

PHYSICAL GRAFFITI AND SCHOOL ECOLOGIES

PHYSICAL GRAFFITI AND SCHOOL ECOLOGIES: A NEW LOOK AT
'DISORDER', NEIGHBOURHOOD EFFECTS AND SCHOOL OUTCOMES

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Abstract

This doctoral dissertation examines physical disorder as a type of ‘neighbourhood effect’ on education. My research takes a mixed-methods approach to understanding how physical disorder in areas surrounding schools might affect their educational outcomes, such as achievement, climate and discipline, over and above the demographic composition of those schools’ populations. It also points to two possible mechanisms to determine how these net effects might arise. The guiding research question of this dissertation is: *Does neighbourhood physical disorder influence school outcomes such as student achievement, discipline and perceptions of safety, net of the other aggregate characteristics of neighbourhoods? If so, by what mechanisms does disorder affect these school outcomes?* This original contribution to the neighbourhood effects literature combines citywide, systematic data on physical disorder, neighbourhood demographics and school outcomes, with qualitative data on the views of stakeholders and repeated observations of selected neighbourhoods.

Chapter 2 is quantitative and method-intensive. It discusses the procedures for collecting data on disorder, developing different scales of disorder, and how disorder relates to a variety of census measures and other neighbourhood and school measures. This research presents evidence that Systematic Social Observation (SSO) can provide a reliable and cost effective means of neighbourhood assessment. The results show that observed disorder is statistically related to neighbourhood socio-demographics, collective efficacy, and various academic outcomes. What is surprising, however, is that school exterior disorder had little to no explanatory power compared to observed disorder and

graffiti in the face blocks surrounding schools. These findings highlight how additional mechanisms in neighbourhoods, such as disorder and graffiti, might directly and indirectly influence school outcomes like achievement, discipline, and safety.

Chapter 3 examines the direct and additive effect(s) of observed disorder on academic achievement, discipline, and safety. Two sets of findings are reported. First, ordinary least squares (OLS) regression models showed that neighbourhood disorder (but not school disorder) was strongly associated with neighbourhood poverty. While the former effect was expected, the latter finding is interpreted as demonstrating how institutional processes in education can detach the physical plant of a school from its immediate surroundings. Second, after controlling for neighbourhood poverty and school size and type, higher levels of neighbourhood disorder were associated with lower school achievement, higher suspension rates, and larger proportions of students who report feeling unsafe, though school disorder had far weaker effects. These findings are interpreted as demonstrating the power of neighbourhood disorder to trigger either student deviance or family self-selection processes, but also demonstrating how institutional processes can weaken the signalling power of disorder on school grounds and property.

Chapter 4 provides an in-depth examination of two purported mechanisms to uncover the social processes that generated the broad relationships established in chapters 2 and 3. This research suggests that self-selection into schools and reputational processes are likely generators of the net effects that were demonstrated in previous chapters. Qualitative evidence suggests that nearby disorder likely sends negative signals to would-

be choosers of schools, creating (and perpetuating) long-lasting perceptions and reputations amongst aspiring, ambitious and achievement-oriented families.

Neighbourhood residents report that schools with high levels of nearby disorder are believed to have deep-rooted problems that are connected to their local populations and building conditions. Respondents reported that as a result of these reputational processes, aspiring families tended to self-select out of these disorderly schools, and re-locate elsewhere.

This dissertation offers several contributions to the literature on physical disorder and the literature on neighbourhood effects on schooling. Though many neighbourhood researchers have applied hypotheses of disorder to a variety of human capital outcomes, few have proposed that disorder can be a physical ‘neighbourhood effect’ on schooling. Most existing work measures neighbourhood attributes with census data. My dissertation offers a standardized method to directly measure associations between neighbourhood physical conditions and school outcomes. My study finds an intriguing pattern of effects and non-effects of disorder on schooling. It thereby suggests that neighbourhood disorder can send strong signals that ultimately shape school processes through school self-selection and reputation processes. This dissertation should encourage sociologists to appreciate how neighbourhoods can affect school processes beyond their demographics.

