes of neighborhood quality, social capital and sense of place mediate the relationship between perceptions of environmental problems and people's responses.

H2: People who perceived more environmental problems and poorer neighborhood quality, but have a strong sense of place and strong social capital will engage in a response that includes action towards resolving the problem.

H3: People who perceived more environmental problems and poorer neighborhood quality, but have a weak sense of place and weak social capital will engage in plans concerning residential mobility.

As previously reviewed, people's perceptions of environmental problems, neighborhood dynamics, local context and individual characteristics affect each other and influence people's responses to environmental problems. For this reason, before testing the hypotheses, it is important to examine the role of ethnicity and household income in people's perceptions of environmental

problems and to identify which problems are considered threatening by people. In addition, it is also important to confirm which are the indicators associated with the constructs of sense of place, social capital and neighborhood quality. The following questions address these concerns:

- **Which neighborhood physical environmental problems are identified as threatening?**
- **What is the role of ethnicity and socioeconomic status in people's perceptions of environmental problems in their neighborhoods?**
- **Which are the indicators associated with sense of place, neighborhood quality and social capital?**

Research Design

This study adopts a cross-sectional research design to better understand the role of sense of place, neighborhood quality and social capital in mediating environmental perceptions and people's responses to environmental problems by combining both quantitative and qualitative data. Quantitative data allowed statistical exploration of the relationship between individual characteristics (ethnicity, household income and length of residence), environmental perceptions, sense of place, neighborhood quality, social capital and people's responses. Qualitative data supplemented the quantitative data by capturing personal histories and neighborhood processes explaining the statistical results.

In the study, a survey was used to measure the relationship between

individual characteristics, environmental perception, sense of place, neighborhood quality and social capital as contributors to environmental responses. To guarantee anonymity and confidentiality to all participants, an identification number was assigned to each survey. Participants were also informed that they could refuse to answer any question without any penalty. Participation in the survey was voluntary. At the same time, qualitative interviews were conducted to complement survey results. The qualitative component of this study consisted of a sample of 11 community college students who took the survey. They were asked to voluntarily participate in this process (See Appendix A). Both quantitative and qualitative data were gathered during the Fall 2005 school semester. Participants defined their neighborhood subjectively, taking into consideration how many blocks comprise their view of the neighborhood and were asked to react to physical environmental problems that can be found spatially at the neighborhood level.

Research Methods

Survey

A survey instrument was developed, taking into consideration relevant topics in the literature and informal conversations with community college students. Questions related to social capital, sense of place, environmental perception, neighborhood quality and people's responses to environmental problems were included. All the questions followed a close-ended format and were carefully phrased to gather data about individual experiences and concerns (See Appendix B).

Background and Demographic information: All participants were asked to indicate their gender, date of birth, education, employment status, student status, voter status, income, household composition and citizenship. In addition, questions related to their residential biography were also asked because they can influence the levels of sense of place and social capital (length of residence in the neighborhood, whether they rent or own their home, whether they are planning to move or stay in the neighborhood and with whom they live). Previous research found that length of residence, economic status, gender and education are variables that affect vulnerability to environmental problems (Brown, Perkins & Brown 2003; Edelstein, 2002).

Scales: Five scales were included in the survey. Some items were modified from previously used scales to reflect the neighborhood experience, while others were created specifically for this study. The indicators for these scales are measured using a Likert Scale (see Appendix C).

Pilot Study and Item Analysis

Before administering the survey, a version containing 92 questions was piloted to obtain information about the reliability of the instrument, the scales and the items. The following table illustrates the constructs, measures and number of questions included in this instrument.

Table 1: Survey Constructs and Measures – Long Version

Construct	Measures	Number of Questions
Sense of Place	• Sense of Community	**6**
	• Place Attachment	**8**
Neighborhood Physical Environment	• Neighborhood Ratings	**6**
Social Capital	• Trust	**8**
	• Neighborhood Activities	**6**
	• Social Cohesion	**7**
	• Social Networks	**6**
Neighborhood Environmental Perception	• Perception of Environmental Threats	**19**
	• Personal Environmental Risks (open ended)	**2**
Environmental Awareness and Actions	• Consequences for Self/ Political Action /Awareness of Environmental Problems in Neighborhood	**6**
Demographics	• Age	**15**
	• Ethnicity	
	• Income	
	• Voter Status	
	• Marital Status	
	• Household Composition	
	• Length of Residence in the Neighborhood	
	• Planning to Move	
	• Citizenship	
	• Employment Status	
	• Student Status	
	• Homeownership	
Neighborhood Definition	• Neighborhood Name	**3**
	• Blocks Wide	
	• Cross Streets Near Home	
Total		**92**

The pilot study included 24 participants recruited at the Bronx Community College (BCC) cafeteria between 11:00 am and 2:00 pm. Individuals were asked to participate in the survey and were informed that their participation was entirely voluntary. If they decided to participate, they were also informed that they had the option of abstaining from answering certain questions and were free to end the interview at any time. During the pilot administration process, participants were also asked to comment on questions' clarity and length of the survey (see Appendix D). Many people commented that the survey was too long since it took most of the participants 20 to 35 minutes to complete the survey, depending on readability skills and the depth of answers provided. In addition, two participants decided to end the survey at questions 67 and 68 respectively. The piloted survey included two open-ended questions asking participants about their personal experience in their neighborhood, but only two people answered these questions. None of the participants had questions about any of the survey items or made any comments about wording, which suggests that the questions were clearly stated.

An item analysis was conducted to obtain information about the reliability of the scales and to shorten the length of the survey (see Appendix E). Reliability refers to the degree that the items in the same scale measure the same construct, with the sample size and number of items per scale as factors that affect reliability. In this pilot study the sample and the number of items per scale were small. The first step in the item analysis involved looking at the correlation between each item and the sub-scales to which each belongs. Most of the items

have an item-scale correlation of .30 or more (n=68), which means that they are accurately measuring the sub-scale. Base on this criterion, four items with correlations of less than .30 were eliminated. From the pool of items available, a second selection was made based upon the item-scale correlation and the proportion of participants endorsing each item. A second item analysis was conducted to obtain the reliability of the scales composed by the selected items. Table 2 shows the Cronbach alphas and the total number of items that were included in each scale. Most of the scales obtained a Cronbach alpha higher than .7, which means that the scales can be considered reliable within the sample. However, the scale that measured environmental awareness only has an alpha of 0.512. This low value could be related to the limited number of items in the scale (6 items) or it could be indicating that the items in the scale are measuring something else.

Table 2: Cronbach Alpha and Total Number of Items by Scale

Construct	Alpha	Total items per scale
Sense of place	0.816	6
Social Capital	0.739	12
Neighborhood Ratings	0.832	6
Awareness and Actions	0.512	6
Environmental Risk Perception	0.975	19

To investigate the reason why the alpha for the awareness and action scale was low, a factor analysis was conducted (see Appendix F). The results of the factor analysis indicated that the scale measures three areas: 1) neighborhood environmental awareness and actions, 2) lack of awareness and action in neighborhood environmental activities and 3) Neighborhood action in environmental improvement activities. A third item analysis was run to investigate how reliable these new found scales were. Taking into consideration the small number of items per scale, the Cronbach Alpha are acceptable (see Table 3).

Table 3: Cronbach Alpha for the Environmental Awareness Scale

Construct	Alpha	Total items per scale
Awareness and Actions in Neighborhood activities	0.728	3
Lack of Awareness and Actions in Neighborhood activities	0.677	3
Neighborhood Action in Environmental Improvement Activities	n/a	1

Based on the information described above, items were selected and compiled into a shorter version of the survey that included 65 items, and the two open ended-questions were eliminated. Table 4 shows the constructs, measures and number of items included in the short version of the survey. The shorter version was the instrument used to gather the data.

Table 4: Survey Constructs and Measures Included in the Final Version

Construct	Measures	Number of Questions
Sense of Place	• Sense of Community	**3**
	• Place Attachment	**3**
Neighborhood Physical Environment	• Quality of Life	**3**
	• Quality of the Physical Environment	**3**
Social Capital	• Trust	**3**
	• Neighborhood Activities	**3**
	• Social Cohesion	**3**
	• Social Networks	**3**
Neighborhood Environmental Perception	• Perception of Environmental Threats	**16**
Environmental Awareness and Actions	• Awareness and Actions in Neighborhood activities	**3**
	• Lack of Awareness and Actions in Neighborhood activities	**3**
	• Neighborhood Action in Environmental Improvement Activities	**1**
Demographics	• Age	**15**
	• Ethnicity	
	• Income	
	• Voter Status	
	• Marital Status	
	• Household Composition	
	• Length of Residence in the Neighborhood (Brown et al)	
	• Planning to Move	
	• Citizenship	
	• Employment Status	
	• Student Status	
	• Homeownership	

Construct	Measures	Number of Questions
Neighborhood Definition	• Neighborhood Name • Blocks Wide • Cross Streets Near Home	**3**
Total		**65**

Interviews

Interviews were conducted to confirm, cross-validate and better understand the survey data. Data gathered were related to people's perceptions of environmental problems, people's residential biographies and social interaction. The topics explored in the interviews were: 1) views on the area where they lived, 2) environmental concerns, 3) responsibility toward the local environment, 4) actions taken in response to environmental problems, 5) feelings toward the neighborhood where they lived and 6) the type of relationships with neighbors (formal and informal). Interview participants were also considered key informants and provided input and feedback during the research process. Preliminary research results were presented to them to validate the researcher's interpretations. Because of the length of the interview (45 minutes), a movie ticket certificate was offered as compensation for participation in this study. (See Appendix G)

Data Analysis

Data analysis was accomplished in four steps. First, environmental problems were ranked using the means to identify which were considered

threatening in participants' neighborhoods. Second, survey frequencies were analyzed to understand participants' views of their self-reported ethnicity and SES in environmental perception. Third, seven confirmatory factor analyses (CFA) were performed to evaluate the constructs and the viability of developing a structural equation model (SEM). Lastly, a SEM explaining people's responses to environmental problems was developed. Qualitative data were used to inform these steps, guide quantitative data analyses, and help illustrate the results.

The software LISREL 8.3 was used to develop the CFAs and SEM. This program uses maximum likelihood estimation to estimate parameters that best fit the hypothesized model to the observed data (Byrne, 1998). Before performing the CFAs and SEM all variables were examined for outlying values; none of the variables had skewed or kurtotic distributions and outlying values were not found. A Pearson correlation matrix was used to assess the relationships among the scales and items included in the survey. After correlations were assessed the CFAs were performed.

CFA is considered a theory driven technique commonly used for construct validation and scale refinement and is an appropriate statistical technique in this study because the relationships between the variables under study were specifically based on previous theories and empirical studies. Conducting CFAs is a required step before constructing a SEM because the evaluation of a measurement model provides information supporting (or not) the development of the model. Certain criteria should be met to identify a measurement model. First, the condition of a *pure indicator* should be met (McDonald & Ho, 2002); this

condition required that each indicator (item) loads on one factor. However, in real life, indicators might be measuring more than one construct, or overlap with other factors. For this reason, a weaker requirement known as an *independent cluster basis* is accepted. This requirement consists of having at least two pure indicators for each construct if there is a correlation between the factors and at least three indicators if there is no correlation. In addition, another criterion applied to the identification of a measurement model is the notion of *simple structure* developed by Thurstone (1947). This implies that the simplest model fitting the data is the one that should be selected. In this study the three suggested criteria were applied to develop seven measurement models. The measurement models evaluated the relationship between the indicators and constructs in this study (sense of place, neighborhood quality, environmental problems, social capital, awareness of environmental problems and actions). The variances of the latent variables were set to one to impose an arbitrary measurement scale. In all the models the error terms were free to be estimated from the data and were not allowed to correlate.

Following the CFAs, a SEM was developed using goodness-of-fit tests to test if patterns of variance and covariance in the data were consistent with the model specified. A model is identified and fits the theory if the difference between the covariance or correlation matrix of the sample is small when comparing it to a reconstructed covariance or correlation matrix that represents the population parameters. In this study a SEM was developed in three steps to test the relationship between physical environmental perception and

environmental responses by looking at the role of sense of place, social capital and neighborhood quality as mediators. First, a model addressing residents' evaluations of the physical condition of neighborhoods was developed. Then, a second layer was added by incorporating sense of community and place attachment. Finally, indicators of social capital were included to complete the final model.

CFA and SEM are evaluated by examining how well the model fits the data. When the difference between the data and the model is too large, the model is rejected. The literature recommends using a combination of model fit indicators (Kline, 2005) because a fit indicator usually reflects only a particular aspect of a model. For this reason, a combination of the following statistics was used to evaluate the overall model fit for the CFAs and SEM:

1) Chi-square (X^2)

This is a commonly used statistic that provides information about model fit. It tests the difference in fit between a model with fewer parameters than observations (over identified) and a model that is theoretically possible (Kline, 2005). Chi-square values should be close to zero and non-significant. If significant values are found, that could be an indication that the model does not fits the data. Thus, values of X^2 should be closer to zero because the higher the value, the worse the model fit the data. However, according to Kline (2005), relying only on chi-squares as a fit index is problematic because of its sensitivity to the size of the correlations (bigger correlations generally lead to higher values of X^2) and

large samples (the larger the sample the more likely the X^2 value will be statistically significant). To reduce this sensitivity, it is recommended that the X^2 be divided by the model's degrees of freedom. This ratio is known as Normed Chi-square (NC). NC values as high as five indicate reasonable fit. The NC does not completely correct for the influence of sample size. For this reason, model evaluation should not rely on this statistic alone.

2) Fit indices

The fit indices recommended for model evaluation are:

- Root Mean Square Error of Approximation (RMSEA): this is a parsimony-adjusted index, which means that its formula favors the least complex model. This index estimates the amount of error approximation per model, degree of freedom, and takes sample size into account. An RMSEA of less than 0.05 is considered a good fit for the model and less than .08 is considered an acceptable fit (McDonald & Ho 2002). This index also provides a 90% confidence interval to evaluate the model. If the left side of the interval is less than 0.05 and the interval is not too wide, the model describes the data.
- Non-Normed Fit Index (NNFI) is considered a goodness of fit statistics and is based on the idea of comparing the proposed model to a model in which the variables are not related. The NNFI takes into account the model's degrees of freedom and corrects for

model complexity. Models closer to 1 fit the data better.

- Comparative Fit Index (CFI): this index compares the researcher's model with a baseline model in terms of improvement in fit. Values closer to one indicate that the researcher's model is a good model.
- Estimated Non-Centrality Parameter (NCP): reflects the extent to which the proposed model does not fit the data. The larger the NCP, the worse the model.
- Standardized Root Mean Square Residual (SRMR): This is a measure of the standardized residuals. The overall difference between the observed and predicted correlations is calculated. SRMR values of less than 0.10 are acceptable, but those that are less than 0.05 fit the data better.

3) Path values

The statistical significance of the structural paths was assessed using the parameter estimates, standards errors and *t* values computes by LISREL 8.3. Statistical significance and signs were examined for all the paths. These values are interpreted as regression coefficients in multiple regression. This means that they control for correlations among multiple presumed causes of the same variable (Kline, 2005). Also, the path between variables can be interpreted as a reliability estimate in measurement models (Crowley & Fan, 1997). Usually, reliability estimates larger than 0.30 are an indication that the indicator measures the construct.

Sample Description

The sample for this study consisted of 408 community college students, 18 years old or older, from the City University of New York. The community colleges are located in Queens (Queensborough Community College - QCC); and the Bronx (Bronx Community College - BCC). To select sample size, a sample calculator provided by surveysystem.com was used. This tool takes into consideration population number, confidence level and confidence interval to suggest a sample size that can be considered statistically significant. In this case, a statistical sample of 377 was suggested for a student population of 21,487 (BCC= 8,479 and QCC= 13,008 during the Fall 2005[4]) with a confidence level of 95% and a confidence interval of 5. Three methods of recruitment were used to gather this sample. The first method consisted of approaching participants in the public areas of the community colleges (n=40). The second method consisted of administering the survey in a classroom setting (n=348). The third method consisted of approaching student clubs and organizations (n=20). One limitation of this sampling technique is that because some members of the population have no chance of being sampled, the extent to which a convenience sample – regardless of its size – actually represents the entire population cannot be known.

This sample does not represent the traditional college student population in the US. The CUNY undergraduate student profile (www1.cuny.edu) shows an ethnically diverse population (see Table 5). CUNY wide, 38% of first time

[4] Information provided by the Offices of Institutional Research at QCC and BCC.

freshmen registered to attend school during the Fall 2006 were born outside the US. In addition, 45% of CUNY's total undergraduate population works 20 hours or more per week and 23% percent support children. These statistics suggest that the college experience of the CUNY student is different. In many cases, adapting to a new culture, learning a new language and family concerns are an essential part of this experience. From the CUNY wide student profile, we can infer that many of the undergraduate students at CUNY have low incomes and a high percentage of the student population live in New York City low-income neighborhoods.

Table 5: CUNY Undergraduate Ethnicity Student Profile

Race/ Ethnicity	CUNY wide 2006	BCC 2005	QCC 2005
Black	30%	38%	20%
White	29%	3%	45%
Hispanic	27%	49%	26%
Asian	16%	3%	21%
American Indian	0.1%	0%	0.8%

The demographics provided by the CUNY wide student profile are similar to those available for the community colleges under study. According to the Offices of Institutional Research at QCC and BCC, the 2005 registration data indicate that the student population is comprised mostly of ethnic minorities. At BCC, 43% of the students are Black and 50% are Hispanic while at QCC, 20% are Black, 26% are Hispanic and 22% are Asian or Pacific Islander. These

numbers indicate that more than half of the student population at BCC and QCC is part of an ethnic minority group. Another interesting characteristic of this population is that roughly half of the students (47% at BCC and 31% at QCC) are 25 years old or older. The high percentage of students 25 years old or older provides support to the argument that the student population at CUNY is atypical.

This is a convenience sample, which makes it impossible to assess the representativeness of this sample to the population under study. However, the socio-demographic characteristics of the respondents are similar to those reported by the CUNY Undergraduate Student Profile (www1.cuny.edu) and the Offices of Institutional Research at BCC and QCC. As demonstrated above, the data show an ethnically diverse population. In this study, 85% of the participants reported being African American, Hispanic, Asian/Pacific Islander or another ethnicity and 63% of the survey participants reported having incomes $30,000 or less. Table 6 summarizes the socio-demographic characteristics of the sample. The mean age of the respondents is 24.4 (SD= 7.17 years), and the educational level of the majority of the participants is high school (84%). Only 25.2% of the participants are males and 74.8% are females. Also, in this sample only 15.6% of the participants own their homes and 43.1% are renters.

Table 6: Socio-demographic Characteristics of the Sample

Characteristic	Distribution of Answers
Gender	Male = 25.2%
n= 385	Female = 74.8%
Age	Mean = 24.4,
n= 393	SD= 7.17 years
	Range: 18 – 62 years
	18 – 24 yrs. old = 68.7%
	25 yrs. old or older = 31.3%
Educational level	High school = 84.0%;
n= 391	Vocational or Associate's degree = 10.5%
	Bachelor's degree = 4.6%
	Master's degree = 0.8%
Marital status	Married/partnered = 28.8%
n= 403	Widowed = 0.5%;
	Divorced = 4.0%
	Separated = 4.2%;
	Never married = 62.5%
Ethnicity	African American = 30.6%
n= 399	Caucasian = 13.3%
	Hispanic = 31.1%
	Asian Pacific Islander = 12.0%
	Other = 13.0%
Household income	Less than $10,000 = 24.0%
n= 366	$10, 001 to $20,000 = 22.1%
	$20,001 to $30, 000 = 16.7%
	$30,001 to $40,000 = 12.3%
	More than $40,001 = 24.9%

Characteristic	Distribution of Answers
Years in current neighborhood n= 398	Less than six months = 10.8% Six months to less than 2 years = 14.1% 2 to less than 5 years = 21.6% 5 to less than 10 years = 17.3% 10 or more years = 36.2%
Planning to move n= 396	Yes = 58.1% No = 17.7% Not sure = 24.2%
Years living in the US n= 380	Less than a year = 1.6% 1 to 3 years = 11.8% 4 to 6 years = 9.5% 7 to 9 years = 7.4% More than 9 years = 69.7%
Vote in last election n= 389	Yes = 39.6% No = 45.0% Not able to vote = 15.4%
Home ownership n= 397	Rent = 43.1% Own = 15.6% Live with parents = 36.5% Live with other family member/friend = 4.8%

Table 6 also shows information related to residential history. More than half of the participants in this study (69.7%) have lived in the US for more than nine years. Also, 63.8% of the respondents have lived 10 years or less in their current neighborhood and 32.6% have been living in their neighborhoods for more than 10 years. Some participants expressed being happy living in their neighborhoods and expected to continue living there for a long time. For example, a participant who has lived all his life in the neighborhood in Queens and still lives with his parents said:

> *"I have been there for so long that I like the feeling that I know the neighborhood. My grandparents chose the neighborhood… I grew up there and I would like to live there if I move. I know other places and I hang out on other towns but I still would like to continue living there."*

Nevertheless, when asked if they were planning to move in the near future, 58.1% of the participants responded affirmatively to the question. Some participants indicated that their desire to move from the neighborhood was due to concerns about changes in neighborhood social composition and its structural quality. A participant from Jamaica referred to people having different values when talking about people from a different ethnicity (Hispanic) and made an association between this ethnic group and noise as an environmental problem.

> *"I used to like my neighborhood but I think it is changing because a lot of people are coming in and I don't see those people having the same values I have; some of those people… they don't seem to work. I would say my neighborhood is running down because I see weird people causing my*

own neighborhood to go down. Right across my street there is one family that everyday when you look across they are congregated in the front yard, they play loud music. I used to like that my neighborhood was very quiet, not anymore."

To understand people's responses to environmental problems in their neighborhood it is important to have an understanding of their local context. Taking into consideration that the methodology used in this study was a survey, US Census Data and New York City Department of Health and Mental Hygiene Neighborhood Profiles[5] were used to identify the neighborhoods in which survey participants lived. The neighborhoods where the survey participants live are located in Queens, the Bronx and Northern Manhattan. According to Wolpert & Seley (2004), these NYC neighborhoods experienced significant changes during the period of 1980-2000 as a consequence of gentrification processes. Migration to the suburbs was observed in which the numbers of ethnic minorities in Brooklyn, Queens and the Bronx increased. The neighborhoods that the New York City Nonprofit Project identified as minority enclaves in the Bronx, Queens and Manhattan are represented in this survey. The majority of the ethnic minority participants in this sample are from neighborhoods located in the South Bronx, Washington Heights, Woodside, Jackson Heights, Flushing and Jamaica Queens (see Appendix H). The majority of the survey respondents from Manhattan live in Washington Heights that is considered an ethnic enclave due to the fact that the majority of the Latino population residing there is from the Dominican Republic.

