McGill University

"Place" and Community Well-being in Montreal: An exploration of social networks, urban planning and neighbourhood deprivation

Supervised Research Project

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Introduction

This study of southwest Montreal neighbourhoods, using data collected from the Epidemiological catchment area of Montreal South-West (ECA-MSW) survey, was inspired by the desire to understand community and the role it plays in the well-being of its inhabitants. Community is found to have a significant impact on the health, security, job prospects, political participation and more of its residents. Community is prima facie a simple concept readily understood by everyone. On closer scrutiny, however, its apparent simplicity is seen to conceal layers of complexity. Common interest communities such as sports clubs and political associations, cultural communities, religious communities, national communities and even on-line communities are just some of its varied manifestations, each with its own characteristics and geographic reach. In our study, we have refined the definition of community to intersect with the notion of neighbourhood, captured by two interrelated elements:

- Community as **mental space** – engendering a sense of belonging and a bond of togetherness, or alternatively, ambivalence or exclusion
- Community as **physical space** – comprising the built environment: the streets, the public squares, the parks, where disparate individuals in close proximity to one another form a physical community, or neighbourhood

In our first chapter, we deconstruct the concept of 'community' and its history to lay bare these layers. Community is explored as a space for dialogue and discussion between members, leading to a feeling of belonging, or alternatively an opposite feeling of exclusion. Social networks form the basis of community and comprise a series of relationships that vary in strength and direction. At the neighbourhood level, social disorganization theory somewhat controversially avers that socially cohesive

communities, with low residential turnover, low rates of poverty, and high education attainment levels, are key to creating social and economic opportunities for residents and providing a safe environment for raising children. Less contested is the notion that neighbourhood-level characteristics — e.g., active community institutions like church, school, and local immigrant associations — can enhance levels of social support and collective efficacy among residents.

The second chapter explores the physical construct of community as employed by architects, urban planners and geographers. The principal contributions of 20th century thinkers Lynch, Appleton, and Hester were crucial in understanding the urban environment from the point of view of the residents. Previously, admirers of large-scale, one-size-fits-all planning, planning that compartmentalized land uses and aimed to accommodate the automobile all too often ignored the local context for which they were planning. In contrast, modern day planners, and advocates of New Urbanism in particular, consider the way characteristics of the built environment (including permeability, land use mix, density, availability of parking, and streetscape character) are apt to affect the nature of the local community.

In the third chapter, we introduce a multi-dimensional and multi-scalar theoretical model to explain the connection between the two elements of community — the mental and physical spaces — referred to as the social and physical environments of a neighbourhood. The theoretical model is the answer to specific questions about the residents of southwest Montreal: do their perceptions of their social environment, with reference to social support, collective efficacy and ambient hazards, vary from one neighbourhood to the next? If so, what physical factors of their local environment and what characteristics of the individual resident explain their perceptions, when controlling for neighbourhood-level socio-economic demographics? The neighbourhoods of southwest Montreal are fertile ground for investigating the influence of 'place' on resident well-being because they vary both in their built

environments, ranging from industrial, urban neighbourhoods to post-war suburbs, and in their socio-economic character

Finally, in chapter four we present the findings of our study and discuss their relevance to our understanding of community as a mental and physical space. Our study confirms that a relationship between a neighbourhood's social and physical environments exists; land use mix, vegetation, the physical condition of the neighbourhood and service proximity are found to affect the collective efficacy, social support and ambient hazards within it. However, the results resist easy interpretation and suggest complex causal mechanisms are at work in the interplay of a neighbourhood's social and physical composition.

Chapter 1: Understanding Community

The concept of community is central to contemporary planning theory. 'Community' is variously seen as the foundation of democracy, the source of individual health, a building block for social cohesion, and a force for unifying the diversity of modern multi-layered societies. Communicative theories of planning have been applied in interventions to strengthen community and validate its role in the planning process, as a stronger community is perceived to be more willing and able to engage politically in its own interest. In the contemporary narrative, community values of trust and cooperation are heralded as cornerstones of social and economic well-being, imperilled by the greed of a few (Putnam, 2000; Heywood, 2011). In this vein, for example, the recent sub-prime market crisis in the United States is portrayed as a direct threat to the values of trust and cooperation (Heywood, 2011).

We propose a broad definition of community as a collective 'feeling' of togetherness resulting from one or more characteristics held in common by a group of people. Communities both shape and are shaped by the attitudes and histories of the individuals who occupy them. Thus, community is not just a physical entity, and can transcend geographical boundaries and assume forms that are not spatially determined. In this study, community well-being comprises the intersect of various forms of community within a geographic entity, whether national, cultural, religious or otherwise, which go to make up the social environment.

We are interested in the geographic formulation of community, with spatial proximity the common characteristic. The scale at which communities of space occur can vary, but communities are typically linked to the division of cities into 'neighbourhoods' (Jacobs, 1961; Heywood, 2011). Although community is not synonymous with neighbourhood, a spatially-defined area can provide a starting point

for the analysis of different understandings of community. We focused on the neighbourhoods of southwest Montreal in our investigation of community well-being. We are particularly interested in the link between the physical unit (the streets, buildings, land uses, etc.) and community well-being, as demonstrated in the social environments of a neighbourhood.

Any discussion of 'community', however, must first identify some of the lenses through which it has been examined. Featured below in order are:

- liberal view of community as locally-oriented and democratic;
- community as a space for dialogue and decision-making;
- community as panacea for all social ills;
- social relations and classical social theory;
- social relations and network analysis; and,
- community and the formation of social capital

Although these elements have been isolated for convenience of analysis, there are clearly overlaps between them. The themes provide a conceptual understanding of community, and its relationship with urban planning, with key elements informing the selection of variables and the construction of our regression models.

The liberal view of community

De Tocqueville's seminal writing on 19th century American democracy helped shape the liberal view of community as the site for the transmission of shared values and a setting for the individual to prosper and evolve from youth to adulthood. "Strong communities" are typified by lower crime rates, lower rates of social anomie and greater opportunity, particularly for people of limited means (Granovetter, 1974). In the health literature, the social environment, linked to the notion of spatially-bound communities and measured by varying rates of social support at a neighbourhood level, has been found to influence an individual's personal health outcomes, notwithstanding the individual's own level of social support (c.f.,

Aneshensel and Sucoff, 1996; Abada, Hou and Ram, 2007). Social support is a generalized measure that seeks to capture the support, material or emotional, available to a person both in everyday life and in times of personal crises.

Certain demographic characteristics, such as social mix and lower rates of residential turnover, are believed to lead to stronger communities, as measured by social capital, which we take to mean the strength value of a community's social networks. Local institutions are seen as the foundations of community, and as playing a crucial role in the formation of social bonds between disparate individuals (Sampson, Morenoff, & Earls, 1999). The public sphere within society is where "mutual" public interests are expressed, in line the liberal view of a community as locally oriented and thoroughly democratic.

According to the liberal interpretation, the public sphere eschews the private interests of individuals in favour of a "neutral" expression of public concerns. community spaces that "express shared needs and responsibility, responding to and promoting sociability, and forming places where people can gather, pause, talk, meet, barter, reminisce and negotiate" foster strong communities (Heywood, 2011). Heywood links community and physical space, seeing proximity and certain characteristics of the physical environment leading to the formation of a 'geographic' community with definable attributes. Tradition holds that the public sphere in western societies also serves as spaces for political action, protest and even rebellion. The darker side of community as a space fit for empty spectacle and naked demonstration of power is less frequently exposed (Joseph, 2002).

Community as a space for dialogue and decision-making

Communicative planning theory is rooted in the notion that collaboration requires genuine communication. Habermas (1990) argued that discussion is key to reaching valid interpretations, as opposed to merely 'rational' interpretations, with good policies ultimately crafted from dialogue with the people they aim to serve.

Leakey (1981) noted that language directs the evolution of societies by legitimizing different forms of social organisation which arise over time. Communicative planning seeks to invite disparate stakeholders to the policy table where the mix of poor residents, developers, planners, and environmentalists can share knowledge and resolve on action in open exchange (Habermas, 1972, 1990). Communicative action and its many tools, public consultation for example, are based on a group interaction model that occurs within a geographic space containing one or many neighbourhood/s, at times expanding to the level of the entire city.

Key to communicative action is the notion of perceived truth explored by Derrida and Foucault who employ paradox to challenge conventional interpretations of the public sphere (Foucault 1979, 1980) and 'deconstruct' received wisdom (Derrida 1972, 1993). What emerges is a view of community life and social change as a group interaction model — rather than, for example, a Marxist class conflict model — in which negotiation among different groups is the catalyst for societal changes, ideally securing mutually beneficial compromises. The class conflict models associated with government and planning approaches of the 1960s and 70s are portrayed as dangerous in their pursuit of uniformity and order in the special landscape of cities, which sap the livelihood of communities (Heywood, 2011, Habermas, 1990, Forester, 1999). However, many neo-Marxists would reject this interpretation of their theories.

Communicative action spurns a top-down approach as inadequate; potentially misrepresenting the personal perspectives of those deemed 'experts' or 'authorities' as universal truth (Heywood, 2011). Instead, open dialogue or 'speech' is argued to build trust and cooperation by acknowledging that while ideas are mental formulations, they are also based on human subjectivity and, therefore, prone to error. The generally accepted key tenets of communicative action include a coherent framework for community participation, a clear set of objectives to drive planning processes against which outcomes can be measured, and the integration of community experience through information collection and review by experts (Forrester, 1999). There is a

concomitant disdain for intellectual aloofness. Abstract indicators of the world, though valuable, cannot replace personally validated judgements based on experience. Communities of practitioners, planners, engineers, and architects are educated participants who apply their specialized knowledge only after consulting all (at least ideally) stakeholders with a view to incorporating their experiences into any eventual planning intervention. For example, they contribute vital insights into the importance and role of public space in fostering and maintaining social dialogue. The inherent presumption of open and genuine participation in communicative action is also the source of its greatest criticism.

However, the ideal of a strong community as a precondition for public rational discourse can obfuscate the power dynamics that shape different types of communities and account for the inequality in their access to power. Arnstein (1969), in a famous study on public participation in American cities entitled "A Ladder of Citizen Participation," exposed how formal forms of participation were often mere exercises in control and placation with little actual discretionary power in the hands of citizens. Focusing on community development programs in American inner-city ghettos, Arnstein showed that "window dressing participation," which relinquishes little formal power, undermined faith in planning processes. The 'experts' charged with devising solutions for impoverished populations often failed to understand their anger. No doubt, a factor in the reluctance of local and senior government officials to cede power was their lack of faith in the people they were meant to serve, who were largely black and poor. In response to her findings, Arnstein proposed an eight-step ladder of participation ranging from manipulation at the bottom rung to citizen control at the top. Most forms of public participation were token efforts, which resulted in few substantial changes to the government programs serving inner-city ghettos.[1]

[1] Public participation efforts, which represent citizen control, are often the result of concerted effort by a highly mobilized community. Rarely are such forms of public participation 'bestowed' on a

Far from suppressing the inequities of the private market economy, the hierarchies that evolve from capitalism generate the norms within which the supposedly neutral public discourse operates (Jacobs, 2002). Often, it is the dominant group whose voice is heard in the public sphere, delineating the contours of acceptable action and forcing dissenting groups to change in order to participate, or face exclusion. Indeed, to invoke 'community' is to raise questions about belonging and power. Writing on the rise of gated communities in the US, Milner (1981) warned against the phenomenon of 'cities by contract' where the wealthy self-segregate, form their own local governments and levy their own taxes, while contributing little to the social, economic and environmental needs of society as a whole. More generally, he argues that exclusion, even less extreme, perpetuates a cycle of violence. The excluded are violent in protest, which solicits a 'formal' violent repression on the part of the government. Such a vicious cycle can only diminish trust and cooperation among citizens. While less extreme, the spatial income polarization, which has occurred in Canada over the past 30 years, is a cause for concern (Hulchanski, 2010).

The prevalent liberal interpretation of community and public space promulgated by Habermas and Forester amongst others did not emerge from a vacuum. It is rather the product of changing socio-economic currents combined with the research which has made manifest a link between different types of community and societal outcomes. History, however, suggests that community is not just a convenient tool for the transmission of the values of the majority. It persists because humans have a natural craving to 'belong', not fulfilled by the simple sum of individuals occupying a geographic space. At the same time, as social animals, humans are susceptible to pressure to conform to community, thereby circumventing the supposed "neutral" terms of the rational public discourse proposed by Habermas

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community. There are also arguments against too much local citizen control e.g. they result in a 'balkanization' of services, varying from one community to another; it is more costly and less efficient and there is no guaranteed source of funding, particularly if a community is poor.

(1990). In the 19th century, the view of 'community' was tied to democratic action and distinct from individual motivation or interest.