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[5] The Department of Health engaged in a resident consultation process to guarantee the

US census data were used in this study to examine the ethnic and household composition of the neighborhoods in which survey participants live. These data indicate that survey respondents' live in neighborhoods that are comprised of a high percentage of mainly minority groups. Neighborhoods in the Bronx are comprised of mainly Black/African American and Hispanic ethnic groups while in Queens the ethnic population is more diverse (see table 7 and 8). This fact is supported by the following comment provided by one of the participants:

> *"I live in the North Bronx. It is an integrated community, we have people from different ethnic groups; a lot of Jamaican. Basically people from all over. You got Asians, West Indian, it is pretty much mix."*

The US Census data also indicate that neighborhoods in the Bronx, Queens and Manhattan are comprised of a high percentage of residents with household incomes of less than $29,999 (see tables 9, 10 and 11). In this study, the majority of the survey respondents living in the Bronx, Washington Heights and Queens have incomes of less than $30,000 and live in neighborhoods that, based on the US Census Data, can be considered poor and ethnically diverse.

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development of profiles that reflect residents' descriptions of their neighborhoods.

Table 7: US Census Ethnicity Data by Neighborhoods in the Bronx

Neighborhood	Total population	African/ American Black	Caucasian/ White	Hispanic	Asian/ Pacific Islander	Other
The Central Bronx	199,530	32%	2%	62%	1%	3%
Fordham –Bronx Park	250,491	25%	12%	54%	5%	4%
High Bridge – Morrisania	189,755	38%	1%	57%	1%	3%
Hunt's Point – Mott Haven	122,875	24%	1%	73%	1%	1%
Kingsbridge – Riverdale	88,989	11%	49%	32%	5%	3%
Northeast Bronx	185,998	58%	16%	20%	2%	4%
Southeast Bronx	290,052	21%	28%	43%	5%	3%

Source: US Census Bureau

Table 8: US Census Ethnicity Data by Neighborhoods in Queens

Neighborhood	Total population	African American/ Black	Caucasian/ White	Hispanic	Asian/ Pacific Islander	Other
Northeast Queens	88,164	2%	60%	9%	27%	2%
North Queens	255,542	3%	43%	16%	35%	3%
Northwest Queens	220,960	6%	43%	28%	15%	8%
Central Queens	93,148	10%	49%	13%	24%	4%
West Central Queens	240,901	2%	60%	22%	13%	3%
West Queens	477,516	8%	21%	47%	21%	3%
Southwest Queens	269,952	11%	31%	29%	15%	14%
Southeast Queens	198,846	55%	19%	10%	10%	6%
Jamaica	285,339	60%	8%	15%	10%	7%
Rockaways	106,738	40%	37%	18%	2%	3%

Source: US Census Bureau

Table 9: US Census Household Income Data by Neighborhood in the Bronx

Neighborhood	Total Population	$29,999 or less	$30,000 or more
Central Bronx	64,446	64%	36%
Fordham –Bronx Park	85,773	55%	45%
High Bridge Morrisania	62,958	66%	34%
Hunt's Point – Mott Haven	39,325	70%	30%
Kingsbridge – Riverdale	37,240	34%	66%
Northeast Bronx	68,592	38%	62%
Southeast Bronx	107,781	46%	54%

Source: US Census Bureau

Table 10: US Census Household Income Data by Neighborhood Manhattan

Neighborhood	Total population	$29,999 or less	$30,000 or more
Central Harlem - Morningside Heights	62,419	61%	39%
Chelsea – Clinton	72,838	29%	71%
East Harlem	38,860	64%	36%
Upper West Side	117,537	25%	75%
Washington Heights – Inwood	92,488	53%	47%

Source: US Census Bureau

Table 11: US Census Household Income Data by Neighborhood in Queens

Neighborhood	Total population	$29,999 or less	$30,000 or more
Northeast Queens	34,391	24%	76%
North Queens	93,715	34%	66%
Central Queens	35,126	21%	79%
Northwest Queens	88,143	42%	58%
West central Queens	99,236	35%	65%
West Queens	151,245	38%	62%
Southeast Queens	63,873	24%	76%
Southwest Queens	86,663	33%	67%
Rockaways	37,060	45%	55%
Jamaica	91,514	35%	65%

Source: US Census Bureau

Chapter 4

RESULTS

This chapter describes the results of this cross sectional study. The results are organized in four sections exploring the research questions. The first section includes the ranking of the environmental problems considered threatening in NYC neighborhoods. The second section examines the roles of ethnicity and household income when evaluating environmental problems as threats in the neighborhood. In the third section, a description of the measurement models developed to test the relationships among the constructs and indicators considered in this study is presented. Lastly, a structural equation model was constructed to test the relationships between environmental problems, social capital, neighborhood quality, sense of place and environmental awareness and actions.

Which neighborhood physical environmental problems are identified as threatening by community college students?

In this study, community college students were asked to evaluate 15 environmental problems with respect to how much they consider them as a threat in their neighborhoods. The environmental problems included in the scale were ranked using the means. Ranking these problems revealed interesting information about how community college students perceived their neighborhood environments. The ranking indicates that environmental problems related to

daily interactions with the environment are perceived as most threatening. The first four problems listed are: 1) litter and trash problems, 2) traffic noise, 3) uncontrolled animals, and 4) construction noise. A characteristic of this set of environmental problems is that they are immediately detectable. In addition, participants seem to perceive a direct connection between this set of environmental problems and their health. To illustrate, a participant living in Queens said:

> *"Another concern is the trash problem, the city seems to be concerned about that and you know they are associated with rats which are not good; they can mess up your food and you can get sick."*

Also, a participant living in the Bronx expressed concerns about dirtiness and how it affects his health.

> *"The biggest concern in my neighborhood is how dirty the place is sometimes, cause people don't take care of the place and what you want is to feel safe in terms of your health when you go to bed to sleep."*

The following six problems -1)pesticides and herbicides, 2)occupied buildings in dangerous conditions, 3)pollution from factories, 4)vacant lots, 5)hazardous waste sites, and 6)chemical dumps- are mainly related to the structural composition of a neighborhood along with industrial and toxic contamination. The last five problems are a combination of activities associated with garbage disposal (pollution from burning trash and landfill) and abandonment (abandoned houses/buildings, parks and factories). Interestingly, more than half of the participants did not consider the presence of abandoned

factories, parks and buildings as a threat. For instance, a participant living in Washington Heights said that parks in her neighborhood are in good condition.

> "[parks] *are in very good conditions and safe …I can go with my kids without any concerns. The playground is safe, it has the plastic stuff in case the kids fall down."*

In summary, the indicators community college students perceived as more threatening were those associated with daily physical environmental problems in the neighborhood, specifically noise, uncontrolled animals, and litter. Toxic and industrial contamination indicators are considered less threatening in neighborhoods than those physical environmental risks that could be found daily in a New York City street. These findings are consistent with previous studies in which litter, trash and noise were identified as the most serious problems in urban neighborhoods (Farquhar, et al. 2005; Yen, et al. 2006). (See Table 12)

Table 12: Problems Rated from Most to Least Threatening Using Means and Percentage by Response

Environmental Physical Risk	Mean	SD	Percentage by response How much do you feel the following is a threat to you in your neighborhood?				
			No Threat	Minimal	Mild	Moderate	Strong
1. Litter, trash problems	2.73	1.47	29.5	19.6	17.8	14.9	18.3
2. Traffic noise	2.58	1.45	33.3	19.9	17.2	14.7	14.9
3. Uncontrolled animals	2.48	1.45	35.5	23.1	14.9	11.2	15.4
4. Construction noise	2.41	1.35	35.2	22.2	19.7	12.2	10.7
5. Pesticides & herbicides	2.32	1.35	37.9	23.2	19.0	8.7	11.2
6. Occupied buildings in poor and dangerous conditions	2.31	1.45	44.9	15.5	16.5	10.0	13.2
7. Pollution from factories	2.17	1.33	54.8	12.8	16.5	6.4	9.6
8. Vacant lots	2.08	1.27	48.4	18.0	17.5	9.5	6.5
9. Hazardous waste sites	2.05	1.33	52.1	15.6	16.1	7.2	8.9
10. Chemical dumps	2.04	1.34	51.7	18.0	14.5	5.7	10.1
11. Pollution from burning trash	2.03	1.35	54.8	12.8	16.5	6.4	9.6
12. Abandoned houses/buildings	1.99	1.26	52.7	16.4	17.2	6.7	7.0
13. Abandoned parks	1.98	1.31	55.3	14.9	14.1	7.4	8.2
14. Landfill	1.92	1.25	57.0	14.0	15.8	6.8	6.5
15. Abandoned factories	1.82	1.24	62.3	12.4	13.4	5.0	6.9

What is the role of ethnicity and household income when examining perceptions of environmental problems in NYC?

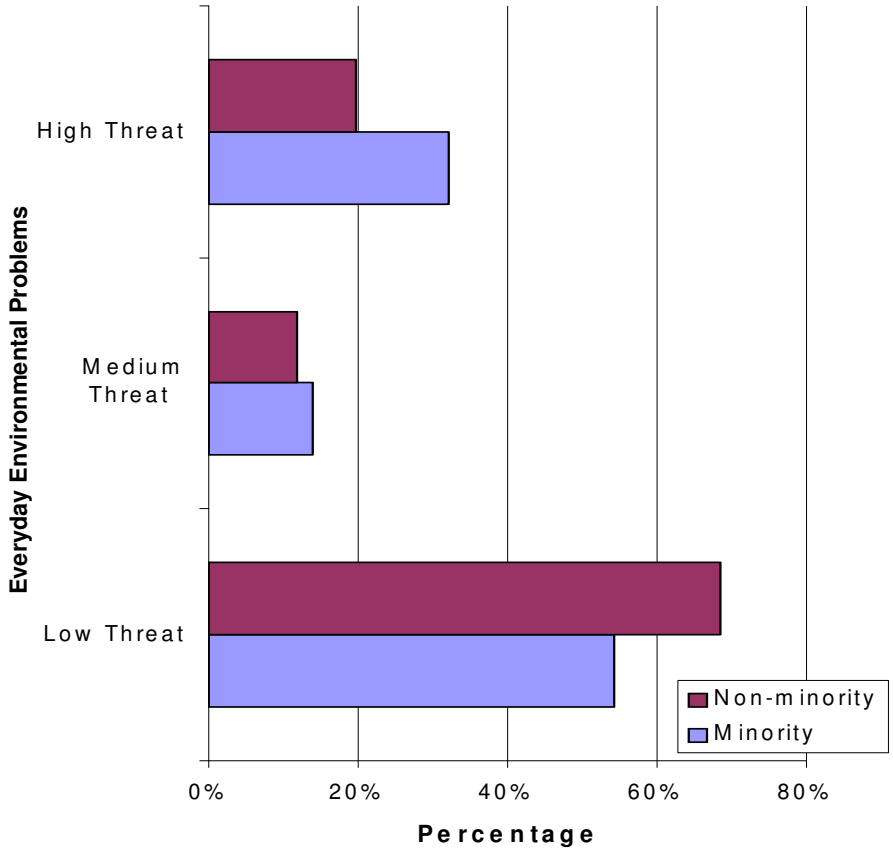
Considering that more than half of the participants reported being part of a minority group and having incomes of less than $30,000, this section focuses on the association between ethnicity, socio-economic status (SES), and perception of environmental problems. To explore this question, descriptive statistics were examined. Physical environmental problems were categorized into two variables: industrial/toxic contamination and everyday environmental problems. The industrial/toxic contamination variable consists of the items addressing contamination provoked by industrial/toxic activity. The everyday environmental problem variable consists of items addressing noise, building abandonment and street problems. Participants' perceptions of neighborhood physical environmental problems were grouped as low threat, medium threat and high threat; higher scores in the environmental problems scale indicated that participants perceived these problems as a higher threat. Also, the variables of ethnicity (Whites / ethnic minorities) and household income (less than 30k/more than 30K) were dichotomized.

Cross-tabulation analysis: Ethnicity and everyday environmental problems

Descriptive statistics suggest that ethnic minorities perceived environmental problems, in general, as a greater threat in their neighborhoods. Chart 1 shows the percentage of community college students who perceived everyday environmental problems as a threat based on whether they represent

an ethnic minority or not.

Chart 1: Perception of Everyday Environmental Problems by Minority Status



However, the percentage of ethnic minorities that perceived everyday environmental problems in their neighborhood is higher (32%) than the percentage of non-ethnic minorities (20%). A similar pattern can be observed when examining perceptions of industrial and toxic contamination; Chart 2 illustrates this relationship. Also, it is interesting to note that the majority of the participants perceived these problems as a low threat.

Chart 2: Perceptions of Industrial and Toxic Contamination by Minority Status

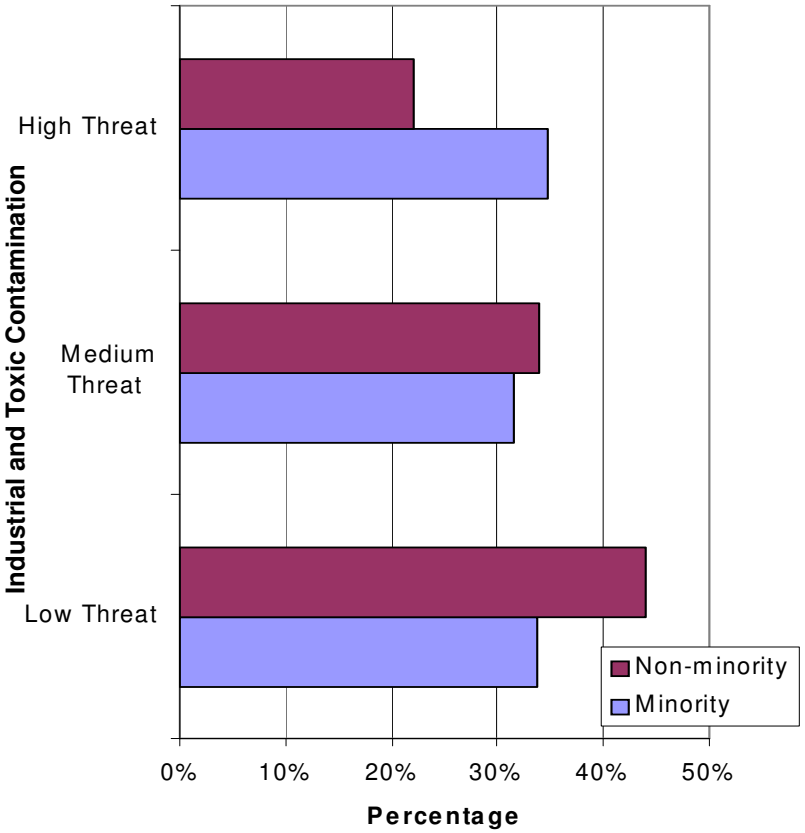
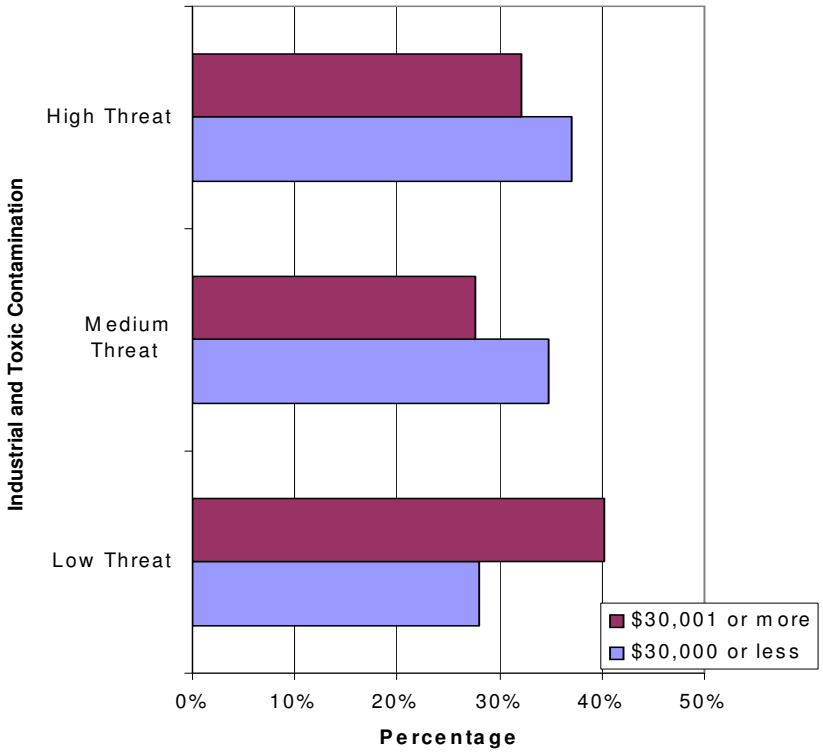


Chart 2 shows that the percentage of ethnic minorities that perceived industrial and toxic contamination as a low threat in their neighborhood is smaller (34%) than the percentage of non-ethnic minorities (44%). Also, the figure illustrates that the percentage of ethnic minorities that perceived industrial and toxic contamination as a high threat is higher (35%) than the percentage of non-ethnic minorities (22%).

Cross- tabulation analysis: Household income and environmental problems

The relationship between household income and environmental problems suggests a pattern demonstrating that low-income households perceived environmental problems as a greater threat in their neighborhood compared to high-income households. Chart 3 shows the relationship between household income and perception of industrial and toxic contamination.

Chart 3: Household Income and Perception of Industrial/toxic pollution



A slightly higher percentage of households with incomes of less than $30,000 (37%) perceived industrial and toxic contamination as a greater threat compared to households with incomes of $30,001 or more (32%). Nevertheless, the percentage of households with incomes of $30,000 or less that perceived

industrial and toxic contamination as a low threat is considerably smaller (28%) when compared to households with higher incomes (40%). This pattern can also be observed when examining perceptions of everyday environmental problems (see Chart 4).

Chart 4: Household Income and Perception of Everyday Environmental problems

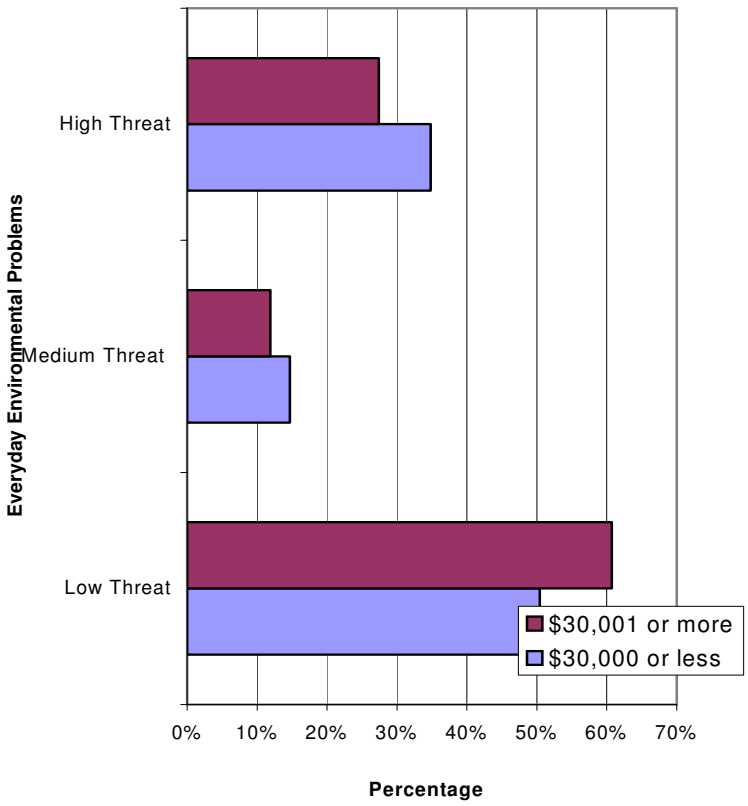


Chart 4 illustrates that households with incomes of $30,000 or less perceived more everyday problems as a greater threat in their neighborhoods (35%) compared to households with incomes of $30,001 or more (27%). The opposite occurs when examining everyday environmental problems as a lesser threat in the neighborhood. The percentage of households with incomes of less than $30,000 is smaller (50%) than those with higher incomes (61%).

The patterns observed in the cross-tabulation analyses are not statistically significant. However, they provided useful information to develop the structural equation model.

Which are the indicators associated with neighborhood quality, social capital, sense of place and environmental perception?

Before examining the contributions of sense of place, social capital and neighborhood quality mediating the relationship between perceptions of environmental problems and environmental awareness it is important to understand how the constructs are measure. The literature recommends evaluating the measurement models to confirm the relationship between the observed data and the constructs before developing a SEM (Kline, 2005; Hays et. al., 2005; MacCallum & Austin, 2000; McDonald & Ho, 2002). If no relationship between the indicators and constructs is found as a result of the CFA, the proposed model would not fit the observed data and the researcher has no reason to continue evaluating the structural equation model. For this reason, measurement models were developed for each of the constructs included in the SEM. In this study, the constructs under evaluation are: sense of place, social capital, environmental perception, neighborhood quality and environmental awareness and actions. A CFA allowed an understanding of the relationships as well as the validity of the measures. Following the requirement of "independent cluster basis" and "simple structure," the fit of the data for the models was evaluated taking into consideration: 1) chi square (X^2), 2) normed chi square

(NC) 3) root mean square error of approximation (RMSEA), 4) normed fit index (NFI), 5) comparative fit index (CFI), 6) estimated non-centrality parameter (NCP) and 7) standardized root mean square residual (SRMR) and 8) path coefficients (for definitions of these statistics see data analysis section). Tables including correlations, means and standard deviations for the measurement models are included in Appendix G.

Each measurement model produced high and significant correlations between constructs and indicators. Table 13 summarizes the goodness of fit statistics used to evaluate each model.