The romance of community: panacea for social ills

The romantic narrative of community harkens back to a supposed golden age of community in North American society, particularly in the form described by Alexis De Tocqueville in his *Democracy in America* and published in two volumes in 1835 and 1840. It is most often invoked to contrast the democratic life of North American communities in the 19th century with the supposed dystopia of their counterparts today. The list of books in which authors insist that community, once valued and crucial to American life, is now in trouble is a long one: Riesman's *The Lonely Crowd*, Sennett's *The Fall of Public Man*, Lasch's *Culture of Narcissism*, Bell's *The Cultural Contradictions of Capitalism*, Bellah and others' *Habits of the Heart*, Etzoni's *The Spirit of Community*, Putnam's *Bowling Alone* and Dionne's edited collection *Community Works*. In one widely cited passage, De Tocqueville praises the locally based and locally determined democracy unique to North America:

> …the township was the nucleus round which the local interest, passions, rights and duties collected and clung. It gave scope to the activity of a real political life, thoroughly democratic and republican…In the New England town…the affairs of the community were discussed, as at Athens, in the marketplace by the general assembly of the citizens (1835).

De Tocqueville's picture of the ideal community, however, is shaded. Democratic action, he contends, is the antidote to rampant individuality which breeds political and social anomie, and conformity, as people turn to social convention for beliefs to fill the void left by the absence of a real external authority. For De Tocqueville, the public sphere in a democratic society is not so much separate from the private sphere as the realm where mutual interests are best expressed. Collective initiatives undertaken to advance mutual private interests translate into democratic action:

> As soon as several of the inhabitants of the United States have taken up an opinion or a feeling which they wish to promote in the world, they look for

> mutual assistance, and as soon as they have found each other out, they combine (1835).

In contrast to De Tocqueville's interpretation of community as an assemblage of disparate individuals who pursue a common good or defy an incidence of oppression, the twentieth century version adopts a more passive, conservative variant. Here community is the channel through which individuals further their aims and social mores are propagated. Community is the site where individuals can access social networks to advance. Since community is perceived as endangered, De Tocqueville's romanticism of community life is upheld as proof of a more cooperative and trusting society in the 19th century. Arguably, the selective reading of De Tocqueville by Bellah, Putnam and others to decry the dangers of modern urban life while encouraging a certain degree of conformity – most famously measured by church attendance and lawn bowling – are not a call to collective action but rather an argument for conservative political action and thought where job, community and the church are indispensable.

In *Against the romance of community* (2002), Joseph takes a sober view of the political causes traditionally served by a 'call to community.' Although her criticism is directed mainly at the naiveté of political-identity movements that seek to reject the universalizing tendencies of community, while ignoring the real passions community can provoke, the same arguments can be applied to geographically defined communities. A feminist post-structuralist, Joseph challenges the dominant notion of community as well as the critical variation most commonly proffered as an alternative by her fellow adherents. Community is more than just a convenient tool with which to advance individual interests or propagate a dominant ideology. Instead, in her view, the local, spatially-bound community with its social institutions and social capital "supplements" capitalism by generating and legitimizing social hierarchies. This is a significant departure from the romantic vista in which capitalism and community are pictured separately and are independent of each other, capitalism as deviant and

community pure and noble. Despite the contradictions inherent in the definition of community proposed by Habermas, Jacobs, Heywood and others with its structures of power and inequality, the appeal of community remains irresistible and serves an emotional purpose which withstands critique:

> Collectivities often persist in their projects despite the catachrestical and disputed nature of the identity terms under which they are mobilized; despite the ontological impossibility of identities people do work together…The not so surprising truth is that the critique of community offered by feminist poststructuralists has not made a dent in the pervasive and celebratory deployment of community in popular culture (Joseph, 2002, xxxi).

The conclusion is inescapable. Ideology notwithstanding, the consensus is that cooperation within the group/community is crucial to harmony and prosperity. Ideology dictates how it is to be achieved, either by voluntary competition or by coercion and inducements. Cooperation makes capitalism possible while competition shapes our social relations that also generate community.

Social relations and classical social theory

The study of social relations is useful in elucidating the role that community plays in shaping the life experiences of an individual. In particular, Network Analysis reveals that the location of an individual within their social network operating at the levels of family, neighbourhood, work and common interest has greater bearing than their personality traits on the course of their life. While many of these ideas emerge from classical social theory, recent work on the topic relates to community well-being as measured by the value and strength of various types of social ties.

Ferdinand Tönnies in his 1887 publication of *Gemeinschaft und Gesellschaft* is often credited with the notion that the nature of a community is attributable to the relational characteristics of its inhabitants. Tönnies made an important distinction between the traditional Gemeinschaft that denotes community and Gesellschaft which embodies society. Intimate, supportive and traditional, Gemeinschaft was the norm in

Western Europe before it was engulfed by the revolutions of the 19th century. Community is:

> … a common and binding system of positive law, of enforceable norms regulating the interrelation of wills. It has its roots in family life and is based on land ownership. Its forms are in the main determined by the code of the folkways and mores. Religion concentrates and glorifies these forms of the divine will, i.e., as interpreted by the will of the wise and ruling men (1957[1887], 64).

While the Gemeinschaft relationship bound members in a tight-knit community, the Gesellschaft that emerged in the 20th century was the harbinger of a looser and darker community which owed little to the communities of old (Tonnies, 1887).

Contrary to Gemeinschaft, Gesellschaft is based on contractual relationships among dissimilar individuals, upheld by laws of the state:

> Gesellschaft derives from the conventional order of trade and similar relations, but attains validity and binding force only through the sovereign will and power of the state. Thus, it becomes one of the most important instruments of policy; it sustains, impedes, or furthers social trends; it is defended or contested publicly by doctrines and opinions and thus is changed, becoming more strict or more lenient (1957[1887], 64).

As the safe community evolves into the modern society in Tönnies' scenario, the traditional bonds dissolve and the common will for harmony is replaced by fear of punishment for transgressions. A thinly veiled hostility reigns, and formerly peaceful and neighbourly relations are tainted by belligerence. Since Tönnies was writing at a time when industrial and social revolutions were sweeping across Europe, his gloomy prognosis is understandable. What deserves to be retained from his analysis is not so much the particularities of the social networks he describes, but rather the radical notion that the type and character of social relations impact on communities and their members, and enrich our understanding of them.

Durkheim, unlike Tönnies, takes a more optimistic view of the radical changes occurring in 19th century Europe. Seeking in *The Division of Labour in Society* (1893) to explore how social order is maintained in a society whose members are becoming

increasingly diverse, he juxtaposes two types of social relations: one based on mechanical solidarity and the other on organic solidarity, each buttressed by their own laws and legal systems. Like Tönnies, however, Durkheim assigns the role of mediator to the law, as society transitions from one state to the other:

> The visible symbol is law. In effect, despite its immaterial character, wherever social solidarity exists, it resides not in a state of pure potentiality, but manifests its presence by sensible indices (1933[1983], 64).

In his investigation of mechanical solidarity, Durkheim begins with the idea of "repressive law" whose purpose is to punish transgressions against the body of sentiments common to all members of a community. While a national community may form, local, spatially bound communities are crucial to the implementation of "repressive law". From repressive law emerges the idea of a collective conscience which can only subsist when the differences between individuals are few and slight. Collective conscience will endure only in "primitive" societies free from extreme divisions of labour. As individuals in these societies are not differentiated by their activities, they will not be differentiated by their values. The collective conscience links people together in a bond of "mechanical solidarity"; the community must protect itself from assaults on its shared values by resorting to the weapon of repressive law. Durkheim does not favour the collective conscience and its necessary hostility to individuality; he exposes the darker side of Tönnies' Gemeinschaft, which he considers, relies on the repression of individuality to cement harmony and trust.

In the newly industrialized Europe of Durkheim's time, solidarity is based on a strong legal system and social contract. Durkheim uses the metaphor of the human body to describe the new social system; just as each part of the body must perform well to ensure the smooth functioning of the whole organism, so a sharp division of labour, with clearly differentiated roles for members of a social class, ensures that the whole community performs efficiently. Since the collective conscience is relatively weak, the repressive social punishments of the older society have become obsolescent and a new legal system, based on a social contract protecting individual rights and

offering neutral judicial representation, takes their place. This form of community can span an entire nation and become a "national community" based on the rule of law. Yet, national communities are still dependent on local communities for the transmission of social values through local social institutions. Even if local communities are less restrictive and more diverse than the earlier variant based on mechanical solidarity, for Durkheim, differentiation, specialization and interdependency are progressive adaptations due to industrialization and population growth, and a welcome alternative to the Hobbesian vision of life as nasty, short and brutish.

Durkheim and Tönnies were pioneers of a new field of social theory which shone light on the connections between internal social relations and the social system in which they are embedded, which led in turn to new ways of understanding community. As White et al. (1976, 732-3) argue:

> …perhaps the major thrust of classical social theory was its recognition of the historical dissolution of categorical boundaries for social relations, whether the change was perceived as a transition from status to contract (Maine), from Gemeinschaft to Gesellschaft (Tönnies), from mechanical to organic solidarity (Durkheim), from traditional to means-rational orientation (Weber), or from ascribed to achieved status (Linton).

Whatever our conceptualization of the role social and physical environments play in producing community outcomes, whether measured in terms of Putnam's social capital or De Tocqueville's democracy, the contribution the social system makes to shaping social relations should not be ignored.

Social relations and network analysis

Whereas classical social theory construes social relations as the ties that bind individuals, a relational perspective incorporates the feeling of belonging to the group into the definition of community. Our study embraces this perspective of community as a feeling of belonging, with geographic proximity a defining element.

Within the field of network analysis, community is construed as an entity which is other than the sum of its members, in which the degree of solidarity or cohesion amongst members is variable. It is the mechanisms employed in producing and transmitting beliefs, norms and attitudes in networks that are the focus (Wasserman and Faust, 1994; Knoke & Yang, 2008). Ronald Brieger, for example, explains communities as interactive organisms: "*Groups that are made up of people and people that are made up of groups*" (1974, 181). Social networks are sites of interconnections between a set of actors and the set of relations between the actors. These relations are designated social ties, each with its own unique properties of strength, density, direction and so on. The relational perspective puts these ties between members of a community under the microscope to assess their strength, both the direct bonds of personal interaction and the indirect bonds of joint group membership. Its findings are interesting.

Members of a community do not cohere into a social unity as a matter of course. Rather, they cultivate cohesion through the rituals they perform regularly. In his often-cited study of South Pacific societies, Marcel Mauss (1925) found that the practice of exchanging gifts cemented social ties and strengthened social support. The act of giving was not driven by an altruistic desire to reward friendship, but by the giver's expectation that he/she would eventually be recompensed with a gift of equal or greater value. To refuse a gift was an offence not only against the individual giver but also against the whole society. The exchange of gifts achieved the dual aims of solidifying both individual and community ties. Similarly, Simmel (1971) argues that individuality takes root in the soil of dynamic social circles that shape and are in turn shaped by their members. Social networks are the result of relations among individual actors, which impact on society as a whole. The exchanges among the actors lift "*the individual thing and its significance for the individual man out of their singularity, not into the sphere of the abstract but in to the liveliness of interaction*" (1971, 69).

Interactions between individuals are also determined by their place in the social network grids. In their 1990 study, Wellman and Wortley (1990) surveyed and extensively interviewed the residents of East York, an inner-city suburb of Toronto, and accumulated data both on their social networks and the types of social support their social ties afforded them. They deduced from their study that, with the notable exception of gender, the scope of support depended more heavily on individual relationships than on personal attributes. If a person's character is irrelevant to the support they give, it inevitably means that the "shape" of our social networks, the length and location of arteries, and who is where, are crucial to reciprocal support. This conclusion leads the authors to challenge the conventional view that a person who proffers support is naturally "supportive" or "understanding" and contend instead that it is the social network, and in particular the social role of the individual giving the support, that elicits supportive behaviour.

Relations between members of a society are not considered the property of the individual members (called "agents"), but rather an outcome of larger relational systems. The unit of analysis is not the individual, but the group, and the focus is on social systems formed by linkages between members (Wasserman and Faust, 1994, 4-5). Initially, compelling metaphors were used to illustrate social ties, such as the notion of the pyramid scheme, or the spread of a rumour as a chain effect, growing exponentially as key 'agents' with entrée into more than one social group spread the rumour to new groups (Berkowitz, 1982). Although the use of metaphors clarified the role of social networks, it failed to provide generalizable findings and it quickly became apparent that more concrete methods were required.

The dual origins of a methodology appropriate to the study of social networks can be traced to Moreno and the sociogram tool he constructed in the 1930s to analyse the configurations of social networks (Wasserman & Faust, 1994; Knoke & Yang, 2008), and to a group of anthropologists, most notably John A. Barnes, who argued for a case study approach in 1954. A sociogram is a snapshot of social relations where points

represent members of a network and connecting lines demonstrate the relations between them. The lines illustrating the ties between members have properties like direction (shown by an arrow) and strength (shown by the thickness of the line). John Barnes and his fellow anthropologists at Manchester University extended the range of the sociogram to develop a rigorous methodology for the study of social networks by employing a case study approach and developing an analytical framework to describe the social structures they uncovered. Although it highlighted the importance of social networks, the use of case studies constrained the ability of researchers to make generalizations.