Table 13: Fit Statistics for All CFAs

Fit Index	*Sense of Place*	*Industrial/Toxic Contamination*	*Daily environmental problems*	*Social Capital*	*Quality of Life*	*Physical Quality*	*Env. Awareness*
Observed Variables	6	6	9	12	3	3	3
Chi-square	16.38	16.21	49.66	108.39	0.51	0.44	0.77
	(p<0.022)	(p< 0.03944)	(p<0.00065)	(p<0)	(p<0.48)	(p<0.51)	(p<0.38)
NC	2.34	2.02	2.26	2.30	0.51	0.44	0.77
Df	7	8	22	47	1	1	1
RMSEA	0.057	0.050	0.056	0.057	0	0	0
	(0.021 – 0.094)	(0.011 – 0.085)	(0.035 – 0.076)	(0.043 – 0.071)	(0.0 – 0.12)	(0.0 – 0.11)	
NFI	0.99	0.99	0.99	0.94	1	1	0.99
CFI	0.99	1.00	0.99	0.97	1	1	1.00
NCP	9.38	8.21	27.66	61.39	0	0	0
	(1.20 – 25.22)	(0.37 – 23.77)	(10.96 – 52.09)	(34.87 – 95.64)			
SRMR	0.030	0.014	0.021	0.046	0.014	0.013	0.016

Sense of Place

In this study, it was hypothesized that the construct of sense of place is composed of indicators involving sense of community and place attachment. A measurement model with two constructs - sense of community and place attachment - and six observed variables (items included in the survey) was developed (see Table 14).

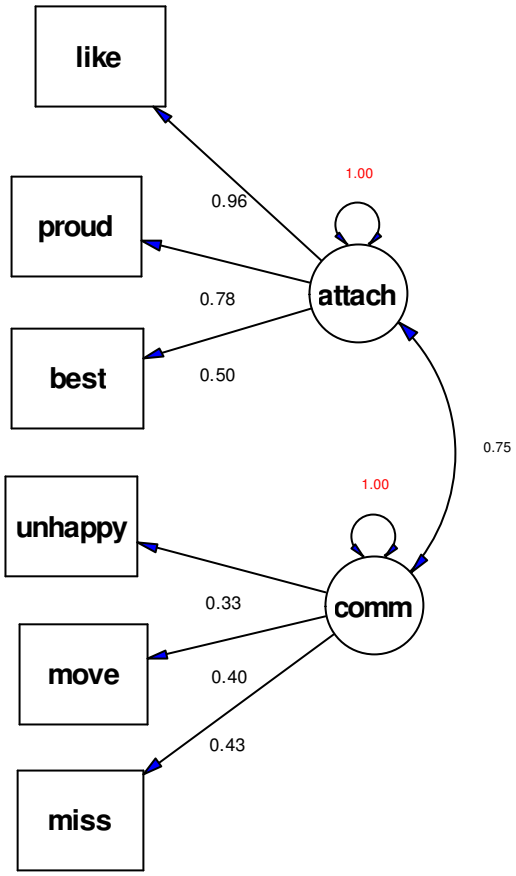
Table 14: List of Variables Included in the Sense of Place CFA

Variables	Definition
Attach	Place Attachment
Comm	Sense of community.
Like	I like the neighborhood in which I live.
Proud	I am proud to tell others where I live.
Best	My neighborhood is the best place to do things I enjoy.
Unhappy	I would be unhappy to leave my neighborhood.
Move	I would be sorry to move out of my neighborhood without the people I live with.
Miss	I miss my neighbors when I am away too long.

Figure 2 illustrates the CFA Sense of Place. In the CFA, one indicator shares its loading with sense of community (best). The reason this indicator loads on these two factors is because evaluating the neighborhood as the best place to do things is related both to the social environment and the ties are established within the place. The X^2 for this model is 16.38 (df=7, p<0.022) and the NC is 2.34. Assessment of the fit indices indicates that the model fits the data. The paths between sense of community and place attachment and their observed variables range between 0.96 and 0.33, indicating that the items are

measuring the constructs. The variables “move” and “miss” have error terms that can be considered large. This could indicate that both variables are capturing sense of community in relation to relocation.

Figure 2: CFA Sense of Place



Perception of Environmental Problems

The indicators that composed this scale measure industrial and toxic contamination and everyday environmental problems. Industrial and toxic contamination is usually associated with global environmental problems and its effects are difficult to perceive. On the other hand, everyday environmental problems are part of the local environment and people are usually confronted with them in a daily basis. For this reason, two measurement models were developed.

Model A: Industrial/Toxic Contamination

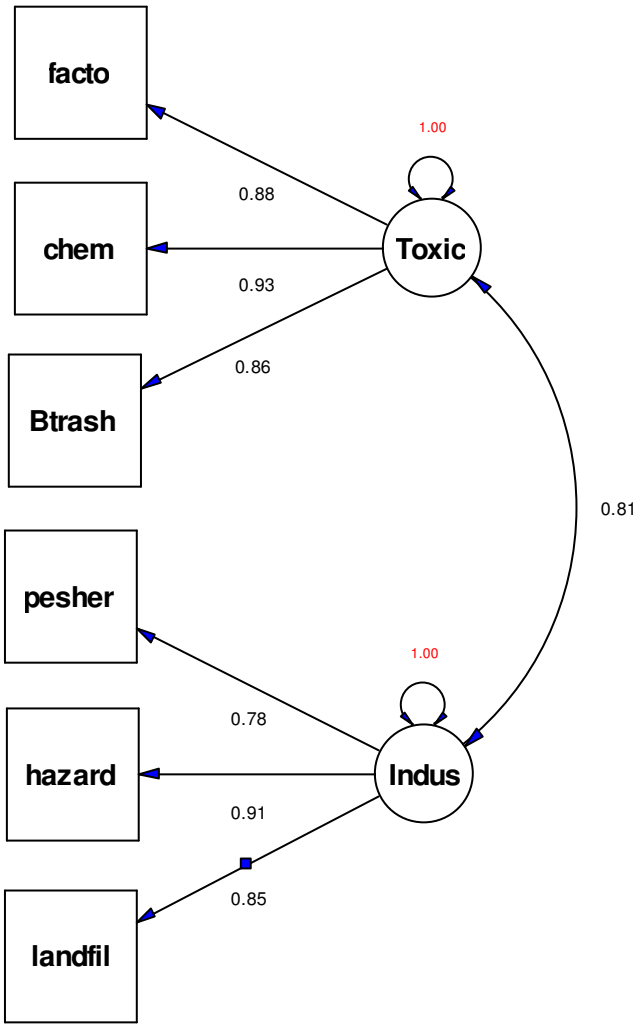
The original model included items measuring environmental perceptions of car and water pollution. When these variables were included, the model did not fit the data. Thus, a decision to remove these variables was made because the scale at which car and water pollution are judged could be larger than the neighborhood (i.e. city, state, country). The resulting model includes two constructs (see Table 15).

Table 15: List of Variables Included in the Industrial/Toxic Contamination CFA

Variables	Definition
Indus	Industrial contamination
Toxic	Land related toxic contamination
facto	Pollution from factories
chem	Chemical dumps
Btrash	Pollution from burning trash
pesher	Pesticides and herbicides
hazard	Hazardous Waste
landfil	Landfill

In the model, the industrial contamination variables do not load on the toxic contamination variables and vice versa. The X^2 for this model is 16.21 (df=8, $p<0.039$), and the NC is 2.02. Assessment of the fit indices indicates that the model fits the data. The paths between the latent variables and the observed variables range between 0.93 and 0.78 indicating that the observed variables are measuring the constructs.

Figure 3: CFA Model A for Industrial/Toxic Contamination



Model B: Everyday Physical Environmental Problems

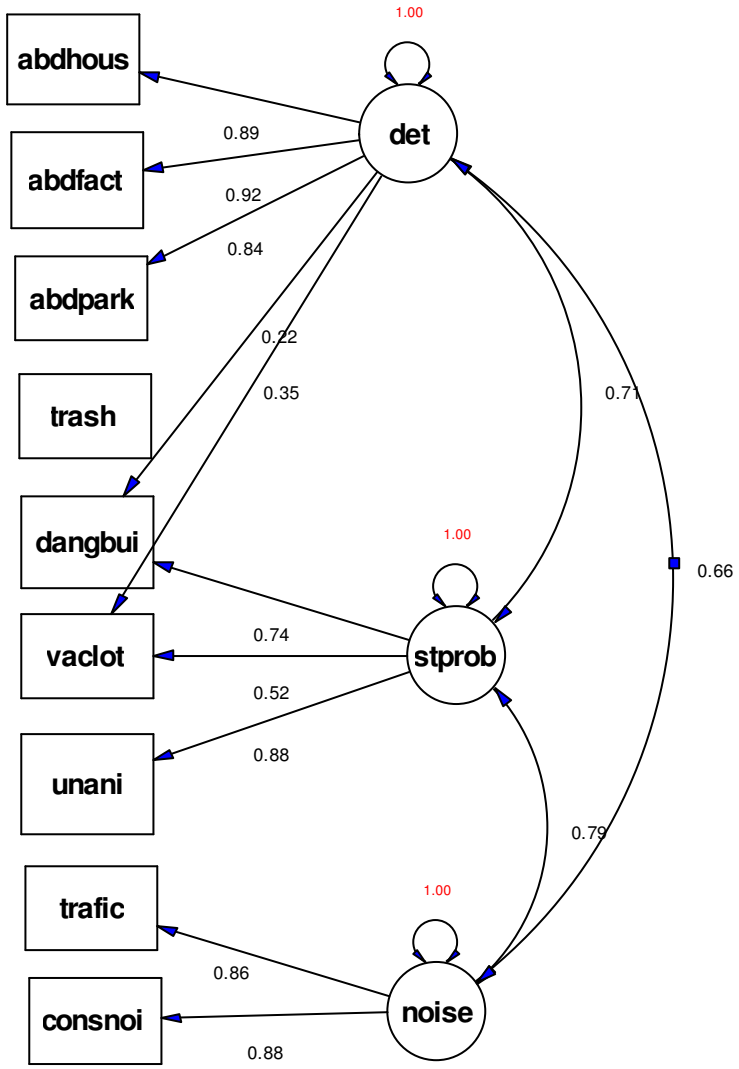
Two items from the original scale were not considered for model specification. The indicator for deteriorated buildings was eliminated from the analysis because it seemed to be measuring the same data as the indicator for occupied buildings in poor or dangerous condition (r= .74). In addition, the indicator "overload of stimuli" was also eliminated from the analysis because this problem is mostly found in city centers and people living in these places might not consider them a potential problem. After these adjustments were made a model with three constructs and nine observed variables was developed (see Table 16).

Table 16: List of Variables Included in the Everyday Physical Environmental Problems CFA

Variables	Definition
det	Infrastructure deterioration
stprob	Urban related street problems
noise	Urban related noise
abdhou	Abandoned houses/buildings
abdfact	Abandoned factories
abdpark	Abandoned parks
trash	Litter, trash problems
dangbui	Occupied buildings in poor or dangerous condition
vaclot	Vacant lots
unani	Uncontrolled animals
trafic	Traffic noise
consnoi	Construction noise

In this CFA, two observed variables share loadings with deterioration (vacant lots and occupied buildings in poor conditions). The X^2 for this model is 49.66 (*df*=22, p<0.00065) and the NC is 2.26. Multiple fit indices support the proposed model. The paths between the observed variables and the constructs range between 0.22 and 0.92, which is a good indication that this model is measuring everyday physical environmental problems.

Figure 4: CFA Everyday Physical Environmental Problems



Neighborhood Quality

The reliability of indicators related to neighborhood quality is good when grouped together as a scale. However, when factor analysis was conducted, these items loaded in two different factors. Thus, the items included in the neighborhood quality scale are not subscales of the same construct. As a result, the indicators were treated as two separate factors: neighborhood quality of life (NQL) and quality of the neighborhood physical environment (QPE). The first involves value judgments of "well being" in the neighborhood by asking respondents to rate the quality of the social environment. The second factor involves value judgments of the physical characteristics of place by asking participants to rate neighborhood infrastructure.

Model A: Neighborhood Quality of Life

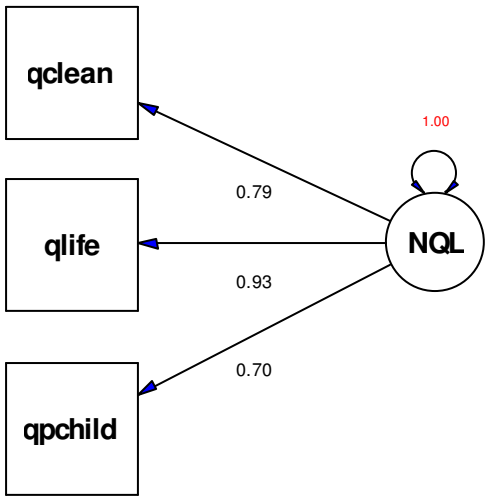
A model with one construct and three observed variables was developed (see Table 17).

Table 17: List of Variables Included in the Neighborhood Quality of Life CFA

Variables	Definition
NQL	Neighborhood quality of life
qclean	Rating of neighborhood cleanliness
qlife	Rating of the neighborhood as a place to live
qpchild	Rating of the neighborhood as a place to raise children

The X^2 for this model is 0.51 (df=1, p<0.48), and the NC is 0.51. The RMSEA as well as the fit indices described in Table 13 also support this model.

Figure 5: CFA Neighborhood Quality of Life



Model B: Neighborhood Physical Quality

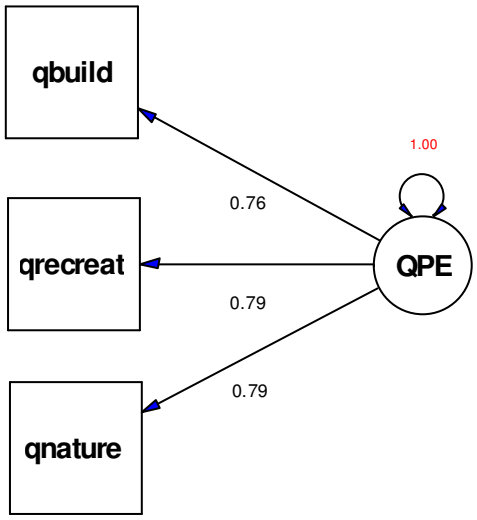
A model with one construct and three observed variables was developed (see Table 18).

Table 18: List of Variables Included in the Neighborhood Physical Quality CFA

Variables	Definition
QPE	Quality physical environment
Qbuild	Rating of the quality of the building/house n the neighborhood
Qrecreat	Rating of the quality of recreational activities
Qnature	Rating of the quality of the environment in the neighborhood (natural landscape/water/greenery/air)

The X^2 for this model is 0.44 (*df*=1, p<0.51), and the NC is 0.44. The fit indices described on table 13 also support this model. (See Figure 6.)

Figure 6: CFA Neighborhood Physical Quality



Social Capital

The social capital measure is composed of: 1) social relations; 2) neighborhood social networks; 3) participation in neighborhood activities; and 4) talk about neighborhood environmental problems. A model with four constructs and 12 observed variables was developed (see Table 19).

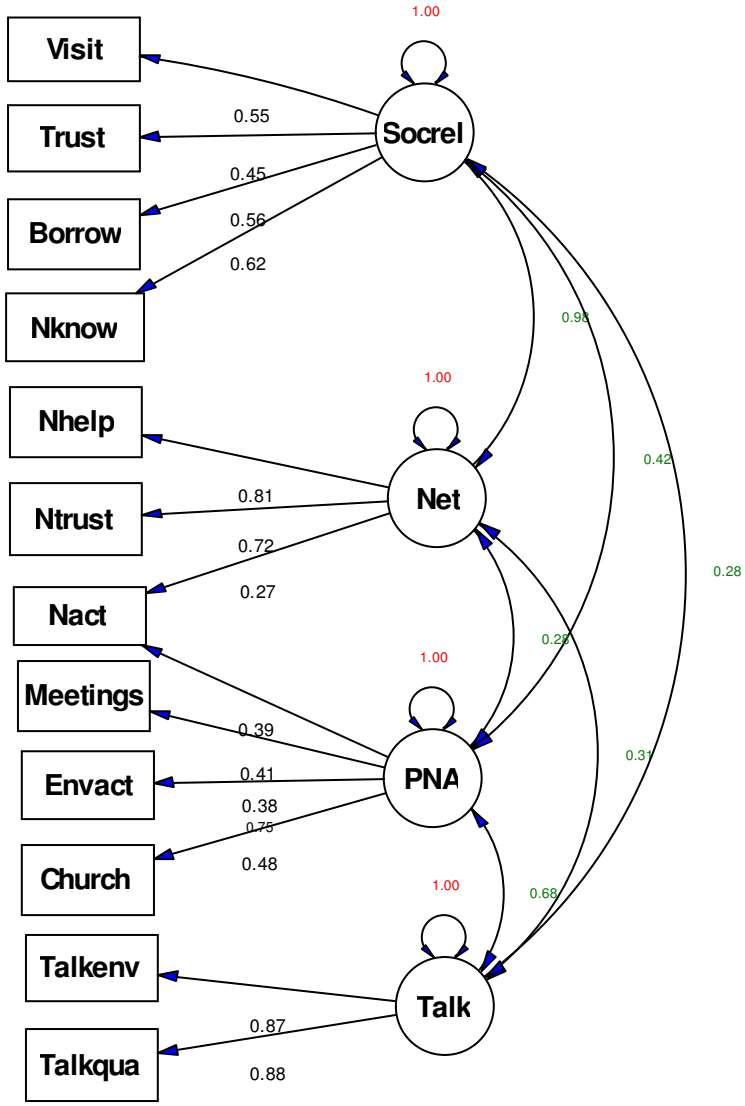
Table 19: List of Variables Included in the Social Capital CFA

Variables	Definition
Socrel	Social relations with neighbors
Talk	Talking to neighbors
Net	Social network in the neighborhood
PNA	Participation in neighborhood activities
Visit	Visit a neighbor house
Trust	I can trust the people who live in my neighborhood
Borrow	I can borrow food from my neighbor
Nknow	How many people do you know by name in your neighborhood?
Nhelp	How many people can you ask for help in your neighborhood?
Ntrust	How many people do you trust in your neighborhood?
Nact	How many people that you know are involved in activities to improve the environmental conditions of your neighborhood?
Meetings	Attend public meetings in the neighborhood.
Envact	Participate in activities, like cleaning, and recycling, to improve the environment in your neighborhood
Church	Volunteer for church functions
Talkenv	Talk to a neighbor about environmental problems like pollution, chemical dumps and water contamination
Talkqua	Talk to a neighbor about the environmental quality of the neighborhood

One observed variable (people participating in environmental activities) loads on both the constructs of social networks and participation in neighborhood

activities (PNA) because this indicator assesses the extent of the participants' network engaging in neighborhood activities. The X^2 for this model is 108.39 (df=7, p<0.021) and the NC is 2.30. In addition, assessment of the fit indices indicates that the model fits the data. The paths between the observed variables and the latent variables range from 0.39 to 0.88 indicating that the observed variables are measuring their corresponding constructs. (See Figure 7.)

Figure 7: CFA Social Capital



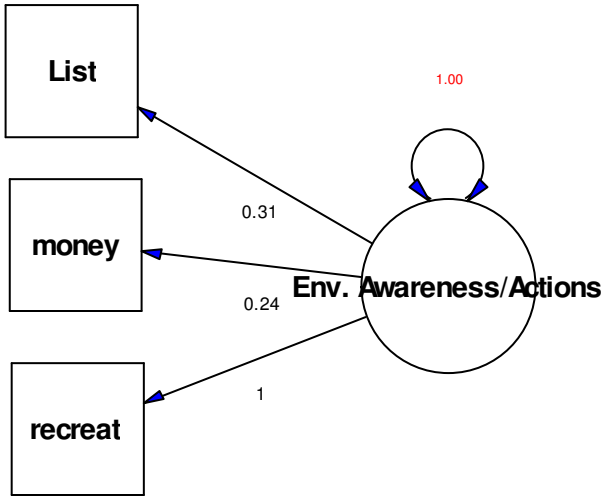
Environmental Awareness and Actions

The scale includes three items measuring environmental awareness and actions (see Table 20). One of the variables was fixed because its contribution to the model was small. The X^2 for this model is non-significant at .77 (df=1, p<0.38) which means that the model is not rejected. Assessment of the fit indices indicates that the model fits the data.

Table 20: List of Variables Included in the Environmental Awareness and Actions CFA

Variables	Definition
Aware	Environmental awareness and actions
List	The government should provide each citizen with a list of agencies and organizations to which citizens could report neighborhood environmental problems.
recreat	A clean environment provides me with better opportunities for recreation in my neighborhood.
money	I would contribute money to organizations interested in improving the environment of my neighborhood.

Figure 8: CFA Environmental Awareness and Actions



What is the role of social capital, sense of place and neighborhood quality in mediating perceptions of environmental problems?

Structural Equation Models, better known as SEM, allow the study of relationships among variables. Through SEM, a researcher can assess direct and/or indirect effects of indicators (items) and constructs. Usually, these types of models consist of both a measurement component and a path component. The combination of both is known as a structural model. An important characteristic of SEMs is that patterns of relationships between variables are specified based on theory. Consequently, every decision taken in model design, construction and modification is justified and/or supported by the theories under study. This allows an examination of how constructs relate to one another based on testing different data conceptualizations. The main goal when constructing a model is to accurately represent the theory through the relationship of the variables under study. Table 21 shows the variables included in the model. Based on the correlation between variables (see Table 22) and the literature reviewed, a model testing multiple mediators between indicators of environmental problems, sense of place, social capital, neighborhood quality and environmental awareness was tested (see Figure 8).

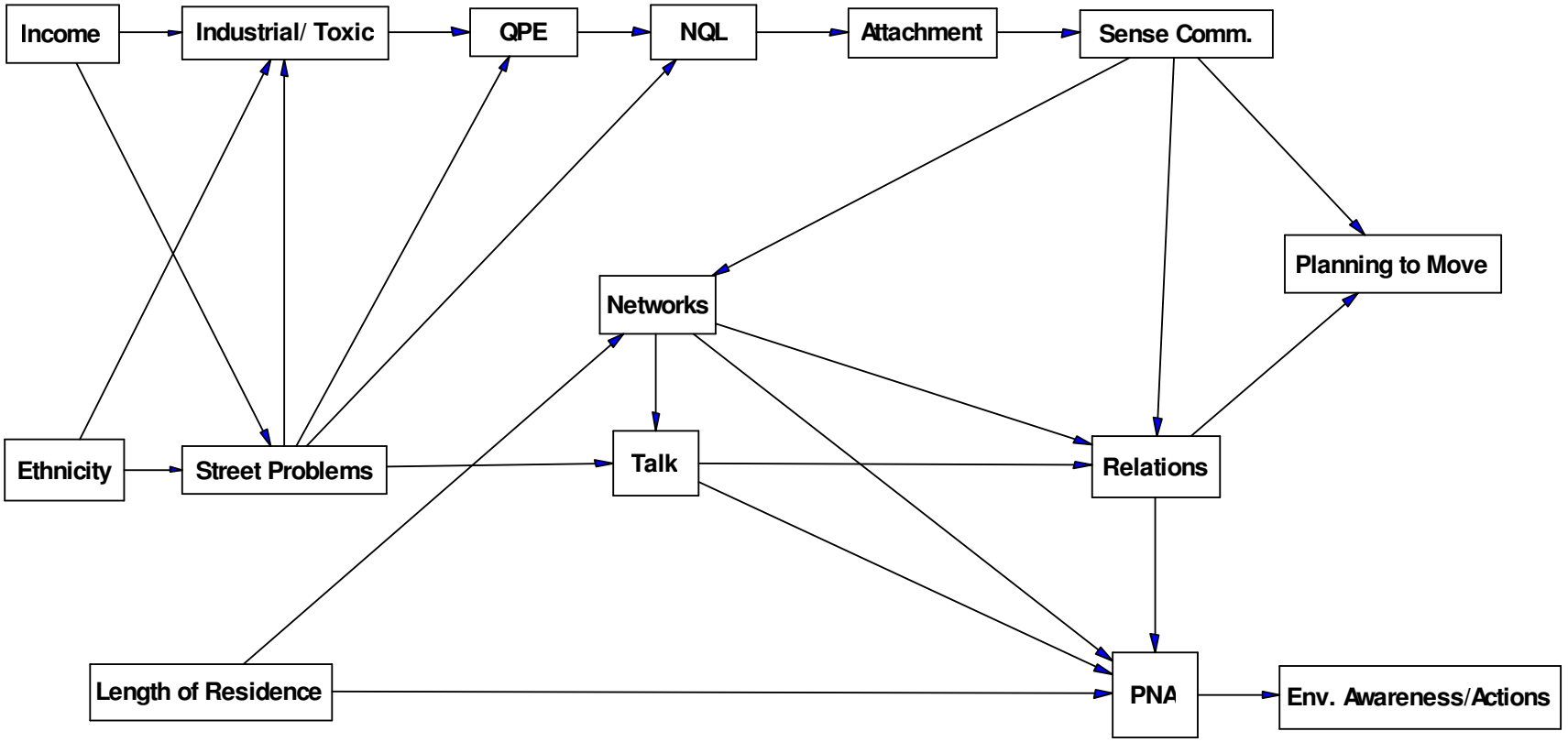
Table 21: List of Variables Included in the SEM

Variable Name	Abbreviation
Household income	Income
Ethnicity	Ethnicity
Number of years living in actual neighborhood	Length of Residence
Street Problems	Street Problems
Industrial or toxic contamination	Industrial/Toxic
Neighborhood quality of the physical environment	QPE
Neighborhood quality of life	NQL
Social networks	Networks
Talking to neighbors	Talk
Social relations	Relations
Participation in neighborhood activities	PNA
Place attachment	Attachment
Sense of community	Sense Comm.
Planning to move from actual neighborhood	Planning to Move
Environmental Awareness and actions	Env. Awareness/ Actions

Table 22: Correlation Matrix, Standard Deviation and Mean for Variables in the SEM

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Industrial/toxic	1														
2. Street Problems	.711	1													
3. Ethnicity	.052	-.049	1												
4. Household Income	-.102	-.116	.069	1											
5. Length of Residence	-.058	0.21	-.039	.097	1										
6. QPE	-.168	-.374	-.030	.179	.025	1									
7. NQL	-.203	-.441	.010	.168	.053	.744	1								
8. Place Attachment	-.162	.181	-.042	.135	-.018	.504	.625	1							
9. Sense of Community	-.045	-.205	-.060	.135	-.018	.267	.361	.488	1						
10. Social Relations	-.103	-.171	-.019	.171	.250	.336	.326	.443	.403	1					
11. Talk	.180	.156	-.071	.053	.026	.046	-.015	.040	.115	.607	1				
12. Social Networks	-.038	-.154	.000	.167	.164	.368	.384	.414	.353	.312	.324	1			
13. PNA	.132	-.003	.029	.068	.039	.130	.183	.211	.168	.257	.484	.555	1		
14. Planning to Move	.051	.711	.016	-.170	.037	-.245	-.341	-.302	-.385	-.269	-.014	-.212	-.123	1	
15. Awareness	.070	.066	-.024	.068	-.079	.103	.077	.101	.103	.095	.129	.118	.137	.039	1
Mean	12.5	9.6	4.9	2.9	3.5	9.9	9.8	9.9	7.8	10.8	3.4	7.5	7.0	2.4	11.2
SD	7.0	5.0	14.2	1.5	1.4	2.7	3.0	3.0	2.7	3.5	1.9	3.0	2.9	0.8	2.0

Figure 9: Theoretical Model Engagement in Responses to Environmental Problems



Understanding Theoretical Connections in the Model of Engagement in Responses to Environment Problems

The SEM model constructed in this study explores the factors contributing to people's responses to environmental problems. The model was constructed to address the question: how do indicators of neighborhood quality, sense of place and social capital mediate the effects of physical environmental risks on environmental awareness and actions in poor/working class neighborhoods? This section explains the theoretical justification for the inclusion of the variables in the model.

Household Income and Ethnicity

In the model, ethnicity and household income are included as exogenous variables. The reason for this decision was that studies concerning environmental equity have documented that residents of racially segregated neighborhoods with limited income resources experience multiple environmental problems. The variable ethnicity was dichotomized (ethnic minority/white). In this study, the cross tabulation analyses identified a pattern in which ethnic minorities and household incomes of less than $30,000 perceived environmental problems as a greater threat in their neighborhoods. A negative relationship is therefore expected between income and perception of neighborhood environmental problems.

Physical Environmental Problems

Physical environmental problems, at the neighborhood level, were categorized into two variables: industrial/toxic contamination and street problems.

These variables measure whether or not these environmental problems are perceived as a threat in the participants' neighborhoods. In the CFA, industrial and toxic contamination were identified as independent factors measuring the construct of industrial toxic contamination. Because of multi-collinearity, evidence provided by the measurement model and a strong correlation between these factors (r =.83), they were combined into a single construct. A path between "industrial and toxic contamination" with "quality of the physical environment" (QPE) was established because when indicators of industrial and toxic contamination and street problems are present in neighborhoods, people tend to evaluate their neighborhood conditions negatively (Adeola 2000; Keller-Olaman, 2005). Because everyday environmental problems were rated in this study as more threatening in participants' neighborhoods, a direct path between perception of street problems predicting perceptions of industrial/toxic contamination was established. Another reason to establish this path is that, as previously documented, most of the industrial activity in NYC consists of electroplaters, furniture refinishers, auto repair shops, plastic manufacturers and heavy truck traffic which are associated with street problems (Angotti & Hanhardt, 2001).

Residential Stability

Variables representing indicators of residential mobility were also included in the model. Length of residence was included as an exogenous variable and planning to move was included as an outcome. Length of residence was included in the model because the number of years a person lives in a

neighborhood is associated with levels of social integration. A positive relationship is expected between length of residence and social capital indicators. Planning to move was included as an outcome because it tries to capture the impact of the social and physical environment in causing the decision to move from the neighborhood as a response to an environmental problem. A negative relationship is expected between indicators of neighborhood quality, sense of place and social capital with planning to move.

Environmental Awareness and Actions

The measure of environmental awareness and actions includes pro-environmental attitudes (general and specific) as well as behaviors that express commitments or intentions to take action to reinforce a healthy neighborhood environment. A theoretical assumption in this study is that people perceiving physical environmental problems in their neighborhood will be more aware of their neighborhood environment and will therefore be more inclined to participate in neighborhood environmental activities. In the model, I hypothesized that neighborhood dynamics (social capital, sense of place and neighborhood quality) mediate the relationship between perceptions of environmental problems and environmental awareness and actions.

Neighborhood Quality

Research studies assessing the quality of the physical environment have documented that indicators of abandonment and neighborhood physical environment have an effect on social dynamics and health (Ellen, Mijanovich & Dillman, 2001; Greenberg 1999; Saegert, 1989; Saegert et al. 2005; Yen, et al.

2006). In neighborhoods having good physical qualities, people tend to report positive evaluations of the physical environment, develop a stronger sense of place and are unlikely to move (Mesh & Manor 1998). The opposite occurs in neighborhoods where people make negative evaluations of the physical environment. For this reason, paths were established between indicators of sense of place and planning to move.

Sense of Place

This construct incorporates the concepts of place attachment and sense of community to describe individual experiences of a spatial setting. Place-based research argues that bonds between places and people are crucial for individual well-being and psychosocial development (Altman & Low, 1992; Brown, et. al. 2004; Gustafson, 2001; Hummon, 1992; Plas & Lewis, 1996). These studies suggest that the physical characteristics of a neighborhood have an effect on the development of attachment towards places and a sense of community between residents. In neighborhoods with good infrastructure and environmental conditions, the development of a strong sense of community and place attachment is expected. As a result, a negative relationship is expected between indicators of sense of place and planning to move will be displayed in the SEM.

Social Capital

Previous studies have documented how people living in high-poverty areas suffer more from environmental problems and how social capital is used to respond to environmental challenges (Danaire, et. al., 2002; Fitzpatrick & LaGory, 2000; Lochner, et al., 1999; Perkins, et al. 2002). In these situations,

community-based interventions are usually designed to improve environmental conditions by mobilizing residents. Mobilization depends on long-term ties and social relations that rely on trust, social networks and neighboring activities in specific geographic areas. For this reason, a positive relationship is expected between environmental awareness and participation in neighborhood activities.

Developing a Model of Engagement in Responses to Environmental Problems in Three Steps

STEP 1: Evaluating Neighborhood Physical Environments

The first step was to develop a SEM addressing evaluations of the neighborhood environment. The proposed model hypothesized that people who evaluate their quality of life and quality of their physical environment positively will be more interested in participating in activities that promote environmental awareness and will be less willing to move from their neighborhoods. However, the opposite could occur if people perceive industrial/toxic contamination and street problems as an environmental threat. People who rate their quality of life and quality of the physical environment lower will be more willing to move from their neighborhoods. Equally important, this model tests whether or not perceptions of industrial and toxic contamination along with street problems mediate the relationship between ethnicity and household income in ratings of the quality of the physical environment and neighborhood quality of life. The X^2 for this model is 25.01 (df=15, p<0.070). Assessment of the fit indices indicates that the model fits the data (see Table 23). The paths between the variables

range from -0.34 to 0.09 (see Table 24). Figure 9 shows the model testing the neighborhood quality variables

Table 23: Fit Indices for the Neighborhood Quality SEM

Fit Index[6]	***Model***
Observed Variables	8
Chi-square	25.01 p<0.070)
Df	16
RMSEA	0.036 (0.00 – 0.063)
NFI	0.97
CFI	0.99
NCP	8.18 (0.0 – 25.53)
SRMR	0.045

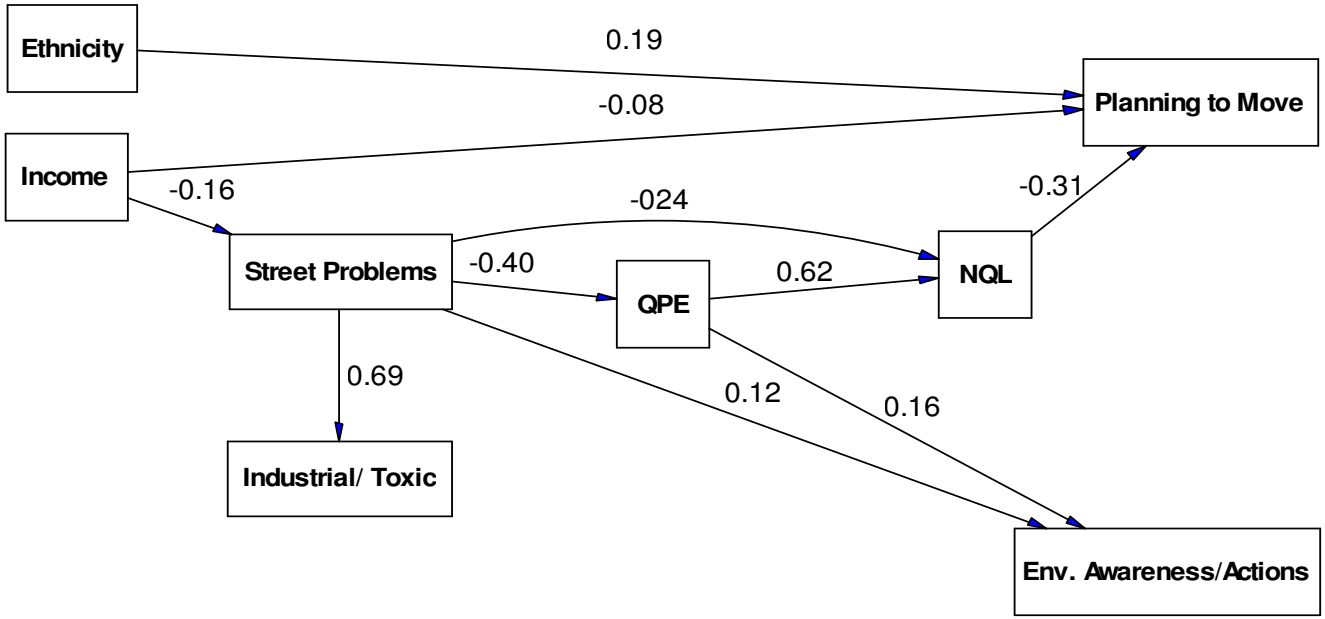
Table 24: Path Coefficients for the Neighborhood Quality SEM

Path	**Coefficient**
Industrial/toxic ⇨ QPE	**0.19**
Street Problems ⇨ Industrial/toxic	**0.69**
Street Problems ⇨ NQL	**-0.24**
Street Problems ⇨ QPE	**-0.40**
Street Problems ⇨ Awareness	**0.12**
NQL ⇨ Planning to Move	**-0.31**
QPE ⇨ NQL	**0.62**
QPE ⇨ Awareness	**0.16**
Income ⇨ Street Problems	**-0.16**
Income ⇨ Planning to Move	**-0.08**
Ethnicity ⇨ Planning to Move	**0.19**

All parameters are significant on p<.05

[6] For definitions of these fit indices see Chapter 3.

Figure 10: Neighborhood Quality SEM



Model Interpretation

The model does not confirm our hypothesis that indicators of neighborhood quality fully mediate the relationship between perception of industrial/toxic contamination and awareness of the physical environment. However, the model does support a partial mediation hypothesis for the relationship between street problems and environmental awareness through the ratings of quality of the physical environment. The Neighborhood Quality Model suggests that:

- Indicators of quality of the physical environment explain the relationship between environmental awareness and physical environmental problems than indicators of quality of life. The more street problems neighborhood residents perceived, the lower the quality of the physical environment. Residents who are aware of the quality of the physical environment are also more willing to take actions.
- Household income predicts street problems. Residents with higher incomes perceive fewer environmental problems.

The model also supports a full mediation hypothesis explaining the effects of street problems on planning to move. The Neighborhood Quality Model suggests that:

- People who provide higher ratings of neighborhood quality of life are less willing to move from their current neighborhood (standardized coefficient = -0.31).
- When someone makes the decision and plans to move from the neighborhood, the relationship of quality of life with respect to the quality

of physical environment is taken into consideration. The quality of the physical environment will directly influence the quality of life in the neighborhood (standardized coefficient = 0.62) and thus affect plans to move indirectly.

- Ethnic minorities are more likely to consider moving from their current neighborhoods than White residents (standardized coefficient = 0.19).
- People with low household incomes are also more likely to consider moving from their neighborhoods than people with high household incomes (standardized coefficient = -0.08).

STEP 2: Evaluating the Physical Environment and Affective Relations with Places

The second step in building the SEM model involved an examination of the relationship between evaluations of the physical environment of neighborhoods and peoples' sense of place. The assumption supporting the construction of this model is that residents who perceived a higher quality neighborhood will develop a strong place attachment and sense of community and will be less likely to move. In addition, place attachment and sense of community will contribute to an awareness of the physical environment and motivate neighborhood revitalization activities. This model tests the hypothesis that ratings of neighborhood quality and indicators of sense of place mediate the relationship between the perception of physical environmental problems and environmental awareness. The X^2 for this model is just barely significant at 44.26 ($df=29$, $p<0.042$). Assessment of the fit indices indicates that the model fits the

data (see Table 25). The paths between the variables range from 0.69 to 0.12 (see Table 26). Figure 10 shows the model evaluating the physical environment and affective relations with places.

Table 25: Fit Indices for the Physical Environment and Affective Relations with Places SEM

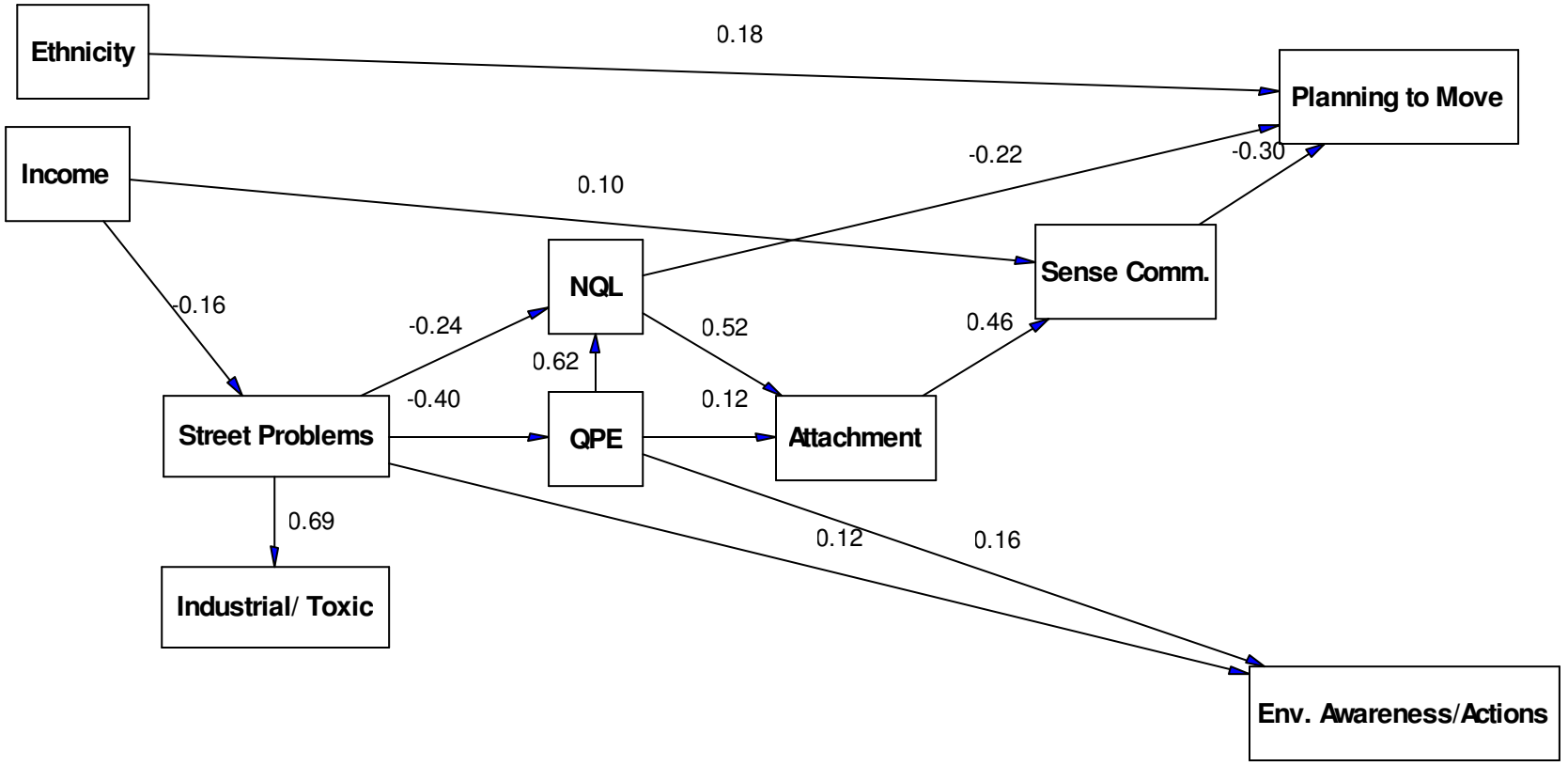
Fit Index	***Model***
Observed Variables	10
Chi-square	44.29 p<0.042)
Df	29
RMSEA	0.035 (0.0069 – 0.056)
NFI	0.96
CFI	0.99
NCP	14.37 (0.55 – 36.13)
SRMR	0.047

Table 26: Path Coefficients for the Physical Environment and Affective Relations with Places SEM

Path	Coefficient
Industrial/toxic ⇨QPE	0.19
Street Problems ⇨ Industrial/toxic	0.69
Street Problems ⇨ NQL	-0.24
Street Problems ⇨ QPE	-0.40
Street Problems ⇨Awareness	0.12
NQL ⇨Planning to Move	-0.22
NQL ⇨ Attachment	0.52
QPE ⇨ NQL	0.62
QPE ⇨ Awareness	0.16
QPE ⇨Attachment	0.12
Attachment ⇨ Sense of Comm.	0.46
Sense of Comm. ⇨Planning to Move	-0.30
Income ⇨ Street Problems	-0.16
Income ⇨ Sense of Comm.	0.10
Ethnicity ⇨ Planning to Move	0.18

All parameters are significant on $p<.05$

Figure 11: Physical Environment and Affective Relations with Places SEM



Model Interpretation

When adding the variables “place attachment” and “sense of community,” the model does not confirm the hypothesis that indicators of sense of place fully mediate the relationship between the perception of industrial/toxic contamination and street problems with awareness of the physical environment (see figure 10). However, the model does support a full mediation hypothesis for the relationship between street problems and planning to move. This model suggests that:

- Residents with strong attachments to their neighborhoods will develop a sense of community (standardized coefficient = .46).
- Residents with a greater sense of community are less likely to consider moving from the neighborhood (standardized coefficient = -0.30).
- Residents’ perceptions of street problems and neighborhood quality have an effect on place attachment. The relationship between street problems and place attachment is mediated by evaluations of neighborhood quality of life and quality of the physical environment.
- Residents who provide higher ratings of quality of life are more likely to be highly attached to the neighborhood (standardized coefficient = 0.52).
- Place attachment is the variable mediating the relationship between evaluations of neighborhood quality and sense of community.