With the development of different powerful statistical methods, a series of empirical studies, beginning in the 1960s and 70s, made methodological and theoretical progress by including numerical values based on scale questions (such as a Likert scale of most likely, likely, least likely). In particular, multidimensional scaling, introduced by Harrison White, permitted ever more complex analyses of the social world which reflected the diversity of linkages occurring at various abstractions: family, neighbourhood, colleague, etc. (Scott, 2000; Berkowitz, 1982). Other studies flowed from the work of White, who was instrumental in training future generations of anthropologists in social network analysis. Two examples are Granovetter's (1974) study of the function of so-called 'weak ties' in the personal advancement of individuals, and Wellman's study of urban community networks.

Community and the formation of social capital

In planning, social network theory has led to an emphasis on community as the key influence on the health and well-being of individuals. In particular, social capital, defined as the ability to access scarce resources by virtue of membership in strong social networks, is considered a crucial feature of communities (Cohen et al., 2000).

Social capital has two assumed benefits of social capital. First, in neighbourhoods where levels of norms and trust are high, neighbours are perceived to

look after one another and provide a degree of surveillance lacking in areas of transition. In a seminal study of crime in Chicago neighbourhoods, Shaw and McKay (1942) uncovered a tendency for crime to concentrate in neighbourhoods with a strong presence of "crime-prone groups", defined by their immigrant, non-white, poor status. Once the crime-prone groups moved away to less crime-ridden neighbourhoods, the incidence of crime within the group declined. In areas of transition, with high rates of population turnover as well as ethnic and racial heterogeneity, the formation of norms, trust and networks ties was inhibited, preventing an adequate social control of crime. Massey and Denton (1993) also describe a vicious cycle in which racial and income segregation in tandem with physical decay in housing in US ghettos contributed to social disorder (e.g. graffiti, anti-social behaviour). The psychological and physical withdrawal of residents from the neighbourhood prevented the formation of collective social norms crucial for safe and welcoming urban neighbourhoods. From "healthy" collective socialisation, the individual derives a benefit, particularly in their youth, from living in neighbourhoods with rich social interactions.

The second assumed benefit of social capital is the specific neighbourhood ties that provide the individual with additional opportunities for advancement. In *The Truly Disadvantaged, the Inner City, the Underclass and Public Policy* (1987), Wilson argued that socially isolated residents, distinguished by "a lack of contact or sustained interaction with individuals and institutions which represent mainstream society", are plagued by a penury of positive, legitimately successful role models, become removed from mainstream American institution and culture, and are weakly integrated into more lucrative job networks (Wilson, 1987). The social ties within a neighbourhood form the basis of residents' social networks. For the individual, it is the so-called 'weak ties', where people interact infrequently, which are most important to advancement in society, as they provide a loose link to different social circles (Granovetter, 1974). In disadvantaged neighbourhoods characterized by a lack of education, low income, restricted social circles and unemployment, resources made

available by social networks are typically low (Granovetter, 1974; Portes and Landolt, 2000). This notion of social capital is crucial to the construct of local communities as influencing the development of individuals through their life course and informs our choice of perception-based variables to represent the social environment of a physical neighbourhood.

Our debt to research in the network analysis domain must be acknowledged, although the final methodology adopted for this study is radically different. While our study builds on previous research in the network analysis field, in particular the notion of multidimensional scaling and the importance of "actors" and "nodes" in an individual's life, we accept the importance of social relations as well-established by the literature and instead seek to elicit the role of neighbourhood-level attributes in influencing residents' lives. The methodology diverges, therefore, from most studies within the network analysis field and instead shares several features with research pertaining to environmental impacts on health. Within the public health field, empirical studies which examine complex linkages between contributory variables at various levels of abstractions and the outcome variable of interest, typically a health indicator of some sort, are commonplace.

Chapter 2: Place and Community in Urban Planning

The notion of community well-being in the planning literature is based on the premise that the design of place, in conjunction with the socio-economic character of a neighbourhood, impinges on the health and vibrancy of local communities, and by extension, on society as a whole. There is a clear imperative to foster trust and cooperation among neighbours who live in geographic proximity to one another. In the past, the design and implementation of grand schemes have generated various theories of planning. In the words of Daniel Burnham of the Beautiful City Movement "Make no small plans [for] they have no magic to stir men's blood". For the most part, however, and certainly since the 1970s, planning theory has been oriented towards local, community-centred interventions and forms of practice. Although much is made today of the excesses of the modernist, grand-scale planning interventions of the 1950s-1970s, which invariably failed to live up to their grand promise, such community planning has a long history which can be traced back to the late 19th century and the 'invention' of the Garden City by Ebenezer Howard. Community planning has grafted ideas from other academic fields onto its practice, behaviourism in psychology for instance[2], in order to grow a methodology that encompasses inclusion and cooperative social enquiry as well as the precepts of the place-making movement. We begin by detailing the ways in which the urban environment has been historically interpreted, expand on the notion that good planning can result in "healthy" communities and provide examples of the links made between the built environment and the social environment (as measured by social capital) of a neighbourhood. Finally, we demonstrate how perceptions of the built environment and its influence on the social environment of a neighbourhood may contribute to the reshaping of its physical space.

[2] Behaviourism refers to the belief that people's behaviour can be shaped by the external physical environment. In *Beyond Freedom and Dignity* (1974), the author warns of a "totally conditioned community life" where mass-conditioning techniques shape people's desires.

Interpreting the Urban Environment

Brunelleschi's invention of linear perspective in 15th century Italy is credited as the origin of a language of design (Heywood, 2011). His designs flowed from the simple perception that observable space bends, even when linear, in the distance. He in turn was indebted to the practices of the Ancient Egyptians and Greeks who had used the elements of contrast, variety, association and the themes of prospect and refuge to design striking buildings and public spaces. His principles informed the design of great European set pieces such as Louis XIV's palace at Versailles and John Churchill's Blenheim Palace and its grounds. His theories of perspective may even have influenced the composition of the Gardens of the Taj Mahal in Agra, stunning in their depth and organisation. Surely Olmsted was also inspired by the principles of perspective. Designer of countless grand parks in North America, most notably Central Park in New York, he was a member of the parks movement which sought to draw nature into the city for the benefit of its citizens. The spaces of Olmsted and others who incorporated the principles of perspective into their designs, often decorative and grand, were designed to meet the needs of users.

Kevin Lynch (1984) in *The Image of the City* interprets the urban environment through the lens of users' perceptions and experiences, contending that people interpret and navigate the urban environment in remarkably similar ways. While he wasn't the first to spotlight the role of the urban environment in providing safety and comfort for its users, he was the first to connect all the elements of the urban landscape from the perspective of the users and propose design methods based on observation of their needs. In his comparative study of people's mental maps of their local urban environment, he identified five major typologies of the physical environment which were generally held in common by survey participants: paths, nodes, landmarks, districts and edges. Each element of the physical environment, whether interconnected 'paths' in the form of a tight, small walkable street grid offering the user alternate routes, or distinguishable landmarks which lend a district

character, complements the others to create spaces which can be either 'legible' and enjoyable, or alternatively 'strange' and uninviting to the user.

Other thinkers have also contributed to our understanding of the urban milieu. Appleton's (1996) celebrated landscape interpretation theory classified landscapes according to the degree of personal safety and stimulus of distant views they promised. Randy Hester (1985) exploited Lynch's participatory techniques to discover which spaces people favoured in the urban landscape. He concluded that the urban environment is best understood by delving into the 'subconscious landscapes of the heart', which revealed a surprisingly emotional attachment to the urban environment transcending the concrete and asphalt of its physical composition. When asked which gathering spaces were most important to them, the people he surveyed nominated places in various stages of decay, in one instance a decrepit old pier. It dawned on him what these spaces had in common, regardless of their physical condition, were their historical associations and emotional resonance, the stories to be told and savoured, a young couple's escape to the decaying pier…

While people's interactions with the urban environment can reveal 'universal patterns' of urban design, they do not translate into universal solutions to be applied uncritically. Christopher Alexander (1964) holds in the *Nature of Order* that comprehensive, top-down designs fail because they do not capitalize on the greatest strength of cities: their increasing diversity and their continuing evolution, which produce ever new combinations of urban life. Designs for the urban environment, he suggests, should emanate from the existing urban and natural landscape and reflect the needs and wants of present and future users. He makes a convincing case for community-oriented planning. The role of 'specialists', including planners, is to understand and apply the lessons of 'universal patterns' of design observed in human settlements throughout history. While shunning top-down approaches to design, Alexander conceives fifteen principles to guide the design of healthy communities in

order to achieve a certain "wholeness"; the strength of his approach to design is that it both relies on context and respects 'universal patterns'.

Other important contributions to place-making theory include the schools of 'responsive environments' associated with Oxford Brookes University in England (Bentley et al., 1985), and the 'New Urbanism' prevalent in the United States and Canada since the 1990s, linked to the 'smart growth' movement to combat auto-dependent, isolated urban sprawl. Bentley et al. (1985) in *Responsive Environments* based their design methods on how people interact with present and future features of the physical environment. In their view, the aim of design is to cultivate interacting, sociable and cooperative communities by planting generous public spaces, small street setbacks and lively commercial streets. Their methods are supported by the principles of inclusion and cooperative social inquiry. 'Enquiry by design' encourages residents to actively engage in the design of projects in their community, and pioneers design 'charrettes' in which members of the public collaborate in designing a proposed development.

The New Urbanism of Peter Calthorpe and associates (Calthorpe, 1993; Calthorpe and Fulton, 2001) aims to recreate the urban neighbourhoods of old in new suburban communities which conform to the street grid, have smaller setbacks, less prominent parking space, more generous public spaces for people to meet and interact, and a diverse and lively commercial main street to accommodate local shopping needs. The modern planning profession has postulated that the physical design of communities can impact residents' behaviours to procure a more cooperative society since its inception in the late 19th century.

Planning Healthy and Vibrant Communities

Credited with the 'invention' of the Garden City (Howard, 1902), Ebenzer Howard was one of the first urban thinkers to infuse the cooperative principle into every aspect of life and governance. The Garden City was devised as a remedy for the

social alienation and poverty that plagued 19th century industrialized cities. Combining the best of town and country, the Garden City was small enough for everyone to know their neighbour, yet large enough to support industry. As the eponymous title suggests, the Garden City ordained green space as sites for community members to socialize. Howard also sought to improve living standards through designs which separated industrial from residential land uses, a trend that gained momentum in 20th century city planning.[3] He favoured local governance structures based on the cooperative principle, with every resident an active citizen, and advocated solutions to urban problems through community deliberation, reminiscent of De Toqueville's *Democracy in America.* While Howard was one of the first to propose the conscious design of cities by urban planners, he was succeeded by many others who have left an indelible mark on the planning profession.

The idea that social malaise can be attributed to the shortcomings of the physical environment inspired urban planners like Lewis Mumford and Clarence Perry to look to master planned suburban communities for a solution to urban blight. Part idealist, part realist, Mumford believed that well-planned suburban communities could combine the best of rural and urban living. The 'green city' he envisioned is closely associated with the neighbourhood unit model that Clarence Perry developed in the 1920s in response to changing social, economic and political conditions in American cities. Perry anticipated that the contemporary overcrowded, polluted and congested city would be superseded by the neighbourhood unit, in which the 'superblock' would accommodate ample greenery and parks, separate roadways from pedestrian walkways, and foster a spirit of community (Gillette, 1983). At the focal point of the community would be the school whose dual purposes would be to educate and encourage civic responsibility. Fresh air and friendliness would reinforce traditional family values (Lee & Stabin-Nesmith, 2010). By the early 1930s Perry's

[3] Modern-day zoning by-laws are a good example of conscious intervention in the design and planning of cities to ensure incompatible land uses do not mix.

concept had penetrated the urban planning profession. The 1931 national Conference on Home Building and Home Ownership urged a neighbourhood unit approach to solving urban problems such as delinquency (Gillette, 1983), which had been aggravated by the Great Depression. Civic and business leaders were also increasingly inclined to view improved physical environment as the best means to secure society against further social and political unrest (Fairfield, 1994).

Flush from a growing economy, the government intervened in the planning of cities at an unprecedented level during the post-war era. Slum clearance of older, inner-city neighbourhoods led to the construction of inner-city 'Garden City' neighbourhoods like Regent Park in Toronto, while at the fringes new suburban communities were designed and built at breakneck pace. The Don Mills neighbourhood in Toronto in the 1960s, with a mix of 'towers in the park' high-rise apartments and single-family housing on windy, cul-de-sac streets, became Canada's first master-planned suburban community.[4] With the rise of the 'Garden City' of Ebenezer Howard, the old grid-city street form fell out of favour and was replaced by winding, curvy streets frequently ending in cul-de-sacs, because they were seen to be both friendlier to the automobile and safer for families, particularly for children playing on side streets. However, the promise of the neighbourhood unit, the Garden City and other similar community-oriented schemes failed to materialise.