Step 3: A Model of Engagement in Responses to Environmental Problems

As demonstrated with the models previously presented, neighborhoods’ dynamics are relevant when explaining how residents perceive and respond to

problems in their local environments. The model constructed in this section incorporates indicators of social capital, neighborhood quality, and sense of place to understand people's responses to environmental problems in urban neighborhoods. This model tests the relationship between sense of place and social capital by predicting an effect of sense of community based on social relations and social networks. The outcomes, "planning to move" and "environmental awareness," are receiving the effects of social capital through the variables "social relations" and "PNA" (participation in neighborhood activities). The X^2 for this model is non significant at 80.80 (df=70, p<0.18), which means that the model is not rejected. Assessment of the fit indices indicates that the model fits the data quite well (see Table 27). The paths between the variables range from -0.06 to 0.68 (see Table 28). Figure 10 illustrates the model explaining engagement in responses to environmental problems.

Table 27: Fit Indices for the Engagement in Responses to Environmental Problems

Fit Index	***Model***
Observed Variables	15
Chi-square	80.80 (p<0.18)
Df	70
RMSEA	0.020 (0.0 – 0.037)
NFI	0.95
CFI	0.99
NCP	11.43 (0.0 – 38.04)
SRMR	0.039

Table 28: Path Coefficients for the Engagement in Responses to Environmental Problems SEM

Path	Coefficient
Industrial/toxic ⇨ QPE	0.19
Street Problems ⇨ Industrial/toxic	0.68
Street Problems ⇨ NQL	-0.24
Street Problems ⇨ QPE	-0.40
Street Problems ⇨ Talk	0.20
NQL ⇨ Planning to Move	-0.20
NQL ⇨ Attachment	0.60
QPE ⇨ NQL	0.62
QPE ⇨ Social Networks	0.21
Attachment ⇨ Social Relations	0.21
Attachment ⇨ Social Networks	0.22
Attachment ⇨ Sense of Comm.	0.46
Sense of Comm. ⇨ Planning to Move	-0.27
Sense of Comm. ⇨ Social Relations	0.15
Sense of Comm. ⇨ Social Networks	0.18
Income ⇨ Street Problems	-0.15
Income ⇨ Sense of Comm.	0.10
Income ⇨ Industrial/toxic	-0.06
Ethnicity ⇨ Planning to Move	0.17
Ethnicity ⇨ Street Problems	0.10
Ethnicity ⇨ Awareness	0.10
Social Relations ⇨ Planning to Move	-0.09
Social Relations ⇨ PNA	-0.14
Social Network ⇨ Social Relations	0.34
Social Network ⇨ PNA	0.50
Social Network ⇨ Talk	0.36
PNA ⇨ Awareness	0.14
Talk ⇨ Social Relations	0.15

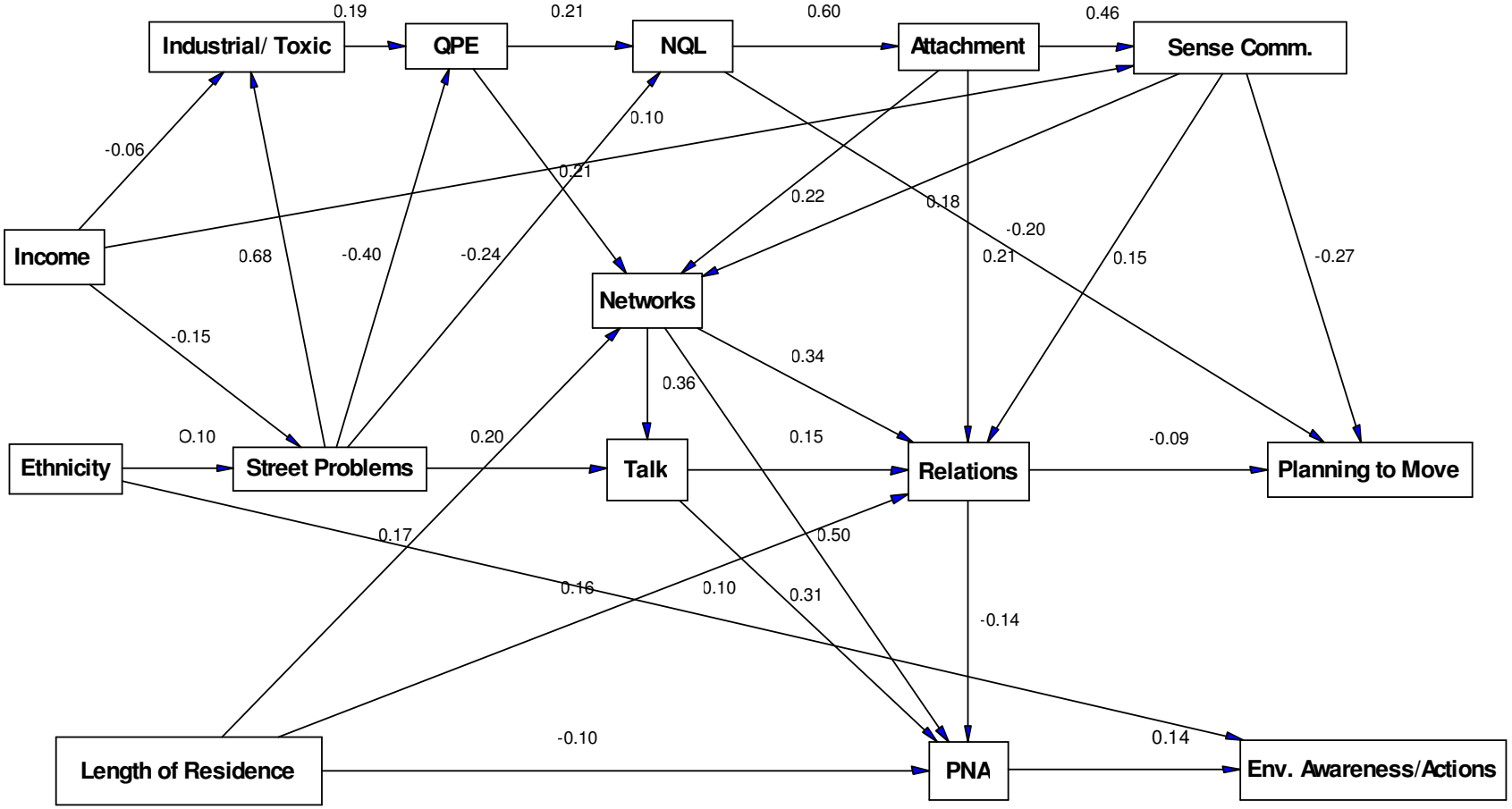
Talk ⇨ PNA	**0.31**
Length of Residence ⇨ Social Relations	**0.16**
Length of Residence ⇨ Social Networks	**0.17**
Length of Residence ⇨ PNA	**-0.10**

All parameters are significant on p<.05

Significant Paths

Figure illustrates some significant relations between the variables under study that confirm the measurement models. The indicators of social capital (social network, social cohesion, PNA and talking to neighbors) are highly correlated within themselves (see Table 28). A high correlation can be also observed between the neighborhood quality factors (standardized coefficient =0.62). In addition, the place attachment factor is highly correlated (0.46) with sense of community. Also, the factors street problems and industrial toxic contamination are highly correlated (0.68). Such results confirmed the indications of internal consistency and construct validity for these factors.

Figure 12: Engagement in Responses to Environmental Problems SEM



Interpretation of the Full Model

The model confirms the hypothesis that relationships between sense of place, social capital and neighborhood quality can be used to explain the people's responses to environmental problems in urban neighborhoods. The model supports a full mediation hypothesis between environmental problems (street problems and industrial/toxic contamination) and environmental awareness and actions through indicators of neighborhood quality, sense of place and social capital. The model suggests that:

- Indicators of social capital (talking to neighbors, social networks, social relations and participation in neighborhood activities) mediate the relationship between environmental problems and environmental awareness and actions. When residents perceive more street problems, they will talk more about their neighborhood conditions and participate in neighborhood activities. Participation in neighborhood activities will lead to the development of environmental awareness and actions. However, long term residents participate in neighborhood activities less than short term residents.
- Indicators of neighborhood quality and sense of place mediate the relationship between environmental problems and social networks. Evaluations of neighborhood quality as well as levels of place attachment and sense of community will have an impact on the development of social networks and social relations within the neighborhood.
- Ethnicity does not predict planning to move but is a predictor of

environmental awareness and actions when indicators of social capital are included in the model.

Moreover, the model also supports a full mediation hypothesis between environmental problems and planning to move from the neighborhood. The model suggests that:

- Indicators of social capital also mediate the relationship between environmental problems and planning to move from the neighborhood. Residents with few social relations will be more likely to plan to move from the neighborhood.
- As indicated in previous models, neighborhood quality of life and sense of community predicts a resident's plan to move.

Most of the connections predicted in previous models are also present in this model. However, new relationships between variables appeared as others disappeared as a result of the integration of evaluations of quality, emotional connections with places, and social dynamics. For instance:

- Industrial/toxic contamination positively influences the quality of the physical environment (QPE) (standardized coefficient = 0.19). This relationship is small and positive, indicating that residents who perceived more industrial or toxic contamination will provide positive evaluations of the quality of the physical environment.
- Neighborhood quality of life predicts place attachment (standardized coefficient = 0.60). According to the model, residents who perceived a good quality of life are more likely to be emotionally attached to their

neighborhoods.

- When incorporating indicators of social capital, the variable quality of the physical environment does not predict place attachment.
- Both indicators of sense of place - sense of community (standardized coefficient = 0.15) and place attachment (standardized coefficient = 0.21) - are predicting social relations. This means that strong emotional attachments and sense of community facilitate the development of social ties in neighborhoods.
- Length of residence is a good predictor of social capital. Long term residents will develop stronger social relations (standardized coefficient = 0.16) and social networks (standardized coefficient = 0.17). However, they will participate in fewer neighborhood activities (standardized coefficient = -0.10).

Chapter 5

Discussion

This study has examined, using SEM analysis, the causal relationships between environmental problems, social capital, neighborhood quality, sense of place, and people's responses to environmental problems using survey data gathered at two community colleges in New York City. The neighborhoods where the survey respondents live as well as their socio-demographic characteristics were identified to provide a context to interpret descriptive statistics (frequencies, cross-tabulations and correlations) and the structural equation analysis. This allowed for the identification of those factors previously identified in the literature that directly contributed to engagement in neighborhood revitalization activities or plans regarding residential mobility. This section discusses the research findings in the light of the research questions.

Sense of place, neighborhood quality and social capital: Multidimensional constructs

Considering the complexity of the constructs explored in this study, reliability analyses as well as CFAs were conducted to assess the accuracy of the measures. These analyses point to a multidimensional explanation for all measures in this study. Confirming the factors composing the constructs of neighborhood quality, sense of place and social capital, was particularly important because, despite the popularity of these concepts, their definition and

usage varies considerably between and within disciplines (Bourdieu, 1986; Coleman, 1988; DeFilippis, 2001; Dissart & Deller, 2000; Hidalgo & Hernandez, 2001; Portes, 1998; Putnam, 1995).

The sense of place CFA confirmed the hypothesis that this is a pluralistic and multi-dimensional construct assessing individual feelings and emotions as well as physical characteristics of place. This CFA illustrated the differences between sense of community and place attachment. As previously suggested, the construct of place attachment deals with individual feelings and emotions towards a place while sense of community deals with feelings towards a place that incorporates social dynamics (Altman & Low, 1992; Mcmillan & Chavis, 1986). These results support Pretty et al. (2003) in their argument that sense of place is a multidimensional concept that tries to capture the subjective relation between individuals and their environment taking into consideration the psycho-social context as well as the practices of individuals within a place. Thus, sense of place should measure personal experiences between the physical and social environments.

The social capital CFA measured behaviors associated to neighboring activities and group activities directed towards improving the neighborhood environment and provided information that helped confirm previous conceptualizations. To illustrate, Perkins, Hughey and Speers (2002) argue that social capital at the individual level should include measures of formal and informal neighboring behaviors. For these researchers, these behaviors should help individuals position themselves within a web of interconnections in society

that can work to their advantage. In addition, the CFA suggests that ideas related to Bordieu's and Putnam's social capital are not mutually exclusive. In Bordieu's (1986) conceptualization, networks and connections seem to complement Putnam's (1995) idea of trust as understood through social relations. However, it is important to note that people should recognize their network as a trustworthy resource in order to consider a network as social capital.

The neighborhood quality CFAs indicate that this construct is composed of two independent factors: quality of life and quality of the physical environment. This finding suggests that the physical and the social environments are relevant in conceptualizations and evaluations of neighborhood quality. However, they are measured and judged differently. Neighborhood quality of life incorporates humans' needs for a social and physical environment that allow human growth and developmental process to occur in a healthy way (Dissart & Deller, 2000). On the other hand, neighborhood physical quality measures the perceived quality of building, parks and spaces in which people socialize in the neighborhood. The differences in the ratings of these constructs could be based on cultural, economic and political factors that could be acting as filters when making these evaluations (Douglas & Wildavsky, 1982).

To conclude, the CFAs allowed validation of the measures included in the survey. It also provided useful information to guide the construction of the structural equation models examining these neighborhood dynamics. The multi-dimensionality of these constructs justified using their indicators in the SEM to explore their connections. This information could be useful to future researchers

interested in measuring sense of place, social capital and neighborhood quality. For example, the information provided by the CFAs could be used to guide construct refinement of existing scales.

The role of ethnicity and household income in people's perceptions of environmental problems in their neighborhoods

One of the research questions in this study addresses the role of ethnicity and household income as contributors to people's responses to environmental problems. The results revealed that ethnicity and neighborhood socioeconomic status are relevant factors in understanding individual responses to environmental problems. This finding is consitent with the environmental justice literature, which has provided extensive evidence arguing that ethnic minorities, low-income and working class households are more exposed to environmental problems in their neighborhoods (Austin & Schill, 1991; Bullard, 1990, 1992, 1993, 2000; Camacho, 1998; Corburn, et al., 2006; Mohai & Bryant, 1992, 1998; Mohai & Saha, 2006). It is important to note that, in this study, exposure to environmental problems was not measured; however, evidence provided by the environmental justice literature and the socio-demographic characteristics of the participants suggest that the probability that they are exposed to environmental problems in their neighborhoods is high. More than half of the participants in this study reported being part of a minority group and having incomes of $30,000 or less. Also, the US census data analyses showed that more than half of the survey participants live in ethnically diverse and low-income neighborhoods in

NYC.

In this study, perceptions of environmental problems as threats in the neighborhood were analyzed in relation to ethnicity. The results of this analysis suggest a connection between the presence of perceived environmental problems and minority groups' awareness of their neighborhood environment. According to the SEM, people who are part of a minority group will perceive problems like trash, litter and uncontrolled animals as more relevant to their life and, as a result, they are more willing to participate in neighborhood revitalization activities. The qualitative data provide insights to understand this finding. In this study, participants tended to describe Hispanics and African Americans as ethnic groups with less power to demand action from social and/or formal institutions and they believed that neighborhood environmental problems will be attended more promptly in White-majority neighborhoods than in minority neighborhoods. For this reason, they believe that, to improve the neighborhood, ethnic minorities, like Hispanics and African Americans, need to assume an active role in neighborhood improvement activities. This finding is consistent with previous studies that argue that cultural and ethnic differences may account for environmental behavior and perception differences between Whites and minority groups when dealing with local environmental problems and that these differences have an impact on how official responses from government institutions are perceived (Clarke & Gerlak, 1998; Pfeffer & Stycos, 2002).

Equally important, the results of this study also showed that household income is another factor impacting the reasons why people get involved in

activities to solve environmental problems. In this study, more people with household incomes of less than $30,000 reported perceiving everyday environmental problems and industrial and toxic contamination as higher threats in their neighborhoods than people with incomes of more than $30,000. Moreover, the quantitative findings suggest a direct relationship between household income to both groups of environmental problems examined in this study (street problems and industrial/toxic contamination). These relationships in the SEM suggest that respondents who come from low income households perceived more problems such as vacant lots, litter pollution from factories and chemical dumps as a threat in their neighborhood than high income households. This is an important finding because, these interpretations could be revealing information related to how a neighborhood socio-economic context is impacting the everyday experiences of its residents. For example, participants in this study used physical characteristics of the neighborhood, like sidewalk cleanliness and building conditions, as indicators of a lack of financial capability to support environmental improvement activities. Moreover, the presence of a relationship between household income and environmental problems is supported by previous studies arguing that environmental problems are directly associated to neighborhoods' financial composition (Sampson & Moneroff, 2005, Evans & Kantrowitz, 2002).

To sum up, the findings addressing the role of ethnicity and household income are consistent with the literature and suggest that participants' ethnicity and their household income are factors that could influence the decision of

adopting an active response to deal with environmental problems (Clarke & Gerlak 1998; Litctermann, 1995; Pfeffer & Stycos 2002; Sampson & Radenbush, 2005). This evidence suggests that when designing environmental improvement activities the financial capacity of the neighborhood as well as it cultural and ethnic composition should be taken into consideration. These findings are especially significant to large urban centers, like NYC, where historically ethnic minorities have less political and economic power to demand action from social and formal institution to improve their living conditions and live in poor neighborhoods.

Environmental problems: Street problems were identified as more threatening than industrial and toxic contamination

In the present study, CUNY community college students' perceived urban environmental problems in their neighborhood as everyday occurrences and considered them threatening. Using personal knowledge and personal experiences, participants evaluated physical environmental problems in their neighborhoods and found noise, uncontrolled animals and litter to be threatening. This finding confirms the results of a previous survey conducted by Citizens for New York (2006) about neighborhood problems and quality of life in NYC. Their results are not statistically projectable to a larger population, but, similar to this study, they seem to indicate that noise, litter or garbage, and rats or rodents are among the top ten problems identified by New Yorkers.

Clearly, survey participants perceived those problems that are more visible

and likely to affect their daily lives. This finding is also consistent with a previous study conducted in Spain where people's perceptions of their neighborhood were examined and the researchers concluded that visual elements are important dimensions that affect people's feelings of security and their perceptions of quality (Garcia-Mira et al., 1997). In the present study, factors like street maintenance affected people's ratings of their neighborhoods. People tended to evaluate their neighborhoods negatively when visible problems affected its quality and made associations with social problems. For example, participants in this study seemed to consider visible environmental problems –i.e. trash, litter and uncontrolled animals - as threatening because of their association with activities like crime, vandalism, and drug dealing and their use as descriptors of dirty, dangerous and polluted places. For the people in this study, local environmental problem evaluations integrate aspects of the social and physical environment. One possible explanation for this finding could be that people rely on what they can observe and consider more relevant to their lives to evaluate their neighborhood problems. To illustrate, in the quote below, a participant living in the Bronx addressed the conditions of the physical environment and made an association between trash problems and drug activity in his neighborhood.

> *"I would describe the conditions in my neighborhood as bad. It is full of drug dealers, and does not look nice. We have a trash problem. People throw the trash to the alleys. I think that the trash problem is related to the drugs. Drugs dealers need a place where people are scared to do their business."*

On the other hand, indicators associated with industrial and toxic pollution were evaluated as less threatening. This finding may seem contradictory. However, differences in levels of visibility and the neighborhood local history could offer some explanations. Compared to street problems, toxic and industrial contamination is less visible in neighborhoods. This lack of visibility makes it difficult for residents to identify signs of industrial or toxic contamination without an association to specific events or a public recognition of the situation (Edelstein, 1988, 2002). In addition, two indicators included in the perception of environmental threats scale –burning trash and landfills - measuring industrial and toxic contamination are not visible in New York City. Contributing to the invisibility of these problems is the consequences of mobilization efforts by environmental organizations, public policy advocates and concerned citizens in NYC to change environmental policy. For example, these efforts have impacted policies concerning the use of transfer stations and incinerators and promoted the creation of community-based waste prevention programs (Seldman & Lease, www.ilsr.org/recycling/NYC/NYCmain.html).

Another explanation for this finding addresses issues related to industrial activity and zoning laws in NYC. Industrial activity in New York City has declined in the past decades as it is legally separated from residential areas. Mantaay (2001) briefly described the history of industrial neighborhoods in NYC and points out that, in recent years, manufacturing activities have replaced waste-related activities. These activities are still considered toxic but are less visible than industrial activities. Also, in New York City, suburbs that were developed during

the last half of the 20th century applied zoning laws that separated industrial and residential activities. Because of this, people living in residential areas in NYC are less exposed to the direct effects of industrial activity and toxic contamination. Regardless, environmental pollution can be experienced in residential neighborhoods. For example, electroplaters, furniture refinishers, auto repair shops, plastic manufacturers and heavy truck traffic[7] are usually located in low-income residential neighborhoods (Angotti & Hanhardt, 2001) and negatively affect these places producing toxic waste and contamination associated with street problems (i.e. litter). Participants could be viewing these activities as a sign of economic progress in the neighborhood and underestimating the noxious consequences of these activities for the benefit of the collective well being (Beck, 1992; Giddens, 1990).

In summary, perceptions of neighborhood environmental problems contribute to evaluations of the neighborhood quality and have an effect on social capital. Specifically, environmental problems associated with neighborhoods' local environments are the ones taken into consideration when evaluating the neighborhood. These perceptions are important because, as the next section will explain, they could influence an awareness of the environment and involvement in residential activities.

[7] This refers to truck traffic directly associated with industrial activity.

Evidence of the role of sense of place, neighborhood quality and social capital mediating people's responses to environmental problems

The results of this study indicate that perceptions of environmental problems will influence social dynamics and evaluations of neighborhood quality, impacting people's individual responses. In the model, no direct relationship was identified between the environmental problems and the responses measured. Overall, the SEM conveys the idea that perceptions of the physical environment influence those personal connections with places and social dynamics that are important for civic action to occur (or not) to solve environmental problems. A person with positive affective relationships to the neighborhood will be more willing to relate to neighbors, and a possible consequence of these relationships could be involvement in neighborhood improvement activities. The following quote clearly illustrates the relationship between feelings towards a place, social dynamics and civic action and the importance of these connections in neighborhoods to mobilize residents to participate in activities.

> *"I love my neighborhood! The physical conditions are excellent and we have activities to improve the neighborhood, they* [neighbors] *put up flyers, and my husband and I participate of these activities. In November they have a cultural party where everyone makes a dish from their country of origin. We know each other and we take care of each other. It is really nice. We have meetings about the different activities and I sometimes help. The educational leader sometimes ask me 'hey Maria could you help with this,' and I say 'yes sure.' We know them, I mean we know the*

people who organize the activities and I like helping the neighbors."

The quantitative findings also indicate that activities associated with social capital are needed to observe a pro-environmental response and, depending on local context, can enable (or not) participants to act together more efficiently. The SEM confirmed that neighboring activities, like talking to neighbors and social networks, lead to behaviors associated to collective efficacy like participating in neighborhood activities. Participants in this study seem to be aware that to be able to improve their neighborhood environments they need to work together. An African immigrant currently living in the Bronx addresses this issue in the following quote.

"To me my neighborhood would be a good neighborhood if everybody worked together. Even if you live in an apartment, even if it is not yours, as long as you consider that place your neighborhood you should be prepared to take care of everything like keeping the place clean, making sure that people who live around here feel comfortable living here."

Moreover, the results of this study suggest that residents' perceptions of neighborhood quality will affect relationships among neighborhood members. According to the SEM, people relate less to their neighbors in places where the physical quality is positively perceived. The model also indicates that neighborhood residents will communicate more about neighborhood problems in those places where problems such as trash, uncontrolled animals and vacant lots

are perceived as a threat. This is an important finding because it suggests that perceiving environmental problems in neighborhoods could lead to the development of problem solving collective activities. Neighbors will talk with each other more when they perceive environmental problems. This could open the possibility of establishing social connections that contribute to the processes of organization and mobilization as a first step towards action. This finding also supports existing literature indicating that physical environmental features of a neighborhood impact the quantity and quality of social interactions (Brown, Perkins & Brown, 2003; Edelstein, 1988, 2002; Farquar, et. al. 2005; Fitzpatrick & LaGory, 2001; Kawachi & Berkman, 2003; Mitchell & LaGory, 2002; Saegert & Winkel, 1998).

Equally important, the findings of this study indicate that people who engage in social relations with neighbors and have been living for a long time in their neighborhood will participate less in neighborhood activities. This finding could be related to the processes of bonding[8] and bridging[9] social capital and the age composition of the sample. According to researchers, age is related to neighborhood social bonds and could be impacting people's level of activism and their plans regarding residential mobility (Prezza, et al. 2001; Shieman, 2005). In this study, older participants may have established their life and social connections in their neighborhoods, while younger participants may be fostering

[8] Bonding social capital refers to relationships between similar groups or individuals in the same context.

[9] Bridging social capital refers to the types of relationships that links or cut across different groups.

less social bonding connections within their neighborhoods, but trying to establish bridging connections that could provide better living conditions like employment opportunities. In addition, college students are usually situated in a stage of transition between adolescent and adulthood, which could be having an effect on residential mobility because they want independence from their parents or families.

Quantitative findings also indicate that judgments of neighborhood quality of life are relevant to people and will influence individual responses. In neighborhoods where problems like pollution from factories, abandoned parks, litter, trash problems and uncontrolled animals are perceived as threatening, residents reported poor quality of the physical environment. However, only environmental problems related to urban street problems (i.e. trash, litter, uncontrolled animals) are considered when rating the quality of life in the neighborhood. The reason for this could be that these urban environmental problems are commonly used as indicators of neighborhood social disorder or the residents' inability to maintain societal standards for safety and health. Consequently, they could influence responses concerning moving from the neighborhood. This finding supports Sampson and Raudenbush's (2005) argument that people draw upon the problems that they can observe in their neighborhoods to explain their physical and social environmental conditions. This finding was confirmed by the interviews. The following quote illustrates how perceptions of a bad quality of life contribute to responses involving residential mobility plans.

"My parents chose the place. When we moved there it was considered a good place to live in but now is bad. Now, they are trying to move out. I am leaving at the end of this semester. I do not want to live there anymore; I am here to finish a class that I need to take, but after that I am going to South Carolina; I will continue my studies there. I feel bad about living there. I really want to move. The elevators are always broken and shut down. It feels like a dangerous place."

Overall, the findings of this study suggest that active and concrete community mechanisms are created or used by residents to respond to their needs and to reinforce environmental awareness. Perceptions of poor quality conditions in neighborhoods could force some residents to consider moving from their neighborhoods. These findings suggest that when people perceive a good quality of life in the neighborhood, they develop stronger emotional connections with the area and are more likely to have social networks and social relations with neighbors. These results could imply that emotional connections with places nurture the development of social dynamics that can lead to responses to solve neighborhood environmental problems.

To recapitulate, the model presented in this study proposes that relationships between demographic variables, neighborhood dynamics and perceptions of environmental problems explain people's individual responses to environmental problems. For the most part, the results of this study support the model, but stressed that pro-environmental behaviors in neighborhoods will

emerge as a result of activities that promote social capital, and that emotional connections with places are a pre-condition for these kinds of activities.

Conclusions

The main purpose of this study was to gain an understanding of the factors contributing to people's responses to environmental problems. The results of this study revealed that the relationships an individual develops with a place as well as other people will have an effect on the kind of response expressed to deal with an environmental problem. The model developed supports the argument that neighborhood revitalization activities should include aspects of place-based redevelopment and people-focused strategies for them to be successful. With this in mind, this chapter includes an analysis of the practical implications of this study to illustrate how to use these results to inform existing models and for the development of public policy. However, the impact and applicability of this study is limited due to issues related to study design, sampling method and the contextualization of the variables under study. Regardless of its limitations, this research provides evidence that neighborhood social and place dynamics interactions influence people's responses to environmental problems.

Implications

This study contributes to a better understanding of how a neighborhood's context affects urban neighborhood social and place dynamics. Unlike previous studies of environmental responses to environmental problems, this study adopted a quantitative research design that allowed exploring the relationships of

complex urban dynamics across a large distribution of people. Adopting a quantitative design permitted conducting an assessment of neighborhood dynamics that allowed a rigorous examination of possible relationships between factors using statistical analysis like correlations, factor analysis and SEM.

To illustrate, the results of this study revealed considerable complexity and suggest some preconditions when examining people's responses in relation to neighborhood environmental problems, quality, sense of place and social capital. First, environmental problems need to be visible and perceived as a threat by residents. If environmental problems are not visible, residents will not be able to develop a response. Second, opportunities to talk about these problems are fundamental to promote participation in neighborhood activities. If people are given opportunities to interact with other residents, they will realize that other people share the same conditions. Realizing that they are not alone will facilitate people-place bonding experiences. These processes can provide a source of self-identification with the neighborhood that can pave the way for community mobilization and organization around environmental problems. Third, a connection with the physical environment will facilitate social dynamics. A sense of attachment to places will help residents develop a stronger sense of community and residents with a strong sense of community and place attachment will be more willing to socialize with other residents. Neighboring activities and social dynamics that are spatially bounded will facilitate the process of involving residents in revitalization activities. However, as this study demonstrated, if residents feel threatened in their neighborhoods, they will be

less likely to participate in social activities outside of their homes that promote a sense of belonging and familiarity towards the neighborhood. This relationships and preconditions would not be identified without adopting a quantitative design.

As previously demonstrated, stable neighborhoods are important to nurture social behaviors and dynamics that lead to positive outcomes that contribute to a healthy society (Kawachi & Berkman, 2003; Van Zandt & Rohe, 2006). This study can contribute to an understanding of neighborhood urban dynamics where ethnic minority and low income residents are confronted to environmental problems. The model developed in this study provides community organizers and urban planners with a framework that explains the mechanisms operating over peoples' willingness to participate in neighborhood improvement activities or their desire to move from the neighborhood. In the model, environmental awareness or actions is an outcome of participation in neighborhood activities. However, for participation in neighborhood activities to occur, people need to develop social connections and a sense of being rooted in the neighborhood. This means that when community organizers and urban policy advocates work within specific geographical areas, it is important for them to consider residents' experiences with a given physical environment and social dynamics. For instance, the model can also be used to justify neighborhood assessments before designing a revitalization program. Assessments of the financial capability of the neighborhood, its sense of place and social capital will allow designing neighborhood activities that include place-based and people-focused strategies as components of neighborhood programs. These activities could

include educational programs in which residents get information about different problems in their neighborhood and possible strategies to solve them.

The results of this study also support Edelstein's (1988, 2002) model that interactions between social networks and place characteristics play an important role in the definition and interpretation of environmental problems. The model developed by Edelstein (1988) and the model presented in this study have some aspects in common. Both models argue that relationships between the physical environment and social dynamics interact and affect responses to environmental problems. In Edelstein's (1988) model, the public acknowledgement of an environmental hazard as a threat changes social dynamics; in the current study, the model argues that the presence of environmental problems in neighborhoods stimulate neighbors talk to each other. Both models also argue that the success of these responses is dependent on good social interactions. According to Edelstein (1988), after an environmental hazard is experienced, people rely on social networks and develop new ones with people who share a similar situation as a coping strategy. In the present study, the results also demonstrated that people's social networks and neighboring activities are important to develop responses. These models also support the argument that responses to solve these problems are dependent on the ability of neighborhood residents to promote collective efforts and their level of attachment to the neighborhood. For example, Edelstein (1988) argues that successful responses to environmental problems are supported by collective efforts usually channeled by leaders that have been in the neighborhood long enough to feel attachment. In accordance

with Edelstein (1988), the findings of this study illustrated that residents who have strong emotional connections to the neighborhood are more involved in its activities. Thus, both models argue that an event affecting the environment operates over place-based social dynamics and promotes (or not) activities as resources that help people engage in an active response.

This study also contributes to Edelstein's (1988) model by adding an explanation for non-toxic environmental problems, an individual level of analysis and explanations between the factors that contribute to these responses. Edelstein's (1988) model only considers a community level of responses. The findings of this study could explain an individual's decision to be part of the solution as a precondition to a community response. For instance, integrating the models will help describe how talking to other neighbors about street problems could be a coping strategy that could lead to a collective response. In addition, the current findings could help incorporate an analysis of how everyday neighborhood environmental problems have an effect on social dynamics between neighbors. Edelstein (1988) argues that neighborhood toxic contamination isolates residents from their usual networks (family and friends) forcing them to establish connections with people who are facing a similar situation. Based on the results of this study, the same could be argued with respect to street problems; everyday urban environmental problems like litter and uncontrolled animals can motivate people to talk about their neighborhood conditions.

The present study lends empirical evidence to support Hays & Kogl's

(2007) findings. Hays & Kogl (2007) conducted a qualitative case study to explore place-based social capital and neighborhood attachment in relation to participation in urban political processes. Their study suggests a complex relationship between place-based social capital and civic engagement, and they argue that engagement in place-based activities promotes civic engagement. The results of the current study provides such support by clearly demonstrating in the model that strong feelings of connectedness with a place will support behaviors associated with social capital and this could lead to activities that promote a healthy environment. As Hays and Kogl (2007) also noted, this finding has important implications for community organizing. The present study provides evidence that frustration with current conditions could serve as a motivator for community involvement in revitalization activities.

It could be argued that a shortcoming of this research is the use of perception data because it may not reflect objectively measured conditions. However, as demonstrated, neighborhood perceptions carry meanings that are relevant to contextualized places and individuals (Sampson & Raudenbush, 2004; Wen, et. al. 2006). These perceptions should not be considered ambiguous indicators of neighborhood environment. Perceptions of the physical environment usually rely on the values expressed by community members and facilitate a more thorough understanding of the complexities involved in neighborhood dynamics. In addition, perceptions of neighborhood environments influence processes that could impact neighborhood health. This study demonstrated that these are important factors when examining individual responses to environment problems

because they tend to dictate patterns of socialization and types of contact with other neighbors.

It is very important to note that although this data suggest a strong association between social dynamics and perceptions of environmental problems when explaining people's responses, this study does not claim that the relationships between factors will always be the same. These relationships could be different in other populations or could be affected by the presence of other variables. For example, in this study, strong emotional connections with places facilitated the development of social connections. However, this relationship could go the other way.

Overall, this study also highlights the relevance of environmental deprivation theory to environmental research. This theory argues that people living in polluted environments are more concerned about their local surroundings and will do something to improve their living conditions. In agreement with the theory, the results of this study suggest that ethnic minorities and low-income households will be most likely to engage in pro-environmental behaviors as a mechanism to response to environmental problems. Despite current legislation and the development of mechanisms to protect under represented groups from pollution and contamination, unhealthy neighborhood environments affecting these groups continue to be a problem in the U.S (Adeola, 2000; Bullard, 1990, 2000). The results of this study provide evidence to support public policy advocates in the creation of programs and legislation that takes into consideration the mechanisms that might account for people's

decisions to participate or not in neighborhood improvements activities. Specifically, these findings support the development of local projects to address environmental issues; encouraging local participation could lead to engagement in responses to deal with global environmental issues or could translate to involvement in activities to address other neighborhood social and health problems.

Limitations and Future Directions

This study has some limitations that can provide fertile ground for future research. While surveys may be an advantageous method to understand people's opinions and attitudes toward environmental issues, shortcomings exist. Issues related to scale construction and sampling limits the generalizations of this study.

One limitation related to scale construction is that a few items from the scale measuring environmental problems did not work well in the CFA or in the SEM. For example, the item measuring noise as a threat could not be included in the SEM. A possible explanation for this problem could be the variability of the constructs across community contexts and places. In this case, the item can be measured at local and global scales. In addition, two items –burning trash and landfill - included in the scale are measuring environmental problems that are rare in all NYC boroughs except Staten Island. This limitation could be the reason why participants perceived industrial and toxic contamination as less threatening than street problems. Thus, a recommendation for future studies

could be to redefine the scale to reflect differences between local and global problems.

There are also limitations related to the sample used in this study. First, the sample was not geographically bound. This was, in part, due to the sample collection method used. This research focused on individuals as the unit of analysis instead of neighborhoods. Consequently, it was difficult to determine the difference between objective and subjective measures of quality and exposure of environmental problems; this merits further investigation. A case study of a specific geographical area could be conducted in which objective measures of neighborhood quality and perceptions of environmental problems could be gathered. This design will allow a comparison between objective and subjective measures in New York City neighborhoods. Objective measures could include information about exposure to environmental problems in relation to subjective measures provided by residents. Another possible research study could compare residents' sense of place and social capital in two neighborhoods. One neighborhood will be ethnically diverse and comprise low-income households, while White and high-income households will comprise the other. Having this design will allow exploration of relationships among ethnicity, household income and environmental problems in a local context.

Another limitation due to sampling issues is the use of a cross–sectional design. This limitation affects interpretations of the causality of relationships between these variables. The cross sectional sample of the data may fail to capture the reinforcing relationships between demographic variables, perceptions

of environmental problems and environmental responses. Panel studies that track people's responses to environmental problems among the same set of respondents over time can provide more information about these complex processes. In addition, alternate SEM models could be developed to explore the possibility of reverse causality.

Furthermore, the present study focused on community college students, which constrains the variance with respect to education level, household income and age. This is a significant limitation because some studies within the environmental justice literature identify these variables as factors possibly affecting people's responses. Future directions could include more in-depth analysis of these data by looking at the effects of different socio-demographic variables (i.e. gender, years in the US, families with children) in relation to different physical environmental problems and neighborhood quality. A more demographically diverse sample could help future studies clarify the role of these variables.

In view of these limitations, future research should be conducted to address these methodological issues and make environmental research more relevant to policy making. One suggestion is to use methods of community participatory research as an alternative to traditional methods to advance an understanding of people's responses to environmental problems in specific contexts. Another suggestion is to engage in an in-depth examination of how recent immigrant youth perceive environmental conditions in their neighborhood in comparison to their native country. This type of research should include an ecological approach

to neighborhoods that explores structural, social, psychological and physical factors affecting people's responses to environmental problems (Saegert & Evans, 2003).

Appendix A

Consent Forms

Interview Consent Form BCC

My name is Lymari Benítez, I am a student in the Environmental Psychology Ph.D. program at the Graduate Center of the City University of New York (CUNY), and principal investigator of this project entitled "THE ROLE OF SENSE OF PLACE AND SOCIAL CAPITAL MEDIATING PERCEPTIONS OF ENVIRONMENTAL RISKS." This research aims at an understanding of neighborhood environmental problems, and its relationship to the processes of sense of place and social capital. The study is expected to generate knowledge about people's understanding of local environmental problems and its policy implications. I would like permission to interview you about your experiences.

This interview will take from one to two hours and will take place in a public space. With your permission, I would like to audio-tape this interview so I can record the details accurately. The tapes will only be heard by me and my advisor. All information gathered will be kept strictly confidential, and will be stored in a locked file cabinet at my office, to which only I, and my advisor, will have access. At any time you can refuse to answer any questions or end this interview without any penalty.

No risk is involved in this study, your participation is voluntary. The benefits of your participation will contribute to an understanding of people's perceptions of environmental problems and their impact on the designed and implementation of different neighborhood revitalization initiatives. There will be approximately 20 participants taking part of this study.

I may publish the results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

If you have any question about this research, you can reach me at (646) 319-0677 or lbenitez@gc.cuny.edu, lbespino@yahoo.com, or my advisor Susan Saegert at ssaegert@gc.cuny.edu. If you have questions about your rights as a participant in this study, you can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525, kpowell@gc.cuny.edu.

Thank you for your participation in this study. I will give you a copy of this form to take with you.

If you agree to be interviewed, please sign below:

I agree to have this interview audio-taped [Please, circle one]: YES NO

_____ _____ _____ _____

Participant's signature Date Investigator's signature Date

Interview Consent Form QCC

My name is Lymari Benítez. I am a student in the Psychology Program at the Graduate Center of the City University of New York. Also, I am conducting a study about environmental problems.

Your participation in this study will help me to understand environmental problems in New York City neighborhoods. There will be about 20 participants taking part in this study. You do not have to take part in the study if you do not want to. If you decide to take part, you can decide not to answer certain questions. You can also stop taking part in the study at any time. I will store all the information in a safe place. Your name will not appeared on any place on the interview.

The interview will take from one to two hours. It will take place in a cafeteria or a coffee shop. With your permission, I would like to audio tape this interview. You will have an opportunity to review the audio tape. In addition, you can ask me not to use the interview either in whole or in part.

I may publish the results of the study. But your name (or any identifying characteristics) will not be used in any publication. If you would like a copy of this study, please provide me with your address. I will send you a copy in the future.

I will be happy to answer any questions, either before or after you have taken part in the interview. You can contact me at (646) 319-0677 or lbenitez@gc.cuny.edu, or Susan Saegert at ssaegert@gc.cuny.edu.

If you have questions about your rights as a participant, contact Cristina Mazzara, IRB Administrator, Queensborough Community College of the City University of New York, (718) 631-6357.

Thank you for your participation. I will give you a copy of this form to take with you.

I am at least 18 years of age and I agree to have this interview audio taped

[Please, mark one]: ___YES ___ NO

If you agree to be interviewed, please sign below:

_____	_____	_____	_____
Participant's signature	Date	Investigator's signature	Date

Survey Consent Form BCC

My name is Lymari Benítez I am a student in the Environmental Psychology Ph.D. Program at the Graduate Center of the City University of New York (CUNY), and Principal investigator of this project, entitled "THE ROLE OF SENSE OF PLACE AND SOCIAL CAPITAL IN MEDIATING PERCEPTIONS OF ENVIRONMENTAL RISKS." This research aims for an understanding of neighborhood environmental problems, and their relationship to the processes of place attachment and social capital. The study is expected to generate knowledge about people's understanding of local environmental problems and this could have policy implications. I would like permission to survey you about your neighborhood experiences.

This survey should take approximately 15 minutes. All information gathered will be kept strictly confidential, and will be stored in a locked file cabinet, to which only I and my advisor will have access. At any time you can refuse to answer any questions or end this survey without any penalty.

The risk involved in this study is that you may feel a little uncomfortable answering the questions but remember your participation is voluntary. The benefit of your participation is that you might gain satisfaction from helping to contribute to an understanding of people's perceptions of environmental problems and their impact on neighborhood revitalization activities. There will be approximately 500 participants taking part in this study.

I may publish the results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

If you have any question about this research, you can reach me at (646) 319-0677 or lbenitez@gc.cuny.edu, or my advisor Susan Saegert at ssaegert@gc.cuny.edu. If you have questions about your rights as a participant in this study, you can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525, kpowell@gc.cuny.edu.

Thank you for your participation in this study. I will give you a copy of this form to take with you.

If you agree to complete the survey, please sign below:

_____ _____ _____ _____

Participant's signature Date Investigator's signature Date

Survey Consent Form QCC

My name is Lymari Benítez. I am a student in the Psychology Program at the Graduate Center of the City University of New York. Also, I am conducting a study about environmental problems.

Your participation in this study will help me to understand environmental problems in New York City neighborhoods. There will be about 500 participants taking part in this study. You do not have to take part of this study if you do not want to. If you decide to take part, you can decide not to answer certain questions. You can also stop taking part in the study at any time. I will store all the information in a safe place. Your name will not appeared on any place on the survey.

I may publish the results of the study. But your name (or any identifying characteristics) will not be used in any publication. If you would like a copy of this study, please provide me with your address. I will send you a copy in the future.

I will be happy to answer any questions, either before or after you have taken part in the study. You can contact me at (646) 319-0677 or lbenitez@gc.cuny.edu, or my advisor Susan Saegert at ssaegert@gc.cuny.edu.

If you have questions about your rights as a participant, contact Cristina Mazzara, IRB Administrator, Queensborough Community College of the City University of New York, (718) 631-6357.

Thank you for your participation. I will give you a copy of this form to take with you.