The most famous charge against modernist planning came from Jane Jacobs in the *Life and Death of Great American Cities* (1961), who alleged that the vast expanses of green in these newly built communities were infrequently and poorly used; that the new windy, dispersed streets were devoid of activity and consequently, deprived of the active gaze of city dwellers going about their business, which traditionally constitutes a free form of surveillance. She was passionate in her censure of the modernist urban planner who arrogantly assumed and imposed a 'rational' world order on cities based

[4] Other trends also occurred: Large, multi-lane expressways were built to ferry commuters from the suburbs to the Central Business District. Vast spaces were also devoted to parking. We have chosen to focus on one aspect of postwar planning, the design and building of residential communities.

on concepts like minimum park densities and the separation of land uses. Cities are 'organic' creatures with an intrinsic order, staged in the 'street ballet' performance of a busy, 24-hour urban thoroughfare. Jacobs (1961) felt that planners should take a more modest role. They should preserve the close-grained life of the urban street and conform their interventions to that 'mutually supporting diversity' which is to her a city's greatest asset.

Another common criticism of modernist planning schemes is that they segregated the poor in large tracts of subsidized housing where contact with the middle class was limited and opportunity for advancement scarce. The authoritarian design of modernist architects resulted in the construction of corridors and clumps of high-rise dwelling blocks such as Tower Hamlets in East London and the infamous Pruitt-Igoe development of St Louis, condemned as a failure and demolished soon after completion. They paid scant attention to the needs and wants of the residents they were meant to serve (e.g. Newman, 1973; Gray, 1976). Many low-income residents found themselves in communities oriented towards the automobile with inadequate access to public transit and other local services, including local grocery shops and government offices (SOURCE). Mass public housing projects which espoused Garden City values, however well-intentioned and carefully designed, were nonetheless socially segregated, sterile and lacking in social mix and stimulation, leaving residents prey to feelings of alienation and despondency. At the same time, urban sprawl continued apace, as suburban communities were mass produced without the civic institutions, pedestrian connections and local, small-scale commerce championed by Mumford and Perry.

Largely middle-class and white, the new suburban communities did not deliver the promised combination of town and country. As time went on, they themselves became breeding grounds for racialised poverty, lacking the urban amenities of

central neighbourhoods and the ample space of newer suburbs.[5] Unlike the old central city, poorer residents of the inner suburbs frequently have to travel far, often on foot, to access good public transit and everyday services like the local grocery store, and endure long commutes to their places of employment which are similarly dispersed (Hulchanski, 2010; Novick, 1979; Lehrer, U., & Wieditz, T., 2009; Murdie, R., & Ghosh, S., 2010)

It would be unfair, however, to blame spatial inequality solely on planners and administrators. In the 20th century, the Chicago School of Urban Sociology observed that as a city's population and economy grew and central business districts expanded, residents of formerly low-income central neighbourhoods, traditionally poorer and recent immigrants, were displaced to the fringe where they faced long commutes. The cyclical nature of investment, disinvestment and reinvestment informs the 'ecological' perspective which views such phenomena as natural and predictable. The process of 'invasion' and 'succession' are driven by a continuing irregular escalation in the values of land dwellings (Park and Burgess, 1925). The Los Angeles School of urbanism, which emerged in the 1980s, challenged the modernist view of the city as the Darwinistic struggle for space held by the Chicago School, for example. The former contended that spatial inequality is an outcome of globalisation and neoliberal hegemony, where public and private investment in cities is directed to spectacular spaces of consumption for the global elite, while other spaces are ignored, intersecting with ethnicity and socio-economic status to create spatial bifurcation along ethnic and class lines.

Whatever the cause of spatial inequality, it is otiose to lay the blame at the feet of planners. Instead, a tempered view should be adopted, in which a well-planned

[5] Social ills plaguing postwar suburbs have been identified in a series of reports on the social conditions of Canadian cities since the 1970s. One such report, entitled *Metro's Suburbs in Transition* (1979), documented the changing social landscape of Toronto's inner suburbs, with growing concentrations of racialized poverty and single-parent households in formerly middle-class suburbs.

neighbourhood is seen to mitigate some of the more harmful impacts of poverty and social alienation.

Urban Planning and Community Today

Community as a geographic entity is at the core of current planning. Diversity is valued: a mix of local community services, a heterogeneous collection of individuals and families (social inclusion), and institutions based on 'central place' theory (Christaller, 1933), properly scaled, some local (e.g. library, child care, primary school, some shops, parks, etc.), others less so (e.g. hospital, office space, higher education, etc.). Following the lead of Lynch, Calthorpe the place-making movement favours density and structure, which encompass notions of 'grain', permeability and meeting places, as instrumental in the formation of physical communities (Heywood, 2011; Bentley et al., 1985). It is up to the planner to seek a proper balance, through modest interventions in the property market and investment in community institutions and the public realm.

Population density is problematic if collective and individual interests collide. Too low a density may inhibit vibrant local commerce and access to community services; too high a density may clash with the individual desire for space and privacy. Planners must strive to 'creatively' insert density, through measures like infill and medium density housing along main arterial with good access to public transport.

The 'structure' of a neighbourhood comprises elements like 'grain', mix, permeability and meeting places, which determine the nature and frequency of neighbours' interactions, and whether they walk, drive or bike to school, work, play or shopping. 'Grain' is the basic building block of our settlements. A fine-grained neighbourhood boasts numerous short street blocks with many intersections, frequent small parks and play areas, and buildings which tend to be 'human scaled': close to one another to reduce walking distance and small in height so as not to overwhelm the pedestrian from street level. Coarse-grained physical environments are

reminiscent of modernist planning, replete with large-scale elements: big street blocks with wide roads, but few intersections; big apartment towers dotting the suburban landscape; larger, but more infrequent park and play areas. 'Permeability' is a measure of the variety and accessibility of routes residents can take to reach a destination, rather than being squeezed into a large arterial road. Gated communities, large setbacks from the street and huge street blocks impinge on a physical community's permeability (Heywood, 2011).

Permeability provides a choice of paths to reach diverse destinations, which become the 'meeting places' where neighbours interact and community is forged. Gated communities, large setbacks from the street and huge street blocks impinge on a physical community's permeability (Heywood, 2011). On the other hand, meeting places can be a lively, diverse commercial street, or a closed-off section of streets or larger sections of the sidewalk, often complemented by the presence of landmarks which create a sense of 'place' unique to the neighbourhood. A mix of uses, built environment characteristics and people create the mutually supportive diversity of cities heralded by Jacobs, Florida and others where new solutions to old problems are coined in an environment of specialization and diversification of talent. Richard Florida, author of the Creative City, alleges that the success of modern cities is due to the wealth of ideas contributed by a so-called 'creative class' (Florida, 2005). This exchange of ideas within socially and culturally mixed communities is presumed to occur 'casually' because of their very diversity (Florida, 2005). For example, in the chance encounter between an artist and an engineer sitting next to each other in a lively café a new product or innovative idea may be born. In Florida's narrative, members of the creative class are attracted to fine-grained, socially and physically mixed neighbourhoods which offer the variety, stimulation, and 'tolerance' they crave.

Public health researchers have found that a neighbourhood's physical characteristics can indirectly influence individual health outcomes either by facilitating socialization and adding levels of collective efficacy and social support, or

conversely, in the case of a deteriorating physical landscape, by acting as a direct stressor on health (Weich et al., 2002; Ellaway and MacIntyre, 2004; Guite et al., 2006). Built environment characteristics often have twin effects. For instance, a well-kept public space can encourage residents to congregate and socialize and at the same time be instrumental in discouraging crime, graffiti and other types of anti-social behaviour, which can act as mental health stressors (Altschuler, 2004; Aneshensel and Sucoff et al., 1996).

'Reshaping' the Environment: Public Housing Redevelopments

Recent large-scale planning initiatives to remedy the failings of past planning interventions include the rebuilding and reshaping of modernist public housing communities. Building on the notion of social mix, 'permeability' and a human-scaled environment, Amsterdam's local community councils favoured progressive remodelling to more mixed land uses and mixed tenure (owners and renters) to mitigate segregated poverty in its public housing communities. The deliberative nature of local community councils in the Netherlands permitted the residents to clearly express their views. At the same time, selective demolition reduced the need for relocation, minimizing the strain on the community deemed cohesive and central to the upbringing of children in the neighbourhood. Today single-family housing constitutes a third of total units in former public housing projects and private buyers are responsible for the sale of a fifth of all dwellings (Heywood, 2011).

Two notions underpin the rebuilding of public housing communities. Firstly, affordable housing should be an overarching 'policy' and not a 'construction programme'; and secondly, the mistakes of 20th century planning can be corrected through selective demolition and reconstruction of communities, in particular, the selective conversion of land within these communities to individual ownership. In Toronto, the ongoing redevelopment of Regent Park, a 1960s modernist public housing slum clearance project, has also adopted the language of social mix, permeability and human-scaled environments. Previously a 19th century Victorian

neighbourhood, Regent Park was first demolished in the 1960s to give way to a new type of neighbourhood in Toronto. Counter-intuitively, social mix was a selling point for the initial slum clearance and redevelopment. Albert Rose, in *Regent Park: A Study in Slum Clearance*, attributed the improved lives of slum dwellers rehoused in the original Regent Park complex to 'diversity of age' and 'diversity in the distribution of income', which works to diffuse 'spirit and morale among those who have been housed' (Mays, 2005). Nonetheless, the redevelopment, while increasing the amount of overall green space, was felt to have cut residents off from their surroundings both physically (because of its dead-end streets, lack of commerce to attract visitors and the conspicuous absence of any actual park despite its name) and socially (100% of units were Rent-Geared-to-Income (RGI)).

Building on the past, the current redevelopment project aims to integrate the local streets into the surrounding downtown grid, incorporate generous park and communal spaces and an award-winning community and arts centre, as well as encourage social mix by reducing the proportion of RGI units from 100% to below 50%. The redeveloped Regent Park, when completed, will comprise 1,500 RGI units, 500 affordable rental units and 3,000 market condominium units (Kipfer & Petrunia, 2009). In the US, federally funded HOPE VI programs have also led to the destruction of thousands of social housing units, replaced with rent subsidies to be used in the private rental market, and in other instances, rebuilt 'socially-mixed' neighbourhoods where public land is sold to private developers in exchange for the building of social housing units to replace some or all of the units which were demolished (August, 2008). Tethering the notion of social capital to the physical planning of communities, recent public housing redevelopment projects are designed both to enhance the vitality and safety of poorer residents and improve their access to middle-class jobs and opportunities.

At the heart of contemporary planning is the ambition to influence urban life in its many aspects, economic, social and environmental, through the design and

management of urban space. Zoning by-laws, official plans, site plan control and architectural guidelines are just some of the tools planners have at their disposal. Wielding such tools, however, can have unintended consequences: encouraging gentrification and displacement in inner-city neighbourhoods for instance, or in the case of standards based land-use controls, creating a climate where developers aim for the least-cost acceptable solution, generating monotonous design and ignoring future use and feasibility. Planners are also subject to external pressures, political, financial or other, which limit their ability to influence the physical and social environment of cities. However, the crucial assumption that the design and management of 'place' can influence the health and vibrancy of a community is rarely contested.

Chapter 3: Neighbourhoods, Methods and Limitations

To explore in depth the relationship between the physical and social environments, and as a corollary, seek to determine what influence, if any, planning has on the character of a community, we chose the neighbourhoods of southwest Montreal, deemed conceptually and statistically appropriate. Conceptually, this area is an ideal choice because it encompasses a wide range of neighbourhoods, from post-industrial, mixed-use districts to post-war suburbia, which display a similarly wide range of socio-economic strata. Statistically, the choice of southwest Montreal is justified because of the wealth of data to which we had access from the Epidemiological catchment area of the Montreal South West (ECA-MSW) survey which, supplemented by Statistics Canada data, provided the variables for the five dependent variables in our regression models. Four major groups of variables were constructed to test the relationship between the physical and social environments: built environment, social environment, socio-economic composition and individual control variables. The independent variables pertained to the built environment and the dependent variables to the social environment, with the control variables taken from the categories of neighbourhood socio-economic and individual characteristics.

3.1 Sample and Setting

The ECA-MSW survey, which took place in the southwest region of Montreal in 2007, totalled 2,433 participants. The initial sample of addresses used to solicit participants was randomly selected from the 2004 property evaluation roll of the City of Montreal. From a total of 47,712 randomly selected addresses 2,433 residents participated. All of the study area's four boroughs were well represented, attracting roughly 600 participants each: Saint-Henri/Pointe St-Charles (612), Lachine/Dorval (603), LaSalle (584), and Verdun (635), for a participation rate of 48.7%, superior to the

median rates reported in epidemiological studies of populations conducted since 2000 (Caron et al., 2012).

Led by McGill's Dr. Jean Caron, the ECA-MSW survey is an ongoing longitudinal survey organised by the Canadian Institute of Health Research Team in Social and Psychiatric Epidemiology, rich both in the large number of respondents and the diversity of neighbourhoods it captured. Although the sociological determinants of mental health were the primary focus of the survey, it also recorded factors relating to the socioeconomic and life path characteristics of individuals, as well as their use of and attitudes to a broad range of health and non-health related services, which we have mined for our study.