I am at least 18 years of age and I agree to participate in this survey

[Please, mark one]: ___YES ___ NO

If you agree to complete the survey, please sign below:

_____ _____ _____ _____

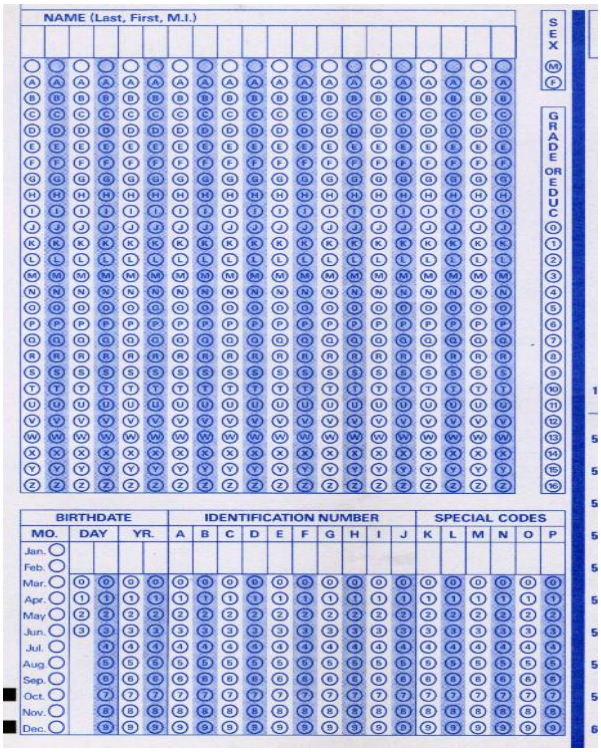
Participant's signature Date Investigator's signature Date

Appendix B

Survey

ID NUMBER: _____

INSTRUCTIONS TO FILLOUT THE SCANTRON SHEET



1. Use a **#2 pencil**. Do not use a pen.

2. **DO NOT** write anything in the section that says ***"NAME." LEAVE IT BLANK***.

3. Mark your sex in the section that says ***"SEX."***
   M = male
   F = female

4. Mark the **highest level of Education** that you have **completed** in the section that says ***"GRADE."***

12 = **High School**
13 = **Vocational or Associate's Degree**
14 = **Bachelor's Degree**
15 = **Master's Degree**
16 = **Doctoral or Post-Doctoral Degree**

5. Mark your ***BIRTHDATE.*** In the section provided, choose your birth **month**; write and mark your birth **day**; and write and mark the last two digits of your birth **year**.

6. Write and mark the **id number in the upper right area of the survey** in the section that says:
   "ID NUMBER."

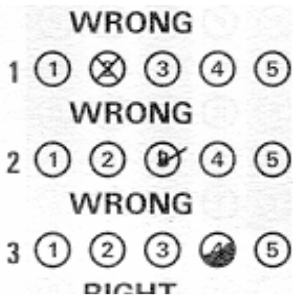
7. Write and mark your **ZIP CODE** in the section that says: ***"SPECIAL CODES."***

8. Fill out the entire bubble. **Examples:**

DO NOT write an (X)

DO NOT write a checkmark (√)

DO NOT leave the bubble half fill



The following questions are about your neighborhood experiences. By "neighborhood" I mean an area larger than a block where you feel some binds or connections to the area and the people who live there. PLEASE, USE THE SCANTRON SHEET TO MARK YOUR ANSWERS. Remember, you only have to answer the questions that you feel comfortable with and can skip questions that you do not want to answer.

How much do you agree or disagree with the following statements	**Strongly disagree**	**Disagree**	**Neither Agree or disagree**	**Agree**	**Strongly Agree**
1) I like the neighborhood in which I live.	1	2	3	4	5
2) I am proud to tell others where I live.	1	2	3	4	5
3) My neighborhood is the best place to do things I enjoy.	1	2	3	4	5
4) I would be unhappy to leave my neighborhood.	1	2	3	4	5
5) I would be sorry to move out of my neighborhood without the people I live with.	1	2	3	4	5
6) I miss my neighbors when I am away too long.	1	2	3	4	5
7) I can trust the people who live in my neighborhood.	1	2	3	4	5
8) I can borrow food from my neighbor.	1	2	3	4	5

How much do you agree or disagree with the following statements	**Strongly disagree**	**Disagree**	**Neither Agree or disagree**	**Agree**	**Strongly Agree**
9) The environmental problems in my neighborhood are **not** personally affecting me.	1	2	3	4	5
10) The government should provide each citizen with a list of agencies and organizations to which citizens could report neighborhood environmental problems.	1	2	3	4	5
11) The organizations in my neighborhood are more interested in disrupting society than in improving the environmental conditions.	1	2	3	4	5
12) I would contribute money to organizations interested in improving the environment of my neighborhood.	1	2	3	4	5
13) A clean environment provides me with better opportunities for recreation in my neighborhood.	1	2	3	4	5
14) I would **not** sign a petition in support of tougher environmental regulations for my neighborhood.	1	2	3	4	5
15) People on this neighborhood participate in community improvement activities. (e.g. community clean-ups, flower plantings, etc.)	1	2	3	4	5

How many people ……	None (0)	1 to 2	3 to 4	4 to 5	All or almost all
16) do you know by name in your neighborhood?	1	2	3	4	5
17) can you ask for help in your neighborhood?	1	2	3	4	5
18) do you trust in your neighborhood?	1	2	3	4	5
19) that you know are involved in activities to improve the environmental conditions of your neighborhood?	1	2	3	4	5

How often do you engage in the following activities?	Never	Less than once a month	Monthly	Weekly	Daily
20) Attend public meetings in my neighborhood.	1	2	3	4	5
21) Participate in activities, like cleanings and recycling, to improve the environment in your neighborhood.	1	2	3	4	5
22) Volunteer for church functions.	1	2	3	4	5
23) Talk to a neighbor about neighborhood problems like pollution, chemical dumps and water contamination.	1	2	3	4	5
24) Talk to a neighbor about the environmental quality of the neighborhood.	1	2	3	4	5
25) Visit a neighbor house.	1	2	3	4	5

How do you rate your neighborhood with respect to ….	Very Bad	Bad	Neither Good or Bad	Good	Very Good
26) the quality of the buildings/houses.	1	2	3	4	5
27) the quality of the recreational facilities.	1	2	3	4	5
28) the quality of the environment in my neighborhood (natural landscape/ water/ greenery/air).	1	2	3	4	5
29) cleanliness.	1	2	3	4	5
30) as a place to live.	1	2	3	4	5
31) as a place to raise children.	1	2	3	4	5

How much do you feel as a threat to you are the following in your neighborhood?	No threat at all	Minimal threat	Mild threat	Moderate threat	Strong threat
32) Pollution from cars	1	2	3	4	5
33) Pollution from factories	1	2	3	4	5
34) Chemical dumps	1	2	3	4	5
35) Pollution from burning trash	1	2	3	4	5
36) Water pollution	1	2	3	4	5
37) Pesticides and herbicides	1	2	3	4	5
38) Hazardous waste sites	1	2	3	4	5
39) Landfill	1	2	3	4	5
40) Abandoned houses/buildings	1	2	3	4	5
41) Abandoned factories	1	2	3	4	5
42) Abandoned parks	1	2	3	4	5
43) Deteriorated buildings	1	2	3	4	5
44) Litter, trash problems	1	2	3	4	5
45) Occupied buildings in poor or dangerous condition	1	2	3	4	5
46) Vacant lots	1	2	3	4	5
47) Uncontrolled animals (dogs, rats)	1	2	3	4	5
48) Traffic noise	1	2	3	4	5
49) Construction noise	1	2	3	4	5
50) Overload of stimuli (e.g. billboards)	1	2	3	4	5

You are almost done!!☺

Now I would like to ask you some questions about yourself.

51. Are you currently ….
1. Married/ Partnered
2. Widowed
3. Divorced
4. Separated
5. Never Married

52. Which of the following best describes your race/ethnicity?
1. African-American or Black
2. Caucasian or White
3. Hispanic
4. Asian or Pacific Islander
5. Other

53. Have you voted in any election in the last 4 years?
1. Yes
2. No
3. Not able to vote

54. What was your TOTAL household income last year?
1. Less than $10,000
2. $10,001 to $20,000
3. $20,001 to $30,000
4. $30,001 to $40,000
5. More than $40,001

55. Including yourself, HOW MANY adults live in your home?
1. 1
2. 2
3. 3
4. 4
5. More than 4

56. HOW MANY children live in your home?
1. 0
2. 1
3. 2
4. 3
5. More than 3

57. How long have you been living in your current neighborhood?
1. Less than six months
2. 6 months to less than 2 years
3. 2 to less than 5 years
4. 5 to less than 10 years
5. 10 or more years

58. Do you plan to move from this neighborhood in the near future?
1. Yes
2. No
3. Not sure

59. Were you born in the United States?
1. Yes
2. No

60. How long have you lived in the United States?
1. Less than a year
2. 1 –3 yrs.
3. 4-6 yrs.
4. 7-9 yrs.
5. More than 9 yrs.

61. What is your current employment status?
1. Working full time
2. Working part time or seasonally
3. Working more than 1 job
4. Unemployed
5. Retired

62. What is your current school registration status?
1. Full- time student
2. Part-time student
3. I am not register in school

63. Currently, do you own or rent your home?
1. Rent
2. Own
3. Live with parents
4. Live with other family member/friend

64. Do you talk about environmental problems in any of your classes?
1. Yes
2. No

65. When you think about your neighborhood, how many blocks (wide and long) do you think it is?
1. Less than 5 blocks
2. More than 5 blocks but less than 10
3. More than 10 blocks but less than 15
4. More than 15 blocks

66. Do you have a name for your neighborhood?
1. Yes
2. No

PLEASE, ANSWER THE FOLLOWING QUESTIONS IN THIS SHEET.

67. What is the name of your neighborhood?

_____

68. What are the two cross streets that cross closest to your home?

Street 1: _____

Street 2: **_____**

☺Thank you for completing this survey!!!

Appendix C

Description of the Scales Included in the Survey

Description of the Scales Included in the Survey

1. Sense of Place: The sense of place measure is composed of indicators of sense of community and place attachment at the neighborhood level. The sense of community scale measures the social-environmental characteristics of place while the place attachment scale measures the strength of the ties that people establish with places. For the sense of community questions, items from the Sense of Community Index (Davidson & Cotter, 1986) were used and modified to capture the neighborhood level. Indicators for place attachment consist of asking participants how much they would miss their neighborhood if they moved, if they consider their neighborhood the best place to live (Stedman, 2003); feelings of pride and how they feel if they have to move (Brown, Perkins & Brown, 2003); and how they feel about their neighbors (Hidalgo & Hernandez, 2001). All the indicators are measured using a Likert Scale that asks participants how much they agree or disagree with a statement.

2. Social Capital: The social capital scale is a measure composed of: 1) social cohesion, 2) citizen participation in neighborhood activities, 3) social relations, and 4) social networks. Indicators of social relations consist of asking if participants feel they can trust government officials who represent their neighborhood and the people who live in their neighborhood. In addition, questions related to neighboring behavior (e.g. discuss problems, ask for help, offer advice) are also asked as indicators of social relations

(Perkins & Long, 2002). Questions related to citizen participation ask research participants to indicate how often they engage in activities in formal or informal organizations in their neighborhood. Social cohesion is measured by asking people to report how often they engage in neighboring activities like borrowing something or asking/talking to a neighbor. Social networks are captured by asking about the number of people with whom they feel comfortable engaging in a specific activity like discussing neighborhood environmental problems. All the social capital indicators are measured on a 5-point Likert scale.

3. Neighborhood Ratings: Participants were asked to rate their neighborhood with respect to the quality of the buildings, recreational facilities, and natural environment. In addition, participants were asked to rate their neighborhood as a place to live and as a place to raise children. All neighborhood ratings involve a 5-point Likert scale.

4. Neighborhood Environmental Problem Perception: Indicators for neighborhood environmental perception were developed using the Environmental Appraisal Inventory (EAI) subscale as a model (Fridgen, 1994; Schmidt & Gifford, 1989; Walsh-Daneshmandi & MacLachlan, 2000). This subscale measures appraisal of environmental hazards as threats to the individual. Six items from this subscale were selected (1) pollution from cars, 2)pollution from factories, 3)chemical dumps, 4)pollution from burning trash, 5)water pollution, 6)pesticides and herbicides). Based on the literature review and informal conversations with community college students, thirteen items

were created (1)hazardous waste sites, 2)landfill, 3)abandoned houses/buildings, 4)abandoned factories, 5)abandoned parks, 6)deteriorated buildings, 7)litter, 8)trash problems, 9)occupied buildings in poor or dangerous condition, 10)vacant lots, 11)uncontrolled animals, 12)traffic noise, 13) construction noise, and 14) overload of stimuli). Participants were asked to evaluate, using a 5-point Likert scale (no threat at all, minimal threat, mild threat, moderate threat, strong threat), how much they perceived the environmental problems listed as a threat to the neighborhood.

5. Environmental Awareness and Actions: The survey includes six items to measure environmental awareness and actions. Participants were asked to rate how much they agree or disagree with six statements on a 5-point Likert scale. The items measure political actions (Stern, Dietz, & Guagnano, 1995) and awareness of environmental problems (Weigel & Weigel, 1978). These items were modified to reflect a neighborhood experience.

Appendix D

Feedback Form

Survey Feedback Form

Thank you for participating in this piloting exercise. Please, write in this form how much time it took you to complete the survey as well as any feedback related to specific questions or the survey in general. Thank you for your help.

I. Time it took you to complete the survey: _____

II. Specific questions

Q.#:_____

_____

_____

Q.#:_____

_____

_____

Q.#:_____

_____

_____

Q.#:_____

_____

_____

Q.#:_____

_____

_____

III. General Feedback

_____

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Appendix E

Item Analysis

Survey (Annotated Long Version)/Item Analysis – Pilot Study (02/2005)

Information provided:

Code

Item Source

Item- Scale Correlation

Frequencies: Proportion Endorsing

How much do you agree or disagree with the following statements	Strongly disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
1) I like the neighborhood in which I live. **[SPCOM001] [Davidson & Cotter, 1986] [.64]**	1[.08]	2[.08]	3[.21]	4[.46]	5[.17]
2) I do **not** feel safe in my neighborhood. **[SPCOM002] [Davidson & Cotter, 1986/modify] [-.11]**	1[.08]	2[.50]	3[.17]	4[.17]	5[.08]
3) I feel I can influence decisions that the city makes about my neighborhood. **[SPCOM003] [.24]**	1[.17]	2[.25]	3[.25]	4[.29]	5[.04]
4) I am proud to tell others where I live. **[SPCOM004] [Davidson & Cotter, 1986/original question in context of traveling] [.66]**	1[.13]	2[.17]	3[.17]	4[.46]	5[.08]
5) I feel I belong here. **[SPCOM005] [Davidson & Cotter, 1986] [.78]**	1[.13]	2[.21]	3[.21]	4[.46]	5[.08]
6) If someone does something good for this neighborhood, that makes me feel good. **[SPCOM006] [.55]**	1[.04]	2[.13]	3[.21]	4[.46]	5[.17]
7) I really miss my neighborhood when I am away too long. **[SPATT007] [Stedman, 2003] [.57]**	1[.13]	2[.17]	3[.25]	4[.38]	5[.08]
8) My neighborhood is the best place to do things I enjoy. **[SPATT008] [Stedman, 2003] [.76]**	1[.17]	2[.29]	3[.25]	4[.29]	5[.00]
9) I feel I belong here more than any other place I have lived. **[SPCOM009 [.62]]**	1[.04]	2[.38]	3[.29]	4[.21]	5[.08]
10) I am very proud of living in this neighborhood. **[SPATT010] [Brown et. al. 2003] [.83]**	1[.08]	2[.08]	3[.29]	4[.46]	5[.08]

11) I would be unhappy to leave my neighborhood. **[SPATT011]** **[Brown et. al. 2003]** **[.74]**	1[.21]	2[.13]	3[.25]	4[.38]	5[.04]
12) I would be sorry to move out of my neighborhood without the people I live with. **[SPATT012]** **[Hidalgo & Hernandez]** **[.57]**	1[.08]	2[.38]	3[.13]	4[.33]	5[.08]
13) I would **not** be very sorry if the people who I appreciate in my neighborhood move out. **[SPATT013]** **[Hidalgo & Hernandez/modify]** **[.18]**	1[.13]	2[.21]	3[.25]	4[.29]	5[.13]
14) I miss my neighbors when I am away too long. **[SPCOM014]** **[.62]**	1[.25]	2[.29]	3[.21]	4[.25]	5[.25]
15) I can trust the government officials that represent my neighborhood. **[SCTRU015]** **[.45]**	1[.21]	2[.25]	3[.25]	4[.25]	5[.04]
16) I can trust the people who live in my neighborhood. **[SCTRU016]** **[.60]**	1[.17]	2[.13]	3[.25]	4[.42]	5[.04]
17) I can ask my neighbors for help if I have a medical emergency. **[SCTRU017]** **[.52]**	1[.04]	2[.13]	3[.17]	4[.54]	5[.13]
18) I can **not** ask my neighbors to watch my home while I am away. **[SCTRU018]** **[Perkins & Long, 2002/modify(-)]** **[.37]**	1[.21]	2[.25]	3[.13]	4[.25]	5[.17]
19) I can discuss the neighborhood's problems with my neighbors. **[SCTRU019]** **[Perkins & Long, 2002]** **[.49]**	1[.08]	2[.17]	3[.29]	4[.38]	5[.08]
20) I can borrow food from my neighbor. **[SCTRU020]** **[Perkins & Long, 2002]** **[.70]**	1[.17]	2[.29]	3[.21]	4[.63]	5[.04]
21) People in my neighborhood socialize with each other. **[SCTRU021]** **[Dugas & Schweitzer, 1997]** **[.39]**	1[.08]	2[.04]	3[.21]	4[.63]	5[.04]
22) People on this neighborhood take care of each others' plants, kids, and pets. **[SCTRU022]** **[Dugas & Schweitzer, 1997]** **[.65]**	1[.17]	2[.38]	3[.21]	4[.21]	5[.04]

How much do you agree or disagree with the following statements	Strongly disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
23) The environmental problems in my neighborhood are **not** personally affecting me. **[AWACT023]** **[Weigel & Weigel, 1978/modify(-)]** **[.46]**	1[.08]	2[.29]	3[.29]	4[.33]	5[.00]
24) The government should provide each citizen with a list of agencies and organizations to which citizens could report neighborhood environmental problems. **[AWACT024]** **[Weigel & Weigel, 1978]** **[.50]**	1[.00]	2[.13]	3[.25]	4[.29]	5[.33]
25) The organizations in my neighborhood are more interested in disrupting society than in improving the environmental conditions. **[AWACT025]** **[Weigel & Weigel, 1978(-)]** **[-.08]**	1[.08]	2[.13]	3[.33]	4[.42]	5[.04]
26) I would contribute money to organizations interested in improving the environment of my neighborhood. **[AWACT026]** **[Stern, et al., 1993]** **[.60]**	1[.13]	2[.17]	3[.21]	4[.38]	5[.13]
27) A clean environment provides me with better opportunities for recreation in my neighborhood. **[AWACT027]** **[Stern, et al., 1993]** **[.74]**	1[.04]	2[.08]	3[.13]	4[.54]	5[.21]
28) I would **not** sign a petition in support of tougher environmental regulations for my neighborhood. **[AWACT028]** **[Stern, et al., 1993/modify(-)]** **[.44]**	1[.08]	2[.29]	3[.38]	4[.21]	5[.04]
29) People on this neighborhood participate in community improvement activities. (e.g. community clean-ups, flower plantings, etc.) **[AWACT029]** **[Dugas & Schweitzer, 1997]** **[.38]**	1[.17]	2[.17]	3[.29]	4[.29]	5[.08]

How do you rate your neighborhood with respect to ….	Very Bad	Bad	Neither Good or Bad	Good	Very Good
30) the quality of the buildings/houses. **[NERAT030]** **[.91]**	1[.13]	2[.22]	3[.09]	4[.43]	5[.13]
31) the quality of the recreational facilities. **[NERAT031]** **[.57]**	1[.13]	2[.21]	3[.29]	4[.33]	5[.04]
32) the quality of the environment in my neighborhood (natural landscape/ water/ greenery/air). **[NERAT032]** **[.57]**	1[.08]	2[.21]	3[.21]	4[.50]	5[.00]
33) cleanliness. **[NERAT033]** **[.82]**	1[.08]	2[.13]	3[.21]	4[.54]	5[.04]
34) as a place to live. **[NERAT034]** **[.78]**	1[.08]	2[.17]	3[.17]	4[.46]	5[.13]
35) as a place to raise children. **[NERAT035]** **[.71]**	1[.17]	2[.04]	3[.25]	4[.46]	5[.08]

How often do you engage in the following activities?	Never	Less than once a month	Monthly	Weekly	Daily
36) Attend public meetings. **[SCPNA036]** **[.82]**	1[.54]	2[.17]	3[.17]	4[.17]	5[.13]
37) Contact an elected official regarding my home or neighborhood. **[SCPNA037]** **[.83]**	1[.63]	2[.13]	3[.13]	4[.08]	5[.04]
38) Volunteer for civic functions. **[SCPNA038]** **[.88]**	1[.54}	2[.13}	3[.25]	4[.08]	5[.00]
39) Participate in activities to improve the environment in your neighborhood. **[SCPNA039]** **[.91]**	1[.50]	2[.08]	3[.25]	4[.13]	5[.04]
40) Volunteer for church functions. **[SCPNA040]** **[.65]**	1[.38]	2[.25]	3[.08]	4[.25]	5[.04]
41) Get information to residents about where to go for services they need. **[SCPNA041]** **[.74]**	1[.54]	2[.33]	3[.08]	4[.04]	5[.00]
42) Borrow/loan something from a neighbor. **[SCSCO042]** **[.88]**	1[.67]	2[.08]	3[.13]	4[.13]	5[.00]
43) Talk to a neighbor about the neighborhood problems. **[SCSCO043]** **[.84]**	1[.54]	2[.21]	3[.17]	4[.04]	5[.04]
44) Talk to a neighbor about the environmental quality of the neighborhood. **[SCSCO044]** **[.67]**	1[.54]	2[.13]	3[.25]	4[.04]	5[.04]

45) Watch neighbor's home while they are away. **[SCSCO045]** **[.66]**	1[.46]	2[.29]	3[.13]	4[.08]	5[.04]
46) Visit a neighbor house. **[SCSCO046]** **[.91]**	1[.38]	2[.38]	3[.00]	4[.17]	5[.08]
47) Ask a neighbor some food. **[SCSCO047]** **[.78]**	1[.75]	2[.13]	3[.00]	4[.08]	5[.04]