3.2 Dependent, Independent and Control Variables

In a quest to establish the relationship between the physical and social environments we ask the question: Does the way individual residents of southwest Montreal perceive their social environment, with reference to social support, collective efficacy, social participation, criminality and ambient hazards, vary from one neighbourhood to the next. If so, what local physical factors in the environment and what characteristics of the individual resident determine their perceptions, when controlling for neighbourhood-level socio-economic demographics? In our present study, we borrow from Weich et al. 2002; Ellaway and MacIntyre, 2004; Guite et al., 2006; Manski, 2005 amongst others in the public health field, to differentiate between three major variable categories contextual (socio-economic demographics), physical environment and social environmental effects.

Regression analysis is employed to establish the relationship between the built and social environments. Since we are primarily interested in the contributory role of the built environment in influencing social outcomes in the local neighbourhoods of southwest Montreal, each of the five social environment variables is separately introduced as the dependent variable for all five regression models. Four major built

environment variables were introduced in the five regression models as the independent variables and were prepared from Statistics Canada data, raster imagery and land use maps. The Neighbourhood Deprivation Index, created by Pampalon et al. (2009) from Census Canada data, serves as the socioeconomic neighbourhood control variable, while individual socio-demographic control variables derived from the ESA-MSW survey, as with our dependent variables, are introduced separately in the regression models.

Social Environment Variables

The dependent variables for each regression model were derived from the ECA-MSW survey, and are consequently perception based. These five dependent variables, comprising the social environment category, are collective efficacy, social support, ambient hazards, social participation index and criminality. All five variables were constructed on the basis of a series of questions where participants were given response options ordered on a Likert-scale (e.g. most likely, likely and least likely). The total score for each variable is computed from subtracting or adding, depending on the question, an individual's response to the series of questions that comprise the perception-based index. A strongly disagree response to a four-point Likert scale would result in a +2 or -2 individual score, to be computed with the other individual scores to form an overall index score, depending on whether the question positively or negatively captures the concept being measured.

Ambient hazards constitute an 11-point scale variable available in the ECA-MSW survey. Ambient hazards are related to the concept of nuisance, and are best measured through a series of qualitative, subjective questions (Caron, 2012). Questions regarding ambient hazards are distinguishable from those dealing with physical neighbourhood satisfaction in that they are concerned with specific negative or anti-social behaviours like graffiti and public drinking. The ambient hazards index measures responses based on a 6-point Likert scale.

Collective efficacy is a combined informal social control and social cohesion measure, consisting of 11 questions, 5 of which refer to measures of informal social control and 6 to social cohesion (Sampson, Morenoff and Earls, 1999). Collective efficacy is a neighbourhood-based measure that captures individuals' perception of the likelihood of support near to where they live. It measures the trustworthiness of neighbours in various situations ("do you think your neighbour can be counted on to intervene in various ways if a fight broke out in front of their house?") and their proclivity to lend assistance ("people around here are willing to help their neighbours.") A 6-point Likert scale is used to test the strength of the respondent's agreement or disagreement with the statement or question.

The Social Provision Scale measures *Social Support*, consisting of 24 questions ranked on a 6-point Likert scale. Unlike collective efficacy, the list of questions for measuring social support is not geographically defined at the scale of the neighbourhood, but includes many of the same type of questions related to the extent of assistance an individual can expect at different points in their life and under various circumstances, whether pleasant or unpleasant, day-to-day or sudden. This characteristic makes it a stronger measure of social support than collective efficacy since most individuals' social networks extend beyond the neighbourhood-level.

The *Social Participation Index* is a series of questions probing the respondent's participation within the formal institutions of the neighbourhood. The index comprises six YES/NO questions measuring participation in various forms of institutions, including the school, the Church, or a community organisation, such as "in the last 12 months, have you participated in a neighbourhood association, resident or community action group".

The *Criminality* variable consists of two questions related to perceptions of crime in the neighbourhood during the day and at night.

Built Environment Variables

A scan of the literature discloses a wide list of possible built environment variables. Parking coefficients, street connectivity measures, population density, service proximity indicators, land use mix indexes, streetscape characteristics or housing condition measures and park space ratios are just some of the many built environment variables found in the literature. For this study, four "objective" physical neighbourhood variables were chosen for inclusion in all five regression models, illustrating four different themes: service proximity, land use, park space, and physical environment condition. The built environment variables were introduced individually within each regression model. The built environment variables were constructed from a different source, mainly Statistics Canada data and land use maps, than the social environment variables. The variables are:

- Count of services in each neighbourhood (e.g. alcohol outlets, pharmacies, food stores, restaurants);
- A vegetation index derived from raster images of the study area;
- A land use mix score computed from land use data provided by the city of Montréal; and,
- The proportion of dwellings that need major repairs (available from Statistics Canada).

Neighbourhood Socioeconomic Composition

In order to control for a neighbourhood's socioeconomic composition, we employ the neighbourhood Deprivation Index, a composite index Pampalon et al. (2009) created for health planning in Quebec. It is based on the idea that the social determinants of health are multidimensional and cannot be captured from income-derived measures alone. The concept of multiple domains of deprivation, first proposed by Townsend (1979), defines poverty as a lived experience where a lack of

resources of various kinds causes people and families to experience deprivation, while also preventing their escape.

The authors of the index had access to micro level Census data. A Principal Component factor analysis determines each variable's contributory weight to the overall deprivation index. Both a social and material deprivation component is calculated from the Dissemination Area (DA) scale with data provided by Statistics Canada in their 2006 Census data. A higher score translates into a higher relative deprivation relative to the Census Metropolitan Area average. The material component comprises the proportion of persons without a high school degree, the ratio of employment to population and the average personal income. The social component comprises persons living alone, post-marriage persons and single-parent families.

Individual Controls

A total of 11 socio-demographic variables derived from the ECA-MSW survey were included as individual controls in our models. They are: sex, housing tenure, spirituality, French as a first language, marital status, household income, length of residence, age, number of bedrooms, identification as aboriginal and education (secondary diploma).

3.3 Methods

Five regression models were constructed to best predict each social environment outcome (the dependent variable) based on 16 factors comprising a neighbourhood deprivation index (neighbourhood socio-demographic control variable); the four 'objective' built environment variables, land use mix, vegetation, deteriorated housing, count of day-to-day services; and the individual controls. The five social environment variables were tested separately and comprised ambient hazards, collective efficacy, social participation, criminality and social support.

In this study, two related hypotheses are tested:

1. Ambient hazards and criminality, introduced separately into two different regression models, are **positively** associated with a higher material and social neighbourhood deprivation score, and proportion of dwellings requiring major repairs, and **negatively** associated with a greater degree of land use mix, vegetation and count of services, when controlling for the individual characteristics of ECA-MSW participants.

2. Collective efficacy, social support and social participation introduced separately into three different regression models, are **negatively** associated with a higher material and social neighbourhood deprivation score, and proportion of dwellings requiring major repairs, and **positively** associated with a greater degree of land use mix, vegetation and count of services, when controlling for the individual characteristics of ECA-MSW participants.

Based on the literature introduced in the two preceding chapters, including Neighbourhood Disorganization Theory, Putnam's interpretation of social capital and Kevin Lynch's urban forms, the theorized linkages can be summarised as follows:

- When concentrated in low-income neighbourhoods (contextual), disadvantaged households have inadequate levels of social support to escape poverty (social environment) and/or provide a healthy environment for raising children (social environment);
- Disadvantaged households lack the resources to maintain a decent physical environment;
- Alternatively, disadvantaged households are streamed into less desirable communities to begin with the actual physical condition of the neighbourhood has little to do with the resources available to residents; and,

- A poor physical environment may discourage collective socialization, while a poor social environment may lead to less pride in 'place' and consequently, neglect of the physical environment.

Finally, a caveat with regards to our two main categories of variables: the built and social environments. In reality, the conceptual boundaries that separate the social from the built environment are fuzzy. Social and physical environmental effects are inter-related and likely influenced by the socioeconomic composition of the neighbourhood (contextual effect) (Cohen et al., 2008). However, distinguishing between contextual and compositional effects allows us to determine whether differences across areas are due to the characteristics of the areas themselves, or simply a result of the different types of individuals living in the various areas (Diez-Roux, 2001; Rauh et al., 2001). Moreover, constructing our dependent and independent variables from different data sets, with the dependent variables extracted from perception based indices, and the independent variables from 'objective' data sets, allows us to avoid spurious correlations between perceptions of the built and social environments. Features of the built environment may not only influence social interactions within a community, but also residents' perceptions of the social environment.

Empirical research into the links between the social and physical environment, and neighbourhood and individual-level health outcomes has produced studies of varying rates of collective efficacy, (Cohen et al., 2008), crime rates (Chaw and McKay, 1942) and substance abuse (Seth et al., 2012). As our primary aim is to explore the role of the built environment in creating favourable conditions for a healthy and vibrant community, we focus on the three major groups of contributory variables - contextual, physical and social, and environmental effects rather than on health. The interplay among the three groups of contributory factors and health is conceptually difficult to ascertain and beyond the scope of our research. Ignoring the health links, a well-maintained housing and commercial stock, land use mix, parks and recreational

facilities, access to healthy food, presence of community and religious institutions, and more, are all characteristics of the built environment with the potential to influence the social environment (Cohen et al., 2008; Hill and Peters, 1998; Cummins et al., 2005; MacIntyre et al., 2002).

3.4 Operative Definition of 'Neighbourhood'

All neighbourhood-level variables were derived from a 500 metre isometric buffer around every single survey respondent, based on a spatial definition of a 'neighbourhood' (see **Figure 1**). Three of the major categories of variables, the built and social environment, and socio-economic composition categories, were transposed onto the 500m buffers as our neighbourhood variables. The individual variables were introduced separately into our regression models as individual-level controls and were therefore not transposed onto the 500-metre buffer. Where neighbourhood-level variables were computed from Statistics Canada data, the proportion of the DA within the 500-metre buffer determined its contributory weight to the average total neighbourhood score. Industrial areas, major infrastructure areas, including the A-20 highway, and land outside the study area were excluded from the buffer calculation to provide a more consistent definition of a residential neighbourhood. The vegetation index, derived from raster data and the land use mix index, calculated using Network Density analysis in ArcGIS, were similarly transposed onto the 500 metre buffer with the intersect tool in ArcGIS. This fluid definition of a neighbourhood owes more to a spatial conception of neighbourhoods than to census tracts with strictly defined boundaries. However, this flexibility in definition also allows for the possibility of spatial autocorrelation between the independent and dependent variables. Alternatively, a hierarchical regression model, with the neighbourhood variables constructed at the Census Tract level, would have separately introduced the individual-level variables.

Figure 1: Intersect of Dissemination Area data and 500-metre buffer

The image above demonstrates conceptually how the area of a DA within the 500-metre buffer, as a percentage of the total DA, contributes to the overall average score.

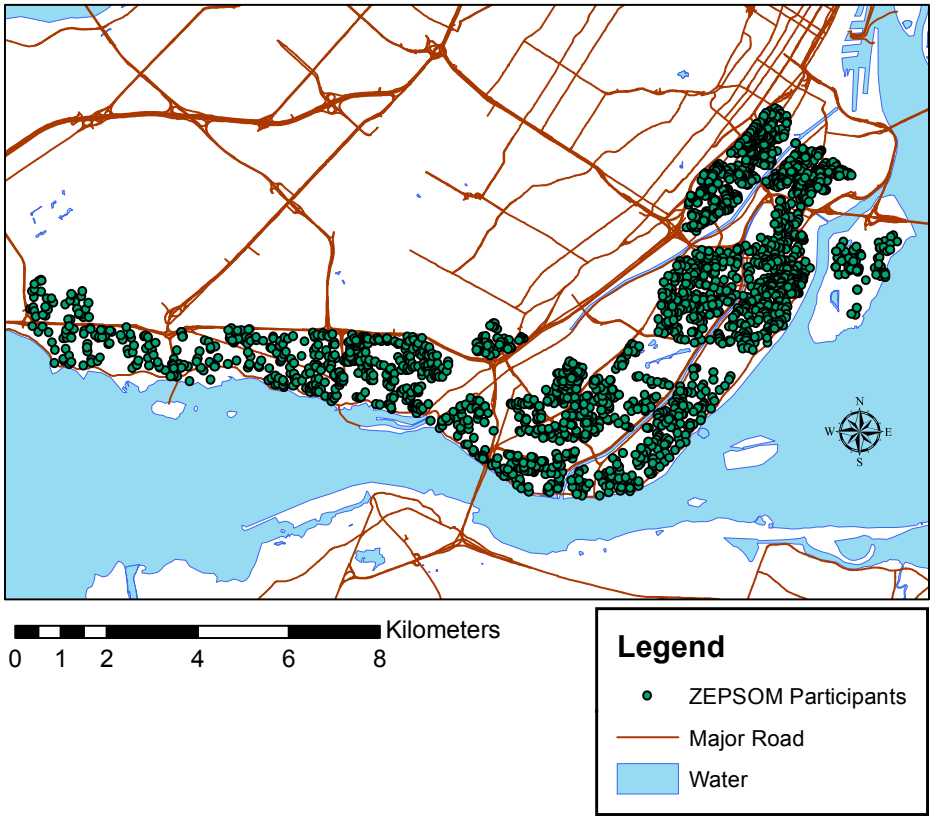
3.5 Study Area

The study takes place in a large geographic area of southwest Montreal, representing a diverse range of neighbourhoods from 19th century post-industrial neighbourhoods to more recent suburban development, particularly in and around Dorval towards the western limits of the study area (see **Figure 2**). The physical form varies from a more mixed-use, 19th century grid with Jacobsean characteristics, such as the tight, small street grid, to a more one-dimensional land use pattern reminiscent of post-war era residential development. However, the concentration of industry and other less desirable enterprises near to the Airport, at the western peripheries of the neighbourhood, challenges the stereotypical notion of suburban communities as single-use residential communities.

Generally, the eastern portion of the study area is more urban, while the western half is more suburban, typifying post-war residential construction. Recent re-construction next to the Lachine Canal has changed the character of residential communities immediately adjacent, with loft conversions and public realm

enhancements introducing a distinct residential character to an area that was predominately industrial. Three major highways intersect the study area: Bonaventure to the east, the A-20 which criss-crosses the northern periphery, and the A-15. The intersection of the A-20 and the A-15, called the Turcot Interchange, occupies a large area of 'dead space' (with few uses other than transportation), and will soon be under re-construction. The Lachine Canal and the St. Lawrence River, ringed with park space, are two important natural landscape features that lend much of the area a distinct identity as waterfront communities.

Figure 2: Location of Survey Participants



Similarly, the social characteristics of the area vary strikingly from neighbourhood to neighbourhood and challenge preconceptions about the gentrification of post-industrial neighbourhoods and suburban living. Across Montreal, there is a trend towards socio-spatial polarization over the past 30 years with

greater concentrations of spatially differentiated poverty and wealth (Rose & Twigge Molecey, 2014). A large clustering of single-parent households and immigrant families, associated with precarious employment in service industries, is a significant contributory factor to the concentration of low-income neighbourhoods in southwest Montreal (Rose & Twigge Molecey, 2014). While older, mixed-use neighbourhoods to the east of the study area in Saint-Henri and Pointe Saint-Charles have experienced 'incomplete gentrification', with average incomes rising rapidly since the 1970s, household incomes in both districts remain below the CMA average (Walks and Maaranen, 2008).[6] Rising incomes in these two districts can be partially attributed to their proximity to the Lachine Canal and the conversion of old industrial buildings along its length into residential lofts (Rose & Twigge Molecey, 2014).

However, in contrast to other mixed-use, formerly working-class districts in Montreal like the Plateau, Saint-Henri and Pointe Saint-Charles are still home to a large proportion of non-francophone speaking, immigrant and single-parent households associated with lower socio-economic status, challenging the thesis of entrenched gentrification in inner-city areas, at least in the Montreal context (Walks and Maaranen, 2008). In fact, both districts, along with Verdun[7], are home to neighbourhoods that are either low-income (20-40% below the CMA mean) or very-low income (40-70% below the CMA mean) (Rose & Twigge-Molecey, 2014).[8] LaSalle, also a 19th century neighbourhood, is a mix of middle and low-income neighbourhoods, with only one very low-income neighbourhood (Rose & Twigge Molecey, 2014). In the western section of the study area in districts like Dorval, and Nun's Island, neighbourhoods have remained largely middle-income and even high income relative to the CMA mean.

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[6] Whereas 'complete gentrification' refers to neighbourhoods where average incomes have risen from below to above the CMA average over time.

[7] Not as relatively low-income as Pointe-Saint Charles or Saint-Henri in the 1970s, Verdun has not experienced rapidly rising incomes since the 1970s.

[8] Rose & Twigge Molecey (2014) adopted Hulchansky's (2010) typology of the 'three cities' differentiating neighbourhoods as low, medium or high income based on their relative average income compared to the CMA mean.

Chapter 4: Results and Discussion

Prior to conducting the analysis, a series of descriptive statistics and graphs were generated to test linear regression assumptions, including: normality of residuals, linear relationship between independent and dependent variables, homoscedasticity and multicollinearity. Four of the five regression models violated the linear regression assumptions of normality of residuals and homoscedasticity. Since the dependent variables were constructed from count data from the ECA-MSW survey, with a large number of zero scores, it was determined that the Poisson regression type model provided a better overall fit for four of the regressions, except the model with collective efficacy as the dependent variable. We accounted for over-dispersion in one Poisson regression model, with ambient hazards as the dependent variables, by introducing a scale weight variable, which has the effect of making the significant levels more conservative. The two regression models with social participation and criminality as the dependent variables proved to lack predictive capacity, and are not shown. That is, no correlation of significance was found between either one of the two dependent variables, social participation and criminality, and our independent variables. The results of the three well-fitted regression models are presented and evaluated here.

Two of the three regression models, with ambient hazards and collective efficacy as dependent variables, revealed clustering of the residuals unaccounted for by the respective models. It is reasonable to infer that certain elements missing from the built environment, rather than spatial proximity, are the cause: additional built environment variables such as the presence of large-scale infrastructure like highways or mega-hospitals, and population density. Because of the overlap caused by establishing the 500-metre buffer around each survey respondent as the scale of the

neighbourhood, the potential omission of certain built environment features cannot be ruled out entirely. Although our results are instructive and our interpretation has merit, further research and refinement of the models, which are beyond the scope of this research, are required to correct for its limitations.

The results of the three well-fitted regression models, excluding social participation index and criminality as the dependent variables, are tabulated below. Only the independent variables that were found to have a significant association with the dependent variable being tested are included in the three tables. While Tables 1 and 3 are Poisson regression models, Table 2 is a linear regression model. Thus the presentation of structure and tests changes from table to table.

Table 1: Ambient hazards as the dependent variable

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	3.480	.1770	3.134	3.827	386.845	1	.000	32.473	22.956	45.935
Age - Control	-.006	.0010	-.008	-.004	37.776	1	.000	.994	.992	.996
Length of residence - Control	.046	.0091	.028	.063	25.285	1	.000	1.047	1.028	1.066
Material NDI	1.724	.5164	.712	2.736	11.151	1	.001	5.609	2.039	15.431
Social NDI	1.753	.3274	1.111	2.395	28.679	1	.000	5.773	3.039	10.965
Land Use Mix	.419	.0859	.250	.587	23.762	1	.000	1.520	1.285	1.799
Vegetation	-1.494	.2962	-2.074	-.913	25.427	1	.000	.225	.126	.401
Major repairs	.023	.0037	.016	.030	39.408	1	.000	1.023	1.016	1.031
Libraries	.089	.0218	.046	.132	16.604	1	.000	1.093	1.047	1.141
Convenience Stores	.020	.0063	.008	.032	10.133	1	.001	1.020	1.008	1.033
Restaurants	-.017	.0064	-.029	-.004	6.866	1	.009	.983	.971	.996
Specialty Stores	.014	.0060	.002	.026	5.287	1	.021	1.014	1.002	1.026
Community Cultural Centres	.018	.0044	.009	.027	16.830	1	.000	1.018	1.009	1.027

The b score shows the direction and strength of the relationship between the independent and dependent variables. The standard error of the residuals, the significance level and a Wald chi-square test confirming the existence of a statistically significant relationship between the dependent and independent variables, are also shown. In general, a correlation between an independent and dependent variable is significant when the reported p-value in the significance column is below .05.

Table 2: Collective efficacy as the dependent variable

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	20.062	1.953		10.272	.000		
Community Cultural Centres	.150	.044	.087	3.388	.001	.836	1.196
Tenure - Control	-1.068	.311	-.090	-3.430	.001	.798	1.253
French - Control	1.297	.286	.107	4.537	.000	.972	1.029
Material NDI	18.340	5.759	.080	3.185	.001	.854	1.171
Social NDI	9.837	3.513	.073	2.800	.005	.797	1.255
Spirituality - Control	-.851	.287	-.071	-2.967	.003	.955	1.047
Land Use Mix	3.821	1.407	.069	2.715	.007	.844	1.185
Secondary Diploma - Control	1.698	.688	.058	2.469	.014	.988	1.012
Age - Control	-.025	.012	-.053	-2.170	.030	.912	1.097

As a linear regression model, the format and content of Table 2 differs from the other two tables. Both the unstandardized and standardized coefficients for the relationship between each independent variable and the dependent variable are shown. The collinearity statistics showing the Tolerance and VIF values, with a VIF statistic near 1.0, suggest there is little multicollinearity between the independent variables in the regression model.

Table 3: Social support (social provision scale) as the dependent variable

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	4.123	.0471	4.031	4.216	7666.119	1	.000	61.758	56.313	67.729
Sex - Control	-.034	.0058	-.045	-.023	34.564	1	.000	.966	.956	.978
Age - Control	-.002	.0003	-.003	-.002	61.308	1	.000	.998	.997	.998
French - Control	.026	.0062	.014	.038	18.148	1	.000	1.027	1.014	1.039
Married - Control	.017	.0064	.005	.030	7.288	1	.007	1.018	1.005	1.030
Spirituality - Control	.018	.0059	.007	.030	9.831	1	.002	1.019	1.007	1.030
Income - Control	.030	.0039	.023	.038	60.610	1	.000	1.031	1.023	1.039
Secondary Diploma - Control	.039	.0148	.010	.068	6.940	1	.008	1.040	1.010	1.070
Social NDI	-.165	.0861	-.334	.004	3.661	1	.056	.848	.716	1.004
Land Use Mix	-.050	.0208	-.090	-.009	5.728	1	.017	.952	.914	.991
Pharmacies	-.010	.0040	-.018	-.002	6.388	1	.011	.990	.982	.998
Medical Clinics	.027	.0090	.009	.044	8.760	1	.003	1.027	1.009	1.045

The b score shows the direction and strength of the relationship between the independent and dependent variables. The standard error of the residuals, the significance level and a Wald chi-square test confirming the existence of a statistically significant relationship between the dependent and independent variables, are also shown. In general, a correlation between an independent and dependent variable is significant when the reported p-value in the significance column is below .05.

Table 4: Expected Relationships

Hypothesis 1	Hypothesis 2
Ambient hazards and criminality, introduced separately into two different regression models, are positively associated with a higher material and social neighbourhood deprivation score, and proportion of dwellings requiring major repairs, and negatively associated with a greater degree of land use mix, vegetation and count of services, when controlling for the individual characteristics of ECA-MSW participants.	Collective efficacy, social support and social participation introduced separately into three different regression models, are negatively associated with a higher material and social neighbourhood deprivation score, and proportion of dwellings requiring major repairs, and positively associated with a greater degree of land use mix, vegetation and count of services, when controlling for the individual characteristics of ECA-MSW participants.

Tables 1, 2 and 3 show the results for the regressions measuring the relationship between the neighbourhood composition and the built environment input variables and the social environment outcomes: ambient hazards, collective efficacy and social support. Table 4 shows our two hypotheses and the expected relationship between the main categories of variables.

As expected, the material and social neighbourhood deprivation scores were positively correlated with the reported presence of ambient hazards, with a b value of 1.724 and 1.753 respectively. Surprisingly, the presence of material (beta=.08) and social deprivation (beta=.073) in a neighbourhood is positively associated with higher levels of collective efficacy. That is, collective efficacy is strongest in neighbourhoods deemed to be materially and socially deprived. Conversely, social deprivation is negatively correlated with social support (b=-.165).[9]

Results for the impact of built environment variables on the social environment are mixed. A high degree of land use mix (b=.419) and deteriorated housing (b=.023)

[9] Since the reported p-value is marginally above .05, a degree of caution is in order when interpreting the correlation between neighbourhood social deprivation and social support.

are associated with a higher reported incidence of ambient hazards, while the opposite is true for the extent of vegetation (b=-1.494). Land use mix is associated with higher levels of collective efficacy (beta=.069), but lower levels of social support (b=-.050). Somewhat counter-intuitively, the presence of community cultural centres in a neighbourhood is correlated with a higher incidence of ambient hazards (b=.018) and a higher level of collective efficacy (beta=.087).

Discussion

Our results confirm that a relationship exists between a neighbourhood's social composition, and its built and social environments. Neighbourhood composition (material and social deprivation) and the built environment (land use mix, deteriorated housing and vegetation) are all associated either positively or negatively with one of the three following social environment variables: ambient hazards, collective efficacy and social support. While it is tempting to infer a direct causal relationship between the built and social environments, in reality the causal processes which link them are complex and multi-directional. At the same time, the results suggest the influence of place is disproportionately felt by the impoverished, who rely on local, spatially-bound social networks to a greater degree than others.

The Link between the Built and Social Environments

In neighbourhoods that were relatively more deprived, survey respondents reported a higher incidence of ambient hazards and lower levels of social support, as measured by the social provision scale. This seems to confirm the assumed negative consequences of spatially concentrated poverty predicted by social disorganization theory (e.g. Wilson, 1987; Portes and Landolt, 2000; Massey and Denton, 1993). Without the positive social norms and behaviour generally assumed to characterize less deprived neighbourhoods, residents are more likely to engage in asocial behaviour. However, upon deeper analysis, a more equivocal picture emerges. Collective efficacy, an alternative, geographically defined measure of social support, was *positively* associated with relatively deprived neighbourhoods.