How many people ……	**None (0)**	**1 to 2**	**3 to 4**	**4 to 5**	**All or almost all**
48) do you know in your neighborhood? **[SCNET048]** **[.60]**	1[.04]	2[.13]	3[.08]	4[.42]	5[.33]
49) do you know by name in your neighborhood? **[SCNET049]** **[.73]**	1[.04]	2[.21]	3[.25]	4[.13]	5[.38]
50) can you ask for help in your neighborhood? **[SCNET050]** **[.80]**	1[.21]	2[.21]	3[.25]	4[..25]	5[.08]
51) do you trust in your neighborhood? **[SCNET051]** **[.50]**	1[.38]	2[.17]	3[.13]	4[.25]	5[.08]
52) do you discuss neighborhood problems with? **[SCNET052]** **[.56]**	1[.39]	2[.30]	3[.13]	4[.25]	5[.08]
53) that you know are involved in activities to improve the environmental conditions of your neighborhood? **[SCNET053]** **[.59]**	1[.54]	2[.13]	3[.13]	4[.21]	5[.00]

[ENVIRONMENTAL APPRAISAL]

How much do you feel as a threat to you are the following in your neighborhood?	**No threat at all**	**Minimal threat**	**Mild threat**	**Moderate threat**	**Strong threat**
54) Pollution from cars **[EAI054]** **[.39]**	1[.21]	2[.21]	3[.33]	4[.21]	5[.04]
55) Pollution from factories **[EAI055]** **[.79]**	1[.29]	2[.17]	3[.29]	4[.13]	5[.13]
56) Chemical dumps **[EAI056]** **[.83]**	1[.29]	2[.17]	3[.29]	4[.13]	5[.13]
57) Pollution from burning trash **[EAI057]** **[.78]**	1[.38]	2[.25]	3[.21]	4[.08]	5[.08]
58) Water pollution **[EAI058]** **[.75]**	1[.29]	2[.08]	3[.33]	4[.17]	5[.13]
59) Pesticides and herbicides **[EAI059]** **[.68]**	1[.21]	2[.17]	3[.29]	4[.13]	5[.21]

60) Hazardous waste sites **[EAI060]** **[.89]**	1[.25]	2[.17]	3[.33]	4[.13]	5[.13]
61) Landfill **[EAI061]** **[.82]**	1[.38]	2[.13]	3[.33]	4[.13]	5[.04]
62) Abandoned houses/buildings **[EAI062]** **[.85]**	1[.42]	2[.08]	3[.25]	4[.13]	5[.13]
63) Abandoned factories **[EAI063]** **[.89]**	1[.46]	2[.13]	3[.29]	4[.04]	5[.08]
64) Abandoned parks **[EAI064]** **[.85]**	1[.42]	2[.08]	3[.25]	4[.08]	5[.17]
65) Deteriorated buildings **[EAI065]** **[.78]**	1[.33]	2[.13]	3[.08]	4[.08]	5[.13]
66) Litter, trash problems **[EAI066]** **[.71]**	1[.25]	2[.17]	3[.21]	4[.17]	5[.21]
67) Occupied buildings in poor or dangerous condition **[EAI067]** **[.86]**	1[.35]	2[.04]	3[.26]	4[.22]	5[.13]
68) Vacant lots **[EAI068]** **[.79]**	1[.36]	2[.23]	3[.18]	4[.14]	5[.09]
69) Uncontrolled animals **[EAI069]** **[.78]**	1[.32]	2[.23]	3[.14]	4[.23]	5[.09]
70) Traffic noise **[EAI070]** **[.84]**	1[.18]	2[.27]	3[.41]	4[.09]]	5[.05]
71) Construction noise **[EAI071]** **[.67]**	1[.23]	2[.32]	3[.27]	4[.09]	5[.09]
72) Overload of stimuli (e.g. billboards) **[EAI072]** **[.75]**	1[.23]	2[.18]	3[.27]	4[.18]	5[.14]

Appendix F

Factor Analysis for the Environmental Awareness and Actions Scale

Factor Analysis: Environmental Awareness Scale

The reliability of environmental awareness scale included in the survey was not good. What this means is that we can not make any interpretations addressing this construct because the items do not provide accurate measures. In this situation, using a confirmatory factor analysis to identify the constructs included in the survey is recommended.

The 6 items included in the environmental awareness scale were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of coefficients of 0.3 or above. The Kaiser-Meyer-Oklin value was .6, (the recommended value is .6) and the Barlett Test of Sphericity reached statistical significance, supporting the factorability of the matrix correlation.

KMO and Bartlett's Test

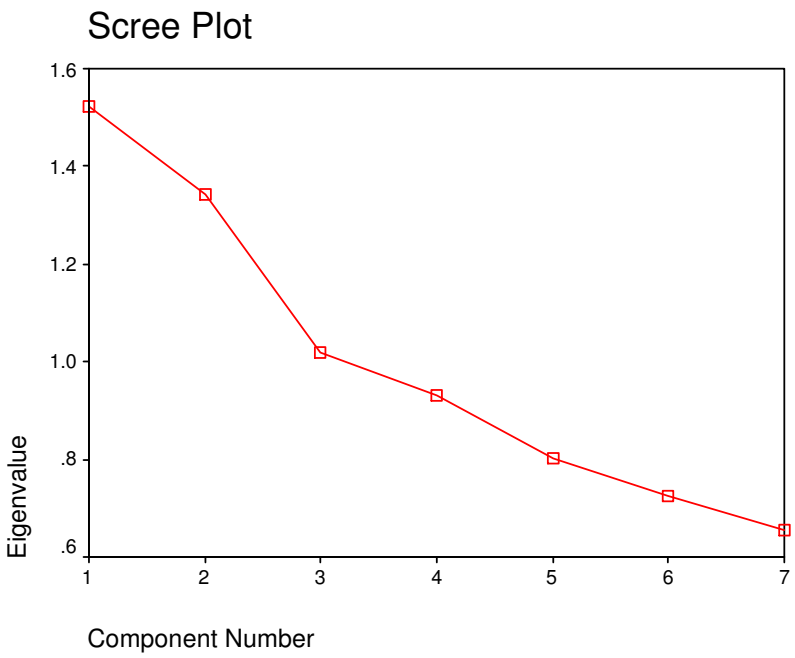
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.550
Bartlett's Test of Sphericity	Approx. Chi-Square	118.733
	df	21
	Sig.	.000

Principal component analysis revealed the presence of three components exceeding 1; explaining 21.74% , 19.18% and 14.57% of the variance respectively. An inspection of the screeplot revealed a clear break after the third component; thus, the decision of retaining the first three components was made.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.522	21.741	21.741	1.522	21.741	21.741
2	1.343	19.188	40.929	1.343	19.188	40.929
3	1.020	14.570	55.499	1.020	14.570	55.499
4	.933	13.322	68.821			
5	.802	11.462	80.282			
6	.726	10.372	90.654			
7	.654	9.346	100.000			

Extraction Method: Principal Component Analysis.



To aid in the interpretation of this components, Varimax rotation was performed. The rotated solution (see SPSS output) shows the three components with their stronger items. The three factor solution explains a total of 55.49% of the variance.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %
1	1.522	21.741	21.741	1.522	21.741	21.741	1.357	19.386	19.386
2	1.343	19.188	40.929	1.343	19.188	40.929	1.350	19.292	38.678
3	1.020	14.570	55.499	1.020	14.570	55.499	1.177	16.821	55.499
4	.933	13.322	68.821						
5	.802	11.462	80.282						
6	.726	10.372	90.654						
7	.654	9.346	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix(a)

	Component		
	1	2	3
aware-actions/ clean env. and recreation	.731		
aware-actions/ contribute money	.649	.308	
aware-actions/ government	.570		.354
aware-actions/not sign petition		.770	
aware-actions/participation improvement act.		.640	-.309
aware-actions/ no problems		.444	-.404
aware-actions/disrupting society			.852

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

a Rotation converged in 8 iterations.

The factor analysis supports the decision of redefining the constructs and scales measured. Looking at the items grouped in each component three constructs were identified:

1. Awareness and actions in neighborhood activities
2. Lack of awareness and actions in neighborhood activities
3. Neighborhood action and environmental improvement activities

Taking into consideration wording of the item and loading, the 3 items in the environmental awareness and action scale were selected for further analyses.

Appendix G

Interview Protocol

ID #: _____

Phase I: In-depth Interviews

Time: 30 – 90 minutes

The following questions are about your neighborhood experiences. By "neighborhood" I mean an area larger than a block where you feel some binds or connections to the area and the people who live there.

Topic	Questions	Goals
	Could you describe the area that you consider your neighborhood? When you think about your neighborhood, how many blocks wide do you think it is? Do you have a name for your neighborhood? What is the name of your neighborhood? What are the two cross streets that cross closest to your home?	Definition of neighborhood
	Could you tell me how are the physical conditions of your current neighborhood? When I talk about the physical conditions I mean the condition of the buildings, recreational facilities, public spaces, commercial spaces. Also, the green spaces (if any) and industrial facilities (or sources of pollution)	Are people aware of the physical conditions of their neighborhood? What do they include? Built env. Condition Toxic/other env. Risks Aesthetics quality Recreational quality Public space quality Meeting spaces Commercial/economic spaces quality
	How long have you lived there?	Residential history
	How did you choose this neighborhood?	Criteria to choose why they live there in relation to environmental risks
	Do you plan to move in the near future? Why? Reasons	Sense of belonging
	How do you compare this neighborhood with the one where you were living before? Do you think that this neighborhood is safe or safer than the previous one?	Previous residential history? Residential satisfaction (in relation to environmental risks)
	Do you feel that you belong to this neighborhood? Why? What makes you think that way?	Sense of belonging

	Do you feel that you are part of your neighborhood?	Sense of belonging
	How do you rate your neighborhood? Good Average Bad – Why What is what you like the most about your neighborhood? What is what you disliked the most or the major problem in your neighborhood?	Rating of the neighborhood as a place to live; with specific reference to environmental risk. Place attachment
	Approximately, how many people do you know in your neighborhood? How did you meet them? Do people in this neighborhood participate in social activities like pot lucks, group garage sales, etc.? How often during the past year? Do people get together and have meetings? Where? About what?	Social interactions with people in their neighborhood? Reasons for interaction?
	Do you trust the people in your neighborhood? What does trust means to you? Do you take care of each others' plants, kids, pets? Do you ask you're a neighbor to watch your house while you are away? Who you trust in your neighborhood? Do you feel that you can ask your neighbors for help if you have any problem like a medical emergency?	Trust
	Do you think that people in this neighborhood can persuade the city to responds to their needs or concerns? Why? Which needs or concerns do you think the city would attend faster? How interested would you be in assuming a leadership position in your neighborhood?	Actions and concerns
	Please tell me the 6 most important environmental problems to you in the neighborhood. Rank them taking into consideration how important are they to you. Do you think that your neighborhood has these problems? Do these problems affect your life and health in any way? Are there any other problem in addition to this 6 that you think affect your neighborhood and your life?	Awareness of environmental problems Relationship of major environmental problems to their life Interest in environmental issues

	Have you experience any of these problems in your neighborhood? Is there any environmental problem that you have a particular interest in or have an interest to learn about? If so please tell me. Would you say that your are personally interested in environmental issues? Do you talk about environmental issues with friends and/or professors in your classes? Do people in this neighborhood participate in environmental improvement activities like clean-ups or flower planting? How often during the past year?	Awareness of environmental risks? (locally?) Knowledge about environmental issues?
	Is there a clear leader on your neighborhood whom you can go with questions, concerns, or suggestions? Do you know any person that is engaged/active in neighborhood environmental improvement activities?	Social networks
	Do people in your neighborhood would get together to improve the physical conditions of your neighborhood? How interested would you be in working with your neighbors to improve neighborhood conditions?	Perception of the collective efficacy of the neighborhood in relation to the environmental conditions
	Is there anything else about your neighborhood that I should know?	

Please tell me the 6 most important environmental problems to you. Rank them taking into consideration how important are they to you.

Environmental Problems	**Rank**
1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____

Appendix H

Neighborhood Profiles

Neighborhoods' Profile 1: Bronx

H1: Number of Survey Respondents by Zip Codes in the Bronx

Neighborhoods	Zip Codes	# of respondents
The Central Bronx (Bathgate, Bronx Park South, Crotona, Morrris Heights, Mt. Hope and Tremont)	10453 10457 10460	18
Fordham –Bronx Park (Bedford Park, Belmont, Kingsbridge Heights, Norwood and University Heights)	10458 10467 10468	29
High Bridge – Morrisania	10451 10452 10456	16
Hunt's Point – Mott Haven	10454 10455 10459 10474	6
Kingsbridge – Riverdale	10463 10471	7
Northeast Bronx (Co-op City, Eastchester, Wakefield, Williamsbridge and Woodlawn)	10466 10469 10470 10475	31
Southeast Bronx (Bruckner, Castle Hill, City Island, Country Club, Morris Park, Parkchester, Pelham Bay, Sound View and Throgs Neck)	10461 10462 10464 10465 10472 10473	23

H2: Survey Respondents' Ethnicity Data by Neighborhoods in the Bronx

Neighborhood	Number of respondents	African/American/ Black	Caucasian/ White	Hispanic	Asian/ Pacific Islander	Other
Central Bronx	18	39%	0%	44%	0%	17%
Fordham –Bronx Park	28	50%	4%	36%	7%	4%
High Bridge Morrisania	15	40%	0%	40%	0%	20%
Hunt's Point – Mott Haven	6	33%	0%	67%	0%	0%
Kingsbridge – Riverdale	7	14%	14%	57%	0%	14%
Northeast Bronx	30	60%	17%	13%	0%	10%
Southeast Bronx	22	27%	5%	45%	9%	14%

H3: Survey Respondents' Household Income Data by Neighborhood in the Bronx

Neighborhood	Number of respondents	Percentage of households' incomes of $30,000 or less	Percentage of Households' incomes of $30,000 or more
Central Bronx	18	67%	33%
Fordham –Bronx Park	25	68%	32%
High Bridge Morrisania	14	86%	14%
Hunt's Point – Mott Haven	6	83%	17%
Kingsbridge – Riverdale	6	17%	83%
Northeast Bronx	30	47%	53%
Southeast Bronx	21	81%	19%

Neighborhoods' Profile 2: Queens

H4: Number of Survey Respondents by Zip Codes in the Queens

Neighborhoods	Zip Codes	# of respondents
Northeast Queens (Bayside, Douglaston, Little Neck and Oakland Gardens)	11361 11362 11363 11364	6
North Queens (Auburnale, Bay Terrace, Clearview, College Point, Flushing, Whitestone)	11354 11355 11356 11357 11358 11359 11360	28
North West Queens (Long Island City, Astoria and Sunnyside)	11101 11102 11103 11104 11105 11106	3
Central Queens (Fresh Meadows, Hillcrest and Kew Gardens Hills)	11365 11366 11367	12
West Central Queens (Forest Hills, Glendale, Middle Village, Rego Park and Ridgewood)	11374 11375 11379 11385	10
West Queens (Corona, Elmhurst, Jackson Heights, Maspeth and Woodside)	11368 11369 11370 11372 11373 11377 11378	32
Southwest Queens (Howard Beach, Kew Gardens, Ozone Park,	11414 11415 11416 11417 11418 11419 11420 11421	24

Neighborhoods	Zip Codes	# of respondents
Richmond Hill and Woodhaven)		
Southeast Queens (Cambria Heights, Glen Oaks, Laurelton, Queens Village and Rosedale)	11004 11005 11411 11413 11422 11426 11427 11428 11429	28
Jamaica	11412 11423 11432 11433 11434 11435 11436	38
Rockaways	11691 11692 11693 11694 11695 11697	5

H5: Survey Respondents' Ethnicity Data by Neighborhoods in Queens

Neighborhood	Number of respondents	African American/ Black	Caucasian/ White	Hispanic	Asian/ Pacific Islander	Other
Northeast Queens	6	0%	33%	17%	50%	0%
North Queens	28	4%	25%	25%	39%	7%
Central Queens	12	8%	42%	8%	33%	8%
Northwest Queens	3	0%	67%	0%	0%	33%
West Central Queens	10	0%	50%	20%	10%	20%
West Queens	32	16%	22%	44%	12%	6%
Southeast Queens	27	59%	4%	7%	26%	4%
Southwest Queens	22	9%	23%	27%	5%	36%
Jamaica	37	41%	3%	27%	11%	19%
Rockaway	4	75%	25%	0%	0%	0%

H6: Survey Respondents' Household Income Data by Neighborhood in Queens

Neighborhood	Number of respondents	Percentage of households' incomes of $30,000 or less	Percentage of households' incomes of $30,000 or more
Northeast Queens	6	67%	33%
North Queens	25	64%	36%
Central Queens	11	27%	73%
Northwest Queens	3	33%	67%
West Central Queens	9	22%	78%
West Queens	28	64%	36%
Southeast Queens	24	54%	46%
Southwest Queens	18	67%	33%
Jamaica	35	63%	37%
Rockaway	4	75%	25%

Neighborhoods' Profile 3: Manhattan

H7: Number of Survey Respondents by Zip Codes in the Manhattan

Neighborhoods	Zip Codes	# of respondents
Central Harlem – Morningside Heights	10026 10027 10030 10037 10039	4
Chelsea – Clinton	10001 10011 10018 10019 10020 10036	1
East Harlem	10029 10035	2
Upper West Side	10023 10024 10025	2
Washington Heights – Inwood	10031 10032 10033 10034 10040	16

H8: Survey Respondents' Ethnicity Data by Neighborhoods in Manhattan

Neighborhood	Number of respondents	African American/ Black	Caucasian/ White	Hispanic	Asian/ Pacific Islander	Other
Central Harlem - Morningside Heights	4	25%	0%	25%	0%	50%
Chelsea – Clinton	1	0%	0%	100%	0%	0%
East Harlem	2	0%	0%	50%	0%	50%
Upper West Side	2	50%	0%	50%	0%	0%
Washington Heights – Inwood	15	27%	0%	73%	0%	0%

H9: Survey Respondents' Household Income Data by Neighborhood in Manhattan

Neighborhood	Number of respondents	Percentage of Households' incomes of $30,000 or less	Percentage of Households' incomes of $30,000 or more
Central Harlem – Morningside Heights	4	100%	0%
Chelsea – Clinton	1	0%	100%
East Harlem	2	100%	0%
Upper West Side	2	0%	100%
Washington Heights – Inwood	13	85%	15%

Appendix I

Correlation Matrixes, Standard Deviations and Means for Confirmatory Factor Analyses

Table 1: Correlation Matrix, Standard Deviation and Mean for Sense of Place Indicators

	1	2	3	4	5	6
1. Like		.				
2. Proud	.746					
3. Best	.680	.569				
4. Unhappy	.535	.391	.572			
5. Move	.233	.140	.206	.355		
6. Miss	.264	.249	.276	.359	.286	1
Mean	3.61	3.58	2.74	2.81	2.96	2.08
SD	1.14	1.11	1.15	1.26	1.28	1.08

Table : Correlation Matrix, Standard Deviation and Mean for Toxic/Industrial Contamination Indicators

	1	2	3	4	5	6
1. Pollution from factories						
2. Chemical dumps	.801					
3. Pollution from burning trash	.750	.798				
4. Pesticides/ Herbicides	.590	.678	.666			
5. Hazardous waste Sites	.715	.815	.736	.733		
6. Landfill	.674	.730	.701	.678	.818	1
Mean	2.17	2.04	2.03	2.32	2.05	1.92
SD	1.34	1.34	1.35	1.35	1.33	1.26

Table: Correlation Matrix, Standard Deviation and Mean for Neighborhood Quality

	1	2	3
1. Cleanliness			
2. Place to live	.710		
3. Place to raise children	.549	.663	
Mean	3.40	3.49	3.07
SD	1.12	1.11	1.28

Table: Correlation Matrix, Standard Deviation and Mean for Neighborhood Quality

	1	2	3
1. Quality of the buildings/houses			
2. Quality of the recreational facilities	.587		
3. Quality of the neighborhood environment	.606	.617	
Mean	3.44	3.12	3.28
SD	1.05	1.07	1.09

Table Correlation Matrix, Standard Deviation and Mean for Awareness

	1	2	3
1. Contribute money			
2. Env. and recreation	.198		
3. List	.019	-.158	1
Mean	3.20	3.98	2.52
SD	1.095	.961	1.077

Table Correlation Matrix, Standard Deviation and Mean for Social Capital

	1	2	3	4	5	6	7	8	9	10	11	12
1. Soc. Rel.												
2. Borrow food	.369											
3. Know name	.167	.324										
4. Ask help	.364	.405	.541									
5. Num. people trust	.442	.331	.422	.619								
6. People env. activities	.201	.211	.201	.365	.413							
7. Public meeting	.108	.133	.086	.117	.191	.312						
8. Part. env. activities	.170	.038	.052	.149	.182	.285	.260					
9. Church	.071	0.41	.010	.108	.157	.218	.304	.146				
10. Talk	.078	.234	.171	.193	.248	.280	.374	.188	.351			
11. Talk quality	.108	.251	.172	.178	.256	.311	.377	.199	.348	.733		
12. Visit	.180	.415	.420	.369	.368	.180	.211	.104	.072	.288	.302	
Mean	2.61	2.59	3.37	3.03	2.49	1.95	1.27	2.06	1.72	1.65	1.76	2.24
SD	1.13	1.28	1.30	1.30	1.31	1.19	0.68	1.39	1.17	1.04	1.07	1.33

Table: Correlation Matrix, Standard Deviation and Mean for Daily Physical Environmental Problems

	1	2	3	4	5	6	7	8	9
1. Abandoned houses/buildings									
2. Abandoned Factories	.745								
3. Abandoned Parks	.715	.774							
4. Litter, trash problems	.598	.555	.591						
5. Occupied buildings in poor or dangerous conditions	.656	.623	.666	.757					
6. Vacant lots	.664	.668	.677	.641	.674				
7. Uncontrolled Animals	.593	.541	.567	.725	.764	.644			
8. Traffic noise	.478	.452	.501	.602	.555	.538	.560		
9. Construction noise	.590	.527	.538	.572	.605	.558	.556	.714	
Mean	1.99	1.82	1.98	2.73	2.31	2.08	2.48	2.58	2.41
SD	1.26	1.25	1.32	1.48	1.45	1.27	1.45	1.45	1.36

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