Similarly, although land use mix is associated with both a higher level of ambient hazards and lower levels of social support, it is positively correlated with levels of collective efficacy. Moreover, service proximity indicators, with the exception of restaurants, are linked to higher rates of ambient hazards. If mixed-use, dense neighbourhoods are positively associated with ambient hazards, this could be a result

of an initial screening of low-income residents into such neighbourhoods, which have a history of poverty and exclusion, and where residents are more prone to engage in low-level criminality captured by the index (e.g. graffiti, break and enter, etc.). Pointe-Saint Charles for instance, has a long history as a receptor of poor immigrants who flock to the neighbourhood's relatively affordable housing stock (Rose & Twigge-Molecey, 2013). From its early days as the site of a large Irish community, to its more recent incarnation as a home to diverse immigrants from French-speaking countries, including for example Haiti, the presence of specific cultural and social institutions has provided emotional, economic and social support to residents. Various neighbourhoods included in the study, Saint Henri and parts of Verdun for example, also testify to the importance of local, neighbourhood-bound cultural and social environments in providing as sense of security and belonging for vulnerable populations (Rose, 2004).

In fact, the forging and maintenance of local, spatially bound social networks can be impeded in neighbourhoods undergoing significant social and economic upheaval. Writing on mixed-income developments in the United States, Chaskin and Joseph (2009) cite studies that show social interactions between different groups of different income levels is limited. In certain instances, spatial proximity of disparate population groups can lead to greater social distance, with a conscious differentiation of the 'Other' as alternately threatening or unwanted (Dansereau et al., 2003). In the southwest Montreal context, Rose (2004) found that casual, unplanned interactions between recent condominium dwellers and long-established renters were uncommon. The links found between the physical and social environments in southwest Montreal should not be interpreted as an argument for or against social mix. Quite the contrary, our results suggest the influence of place is most important for lower income groups in *relatively disadvantaged neighbourhoods*.

A deficit of social ties with neighbours could also symptomize a form of social exclusion. A sense of belonging is often considered crucial to an individual's life

course and ability to access and secure opportunities for social and economic advancement (e.g. Granovetter, 1974; Cohen et al. 2008; Brismar & Bergman, 1998). Residents of a neighbourhood who express feelings of exclusion are more likely to interpret their surroundings as hostile and unfriendly, to the detriment of their health and ability to advance socially and economically. In the gentrification literature, physical proximity is not always found to lead to social proximity (e.g. Dansereau, Germain and Eveillard, 1997; Blockland, 2003; Duff, 2000).

With respect to the extent of vegetation, the only association of significance is a negative correlation with ambient hazards. Although there is a broad range of literature linking the level of vegetation in a neighbourhood to its desirability, there is little to suggest that actual vegetation, in the form of tree cover, shrubs and other greenery, serves to deter crime. On the other hand, the physical condition of the neighbourhoods as measured by Statistics Canada major repairs index, is positively associated with ambient hazards. This lends credence to environmental crime deterrence theory which points to the physical environment as a determinant for the level of crime in a neighbourhood (Newman, 1973). The 'broken windows' theory was used to justify low-level crime crackdown strategies in New York City during the 1990s, which targeted vandals, graffiti 'street artists', and other minor 'criminals' (Atlas, 2008). Again, since both material and social deprivation are also positively associated with ambient hazards, the link between ambient hazards and the physical condition of the neighbourhood could alternatively suggest a screening process where low-income individuals are streamed into less desirable neighbourhoods.

Spatial Captivity and Social Capital

The interaction we discovered between social support and collective efficacy, surprising as it is, does not fit neatly into a simple causal scenario, but suggests that more complex causal mechanisms are at work than those proposed by social disorganization theory. Social support can be conceived as a personal form of "social

capital" that is increasingly a-spatial; social networks transcend neighbourhood boundaries and, for some, span the globe. At the same time, access to material and social resources is unequally distributed among individuals and across neighbourhoods (Hulchaski, 2007; Ley and Smith, 1997). Vulnerable populations who lack the means to integrate themselves into diverse, highly mobile social networks can be argued to feel the effect of place disproportionately. For those streamed into relatively deprived neighbourhoods, collective efficacy, as a form of local social support, is crucial to developing social ties and imbibing positive norms, precisely because the ability of residents to communicate across space is constrained. In a study of French neighbourhoods, respondents with particular characteristics, e.g. single-family households, the working class, the less educated, and persons collecting welfare or employment insurance; were more likely to interact with the physical surroundings of their neighbourhoods in a 'traditional' manner, forging and maintaining social ties with neighbours; the basic building block for the social networks of respondents (Authier, 2005). Interestingly, the study makes a weaker case for the importance of neighbourhood-level social institutions and built environment characteristics for middle-income and high-income groups.

This phenomenon is captured by the term 'spatial captivity', whereby low-income residents in poorer neighbourhoods are spatially bound to a smaller geographic area than higher-income residents because of lack of financial means, poor access to public transit, and spatial segregation. In a study of social networks in gentrifying neighbourhoods in Quebec City, Fortin (1988) confirmed the existence of social captivity where the spatial connotation of community was more constrained for low-income residents than others who were studied. Similarly, research conducted in Sweden on social networks found that the Jacobsean notion of the local community tied to the neighbourhood was of greater significance to blue-collar workers than white-collar workers, whose 'weak ties' could at times expand across the globe and

trigger more opportunities for social and economic advancement (Henning & Lieberg, 1996).

Our findings suggest, in southwest Montreal at least, residents of low-income neighbourhoods that also exhibit characteristics of a mixed-use, dense community are more likely to socialize with neighbours and express a sentiment of stronger social cohesion. This has important consequences for the links found between the built environment and collective efficacy in particular. For instance, the presence of community cultural centres is positively associated with higher levels of collective efficacy in more deprived neighbourhoods where community resources play a larger role in individuals' lives. Since relatively deprived neighbourhoods are also correlated with a greater number of ambient hazards, the positive association between community centres and ambient hazards is not surprising.

The relative importance of larger-scale social contacts and neighbourhood-level social contacts is a point of contention in the social network literature. In a study of a gentrifying neighbourhood in London, Bridge (1994) found working class residents were no more dependent on local ties than middle-class residents. In fact, research confirms that city dwellers of most income and social statuses maintain social ties at different spatial levels, both at the neighbourhood and extra neighbourhood levels (Guest, 1985). The religious and cultural networks of minority cultures, for instance, tend to include citywide institutions which pool social and monetary resources, and support members in a myriad of ways, such as providing legal advice, employment contacts, social support and more. However, for the elderly, the poor, and single-parent families, the neighbourhood plays a larger role in maintaining a city resident's social network (Guest and Wierzhicki, 1999). Our findings suggest community cultural centres, libraries, and a fine-grained, physically mixed use environment are crucial to fostering collective efficacy and by extension, feelings of inclusion in poorer neighbourhoods.

Conclusion

The results of this study have been valuable in confirming a suspected link between a neighbourhood's physical and social environments. The perceptions of residents of southwest Montreal, with respect to social support, collective efficacy and ambient hazards, differ from one neighbourhood to the next. Land use mix, service proximity, levels of vegetation and physical condition of housing were all found to influence the social environment in different, yet complex ways. In particular, our modelling has yielded four notable results:

1. Material and social deprivation are associated with a higher incidence of ambient hazards, lower levels of social support, but higher levels of collective efficacy;
2. Land use mix and deteriorated housing are positively correlated with ambient hazards and negatively correlated with vegetation;
3. Land use mix is associated with higher levels of collective efficacy, but lower levels of social support; and,
4. Community centres are positively associated with collective efficacy and ambient hazards

By constructing a fluid definition of a neighbourhood based on a 500-metre buffer around each survey respondent, we were able to relate the notion of neighbourhoods with spatial proximity rather than strict boundaries that ignore the relative position of each survey respondent. A multi-dimensional measure of economic and social deprivation provided a more robust and complete measure of neighbourhood composition than income indices alone. The construction of dependent variables with Statistics Canada data and ArcGIS allows us to separate perceptions of the social environment, our independent variables, from our

compositional and physical environment measures, reducing the risk of autocorrelation.

However, as a quantitative analysis of the 'physical' and 'mental' space of neighbourhoods, the scope of the study has been limited. Informative as they are, the results do not tell us why certain associations exist, between collective efficacy and land use mix for example. A logical next step would be to conduct an in-depth qualitative study of southwest Montreal residents to explore the causes of the conclusions we have reached. Comparing and contrasting the physical character of different neighbourhoods through field studies to corroborate the results found in our analysis could overcome the potential bias for spatial autocorrelation found in our results. Additional built environment indices such as population density, street connectivity, parking ratios could be included in future regression models.

Nonetheless, the study has also yielded some unexpected results. While the relationships established between the physical and social environment variables are not inconsequential, their complexity suggests an overlap in different causal loops, such that relationships seem at times to be working in contradiction with one another. Thus, while materially and socially deprived neighbourhoods are associated with a higher incidence of ambient hazards and lower levels of social support, collective efficacy is positively correlated with material deprivation. Could it be that the influence of 'place' or the physical aspect of a neighbourhood is more important to materially or socially deprived groups who lack the means to 'transcend' space to the same degree as their wealthier neighbours? Whatever the answers to the questions we have posed, one thing is clear. Place matters.

Bibliography

Abada, T., Hou, F., & Ram, B. (2007). Racially mixed neighborhoods, perceivedneighborhood social cohesion, and adolescent health in Canada. *Social Science & Medicine, 65*, 2004-2017.

Alexander, C. (1964). *Notes on the Synthesis of Form*. Cambridge: Harvard University Press.

Altschuler, A., Somkin, C., Adler, N. (2004). Local services and amenities, neighborhood social capital, and health. *Social Science & Medicine, 59*(6), 1219-29.

Aneshensel, C., and Sucoff, C. (1996). The Neighborhood Context of Adolescent Mental Health. *Journal of Health and Social Behavior, 37* (4), 293-310.

Appleton, J., (1996). *The experience of landscape* (Rev. ed.). London: Wiley.

Arnstein, S. (1969). A Ladder of Citizen Participation. *Journal of the American Institute of Planners, 35*(4), 216-224.

Atlas, R. (2008). *21st Century Security and CPTED: Designing for Critical Infrastructure Protection and Crime Prevention*. CRC Press.

August, M. (2008). Social Mix and Canadian Public Housing Redevelopment: Experiences in Toronto. *Canadian Journal of Urban History, 17*(1), 82-100.

Authier, J.-Y. (2005). "Le quartier : Un espace de proximité." In *La proximité: construction politique et expérience sociale*, edited by A. Bourdin, A. Germain and M.-P. Lefeuvre, 207-220. Paris: L'Harmattan.

Barnes, J. (1954). Class and Committees in a Norweigan Island Parish. *Human Relations, 7,* 39-58.

Bélanger, Hélène. (2012). The meaning of the built environment during gentrification in Canada. *Journal of Housing and the Built Environment*, *27* (1): 31-47.

Bell, D. (1972). The Cultural Contradictions of Capitalism. *Journal of Aesthetic Education, 6* (1/2), 11-38.

Bellah, R., Madsen, R., Sullivan, W., Swidler A., and Tipton, S. (1985). *Habits of the Heart: Individualism and Commitment in American Life*. Los Angeles: University of California Press.

Bentley, I., Alcock, A., Murrain, P., McGlynn, S., and Smith, G. (1985). *Responsive Environments a Manual For Designers*. London: Architectural Press.

Berkowitz, S.D. (1982). *An Introduction to Structural Analysis: The Network Approach to Social Research*. Toronto: Butterworth.

Blokland, T. (2003). Does Neighbourhood Matter? Social Networks, Social Support and Neighbourhood Diversity in Rotterdam, the Netherlands and New Haven, U.S.A. *Paper for the RC21 Conference "Challenging Urban Identities," University of Milan-Bicocca, Milan, Italy 25-27 September 2003.*

Bridge, G. (1994). Gentrification, class and residence: a reappraisal. *Environment and Planning D : Society and Space 12* (1):31-51.

Brieger, R. (1974). The Duality of Persons and Groups. *Social Forces, 53*(2), 181-190.

Brismar B, and Bergman B. (1998). The significance of alcohol for violence and accidents. *Alcoholism: Clinical and Experimental Research, 22*(7), 299S 306S.

Calthorpe, P. (1993). *The Next American Metropolis: Ecology, Community and the American Dream*. Princeton: Princeton Architectural Press.

Calthorpe, P., and Fulton, W. (2001). *The Regional City*. Washington, DC: Island Press.

Caron, J. (2012b). Predictors of quality of life in economically disadvantaged populations in Montreal. *Social Indicators Research,* 107, 411-427.

Caron, J. and Liu, A. (2010). Factors Associated with Psychological Distress in the Canadian Population: A Comparison of Low-Income and Non Low-Income Sub-Groups. *Canadian Mental Health Journal, 47*(3), 313-330.

Chamboredon, J.-C., and Lemaire, M. (1970). Proximité spatiale et distance sociale: les grands ensembles et leur peuplement. *Revue français de sociologie* XI (1): 3-33.

Christaller, W. (1933). *Central Places in Southern Germany* (translated by Baskin C (1966)). Prentice-Hall, Englewood Cliffs, NJ.

Cohen, C., Doyle, W., Turner, R., Alper, C. and Skoner, P. (2000). Sociability and

susceptibility to the common cold. *Psychological Science, 14*(5), 389-395.

Cohen, D., Inagami, M. and Finch, B. (2008). The built environment and collective efficacy. *Health Place, 14*(2), 198-208.

Cummins, S., Stafford, M., Macintyre, S., Marmot, M. and Ellaway, A. (2005). Neighbourhood environment and its association with self rated health: evidence from Scotland and England. *Journal of Epidemiology of Community Health, 59*, 207-213.

Dalgard, O. and Tambs, K. (1997). Urban environment and mental health. A longitudinal study. *British Journal of Psychiatry, 171*, 530-536.

Dansereau, F., Charbonneau, S., Morin, R., Revillard, A., Rose, D., and Seguin A.-M. (2002). La Mixité Sociale en Habitation. edited by Service de l'habitation de la Ville de Montréal: Institut National de Recherche Scientifique - Urbanisation, Culture et Société.

Dansereau, F., Germain, A., and Eveillard, C. (1997). "Social mix : old utopias, contemporary experience and challenges." *Canadian Journal of Urban Research 6* (1): 1-23.

Derrida, J. (1976). *Margins of Philosophy*. Chicago: University of Chicago Press.

Derrida, J. (1993). Structure, Sign and Play in the Discourse of the Human Sciences. *A postmodern reader*, 243-242.

De Tocqueville, A. (1945). *Democracy in Action, 2 Vols*. New York: Vintage

Diez-Roux, A. (2001). Investigating neighborhood and area effects on health. *American Journal of Public Health, 91*, 1783-1789.

Dionne, E.J. (1998). *Community Works: The Revival of Civil Society in America*. Washington DC: The Brookings Institution.

Duff, J. (2000). Densification résidentielle en quartier central: le cas du Mile-End à Montréal. Research Report, External Grants Program. Ottawa: Canadian Mortgage and Housing Association

Durkheim, E. (1893). *The Division of Labour in Society*. Simon and Schuster, 2014. New York: Free Press.

Ellaway, A. and Macintyre, S. (2004). Schools in socially contrasting neighbourhoods.

Journal of Epidemiology & Community Health 58, 2151-1027.

Etzioni, A. (1993). *The Spirit of Community: The Reinvention of American Society*. New York: Crown Publishers Inc.

Fairfield, J. (1994). The Scientific Management of Urban Space Professional City Planning and the Legacy of Progressive Reform. *Journal of Urban History, 20*(2), 179-204.

Florida, R. (2005). *Cities and the Creative Class*. New York: Routledge.

Forester, J. (1999). *The deliberative Practitioner: Encouraging Participatory Planning Processes*. US: MIT Press.

Foucault, M. (1979). *Discipline and Punish: The birth of the prison*. (Surveiller et punir: Naissance de la prison, Gallimard, 1979). Translated by Alan Sheridan (1977). London: Penguin Books.

Fortin, A. (1988). Du voisinage à la communauté? . *Cahiers de recherche sociologique*, *6* (2):147-159.

Foucault, M. (1980). *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*. New York: Random House.

Gillette, H. (1983). The Evolution of Neighbourhood Planning From the Progressive Era to the 1949 Housing Act. *Journal of Urban History, 9*(4), 421-444.

Granovetter, M. (1974). The Strength of Weak Ties. *The American Journal of Sociology, 78*(6), 1360-1380.

Gray, F. (1976). Selection and Allocation in Council Housing. *Transactions of the Institute of British Geographers, 1*, 34-36.

Guest, Avery M. (1985). The mediate community: The Nature of local and extra-local ties within the Metropolis. *Paper presented at the annual meeting of the American Sociological Association, Washington D.C., August*.

Guest, A. M., and S. K. Wierzbicki. (1999). Social Ties at the Neighbourhood Level: Two Decades of GSS Evidence. *Urban Affairs Review*, *35* (1):92-111.

Guite HF, Clark C, Ackrill G. (2006). The impact of the physical and urban environment on mental well-being. *Public Health, 120* (12), 1117-1126.

Habermas, J. (1976). *Communication and the Evolution of Society.* Great Britain: Polity Press.

Habermas, J. (1990). *Moral Consciousness and Communicative Action.* Cambridge, Massachusetts: MIT Press

Halpern, D. (1995). *More than bricks and mortar? Mental health and the built environment*. London: Taylor & Francis.

Henning, C., and Lieberg, M. (1996). Strong ties or weak ties? Neighbourhood networks in a new perspective. *Scandinavian Housing and Planning Research, 13* (3):3-26.

Hester, Randy. (1985). Subconscious Landscapes of the Heart. *Places*, 2(3), 10-22.

Heywood, P. (2011). *Community Planning: Integrating social and physical environments*. London, UK: Blackwell Publishing.

Hill, J. and Peters, J. (1998). Environmental contributions to the obesity epidemic. *Science, 280* (5368), 1371-1374.

Howard, E. (1902). *The Garden City of Tomorrow*. London: Swann-Sonnenschein and Co. Ltd.

Hulchanski, J. D., Bourne, L. S., Egan, R., Fair, M., Maaranen, R., Murdie, R. A., & Walks, A. (2010). The three cities within Toronto: Income polarization among Toronto's neighbourhoods, 1970 2005. *Cities Centre, University of Toronto.*

Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.

Joseph, M. (2002). *Against the Romance of Community*. Minneapolis: University of Minnesota Press.

Kearns, A., Hiscock, R., Ellaway, A., et al. (2000). 'Beyond four walls'. The psycho-social benefits of home: evidence from west Central Scotland. *Housing Studies, 15*, 387-410.

Kelleher, K., Pope, K, Kirby, R., and Rickert, V. (1996). Alcohol availability and motor vehicle fatalities. *Journal of Adolescent Health, 21*(2), 325-330.

Kipfer, S. & Petrunia, J. (2009). "Recolonization" and Public Housing: A Toronto Case Study. *Studies in Political Economy, 83*(Spring), 111-139.

Knoke, D. and Yang, S. (2008). *Social Network Analysis: Second Addition*. Thousand Oaks, California: Sage Publications Inc.

Lasch, C. (1979). *The Culture of Narcissism*. New York: Norton.

Lee, C., & Stabin-Nesmith, B. (2010). The Continuing Value of a Planned Community: Radburn in the Evolution of Suburban Community. *Journal of Urban Design, 6*(2), 151-184.

Lehrer, U., & Wieditz, T. (2009). Condominium development and gentrification: The relationship between policies, building activities and socio-economic development in Toronto. *Canadian Journal of Urban Research, 18* (1), 140 161).

Ley, D., and H. Smith. (1997) Immigration and poverty in Canadian cities, 1971 1991. *Canadian Journal of Regional Science, 20*(1), 29-48.

Lynch, K. (1960). *The Image of the City.* Boston: Massachusetts Institute of Technology.

Lynch, K. (1981). *Good City Form*. Boston: Massachusetts Institute of Technology.

Macintyre, S., and Ellaway, A. (1998). Social and local variations in the use of urban neighbourhoods: a case study in Glasgow. *Health and Place, 4*(1), 91-94.

Macintyre, S., Ellaway, A. and Cummins, S. (2002). Place effects on health: how can we conceptualise, operationalise and measure them? *Social Science & Medicine, 55*, 125-139.

MacLachlan, I., and Sawada, R. (1997) Measures of income inequality and social polarization in Canadian metropolitan areas. *Canadian Geographer, 41*(4), 377-397.

Manski, C. (1995). *Identification Problems in the Social Sciences*. Cambridge, Massachusetts: Harvard University Press.

Massey, D. and Denton, N. (1993). *American Apartheid: Segregation and the Making of the Underclass*. Massachusetts: Harvard University Press.

Mauss, M. (1925). Essai sur le don forme et raison de l'échange dans les sociétés archaïques. *L'Année sociologique (1896/1897-1924/1925)*, 30-186.

Mays, J.B. (2005). A Clean Slate? The Toronto Community Housing Corporation Begins the Process of Reinventing the Legendary Regent Park. *The Canadian Architect*. Retrieved February 22, 2013, from http://www.canadianarchitect.com/issues/story.aspx?aid=1000196977.

Moreno, J.L. (1934). *Who Shall Survive?* New York: Beacon House.

Murdie, R., & Ghosh, S. (2010). Does spatial concentration always mean a lack of integration? Exploring ethnic concentration and integration in Toronto. *Journal of Ethnic and Migration Studies, 36* (2), 293-311.

Newman, O. (1973). Defensible Space: Crime Prevention through Urban Design. London: Architectural Press.

Novick, M. Metro's Suburbs in Transition. Part I. Evolution and Overview. *Social Planning Council of Metropolitan Toronto*. Part II. Planning Agenda for the Eighties. Background report, April 1979.

Pampalon, R., Hamel, D. and Gamache, P. (2009). A comparison of individual and area-based socio-economic data for monitoring social inequalities in health. Component of Statistics Canada Catalogue no. 82-003-X. Retrieved from http://www.statcan.gc.ca/pub/82-003-x/2009004/article/11035-eng.pdf.

Park,R. and Burgess, E. (1925). *The City: Suggestions for Investigation of Human Behaviour in the Urban Environment*.

Porters, A. and Landolt, P. (2000). Social Capital: Promise and Pitfalls ofits Role in Development. *Journal of Latin American Studies, 32* (2), 529-547.

Putnam, D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Rauh, V., Andrews, H., and Garfinkel, R. (2001). The contribution of maternal age to racial disparities in birthweight: A multilevel perspective. *American Journal of Public Health, 91*, 1815-1824.

Riesman, D. (1961). *The Lonely Crowd*. US: Yale University Press.

Rose, D. (2004). Discourses and experiences of social mix in gentrifying neighbourhoods: A Montreal case study. *Canadian Journal of Urban Research,*

13(2), 278-316.

Rose, D. and Twigge-Molecey, A. (2013). A City-Region Growing Apart? Taking Stock of Income Disparity in Greater Montréal, 1970-2005. *Research Paper 222*. Toronto: Cities Centre, University of Toronto.

Sampson, R., Morenoff, J. and Earls, F. (1999). Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children. *American Sociological Review, 64*, 633-660.

Scott, J. (2000). *Social Network Analysis: A Handbook*. London: Sage Publications Limited.

Sennett, R. (1977). *The Fall of Public Man*. Cambridge: Cambridge University Press.

Seth, P., Murray, C., Braxton, N. and DiClemente, R. (2012). The Concrete Jungle: City Stress and Substance Abuse among Young Adult African American Men. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 90* (2), 307-313.

Shaw, C. R. and McKay, H.D. (1942). *Juvenile delinquency and urban areas: A study of rates of delinquents in relation to differential characteristics of local communities in American cities*. Chicago: University of Chicago Press.

Sies, M. (2001). North American Suburbs, 1880-1950 Cultural and Social Reconsiderations. *Journal of Urban History, 27*(3), 313-346.

Simmel, G. (1971). Sociability. *On individuality and social forms*, 127-140.

Skinner, B.F. (1974). *Beyond Freedom and Dignity*. Indianapolis, Indiana: Hackett Publishing Company Inc.

Tönnies, F. (1935) Gemeinschaft und Gesellschaft: Grundbegriffen der reinen Soziologie, 8th edition, Darmstadt: Wissenschaftliche Buchgesellschaft; Eng. trans. Fundamental Concepts of Sociology (Gemeinschaft und Gesellschaft), New York: American Book Company, 1940. (Eighth expanded edition of Tönnies ground-breaking work, originally published in 1887.)

Townsend, P. (1979). *Poverty in the United Kingdom: a survey of household resources and standards of living*. Harmondsworth: Penguin Books.

Twigge-Molecey, A. (2009). Is gentrification taking place in the neighbourhoods surrounding

the MUHC? A census-based analysis of relevant indicators. *Analysis Report RR09-02E*. Montréal: CURA Making Megaprojects Work for Communities - Mégaprojets au service des communautés.

Blanchard, W., Prince, M. and Burton, M. et al. (2002). Mental health and the built environment: cross-sectional survey of individual and contextual risk factors for depression. *The British Journal of Psychiatry, 180*, 428-433.

Walks, R. A., and Maaranen, R. (2008). The Timing, Patterning and Forms of Gentrification & Neighbourhood Upgrading in Montreal, Toronto and Vancouver, 1961-2001. In *Research Paper 211*. Toronto: Centre for Urban and Community Studies, Cities Centre, University of Toronto.

Wasserman, S. and Faust, K. (1994). *Social Network Analysis: Methods and Application*. Cambridge: Cambridge University Press.

Wellman, B., & Wortley, S. (1990). Different strokes from different folks: Community ties and social support. *American Journal of Sociology, 96*(3), 558-588.

White, H., Boorman, S., and Breiger, R. (1976). Social Structure from Multiple Networks. *American Journal of Sociology 81*(4), 730-780.

Wilson, W. (1987). *The Truly Disadvantaged, the Inner City, the Underclass and Public Policy*. Chicago: University of Chicago Press.