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Chapter 1

Introduction: Disorder and Schooling

Physical disorder – strewn garbage, graffiti, derelict lots, broken windows, vandalized property – has long been a meaning-laden symbol of public incivility and neighbourhood differentiation (Booth, 1889; Reiss, 1971; Sampson, 2012). Disorder is seen as an indicator of a deep malaise in urban public spaces, provoking fear and stigma in blighted neighbourhoods. Social scientists show that levels of disorder are correlated with a variety of social problems, such as concentrated poverty (Sampson, 2012), crime and low social control (Morenoff, Sampson, and Raudenbush, 2001), physical health (Cohen, Spear, Kissinger, Mason, and Wildgen, 2000) and mental health (Latkin and Curry, 2003; Curry, Latkin, and Davey-Rothwell, 2008). It has been variously theorized as a cause of crime in ‘Broken Windows Theory’ (Wilson and Kelling 1982) or an outcome of weak collective efficacy that itself causes crime (Sampson and Raudenbush 2004; Sampson 2012). Regardless of causal direction, disorder can have a profound visual salience in urban settings, especially in poorer [de-industrializing] communities where it can assume an enduring quality. Such neighbourhoods are more likely to lack the resources to clean up disorder, as well as the collective efficacy to prevent it (Sampson, 2012).

Disorder can relay two related kinds of signals. It can be a cue for crime and deviance when interpreted as an indicator of weak social controls in a locale (Wilson and Kelling, 1982). And, it can deter actors from wanting to ‘invest’ in that locale, whether in the form of buying homes, starting businesses, or choosing nearby schools (Sampson,

2012). This signalling process worsens urban inequality since disorder is more prevalent in poorer areas. Affluent neighbourhoods have resources like responsive policing, greater collective efficacy, and private security that can prevent outbreaks of graffiti tagging, window breaking and vandalism. And when wealthier areas are victims of those forms of disorder, they have more resources to quickly fix them. Since affluent urban settings are not easy targets and can quickly remove it, disorder there can take on a transient, even random quality. This is important, since relatively sporadic and chance forms of disorder will likely have weaker signalling power. But in poor neighbourhoods with fewer resources to prevent and remove disorder, disorder can take on a more permanent quality, and hence send stronger signals.

This dissertation examines physical disorder as a type of ‘neighbourhood effect’ on education. With the partial exception of Plank, Bradshaw, and Young (2008), there has been little to no attempt to apply hypotheses of physical disorder to school contexts¹. Most research on neighbourhood effects on school outcomes focuses on demographics rather than characteristics of the built environment. Early research by Garner and Raudenbush (1991) found that neighbourhood deprivation was negatively associated with school attainment, net of children’s family background. More recently, sociologists have similarly found that neighbourhood poverty is associated with poorer school outcomes, including verbal ability (Sampson, Sharkey, and Raudenbush 2007), achievement (Boyle, Georgiades, and Mustard 2007; Lloyd and Hertzman 2010; Raudenbush, Jean, and

¹ To date, the only attempt to apply hypotheses of physical disorder to school contexts has estimated that after accounting for prior levels of collective efficacy, student perceptions of threatening or violent interactions is [directly and indirectly] affected by the physical appearance of a school (Plank et al. 2008).

Mansfield 2011; Van Ham, Manley, Bailey, Simpson, and MacLennan 2012), graduation rates (Harding 2009; Wodtke, Harding, and Elwert 2011) and problem behaviour (Bowen and Bowen 1999; Burdick-Will 2013; Duncan and Magnuson 2011). Poorer neighbourhoods, it is postulated, distract children from classroom learning by exposing them to environmental dangers such as crime, physical harm, and psychological stress (Bowen and Bowen 1999; Burdick-Will 2013; Duncan and Magnuson 2011). Further, weak collective efficacy in poor urban areas can foster “street” codes among youth that are marked by intimidation and hostility rather than co-operation (Anderson 1999). This code can force many students, including otherwise self-identified ‘decent’ students, to ‘code-switch’ and situationally embrace interaction styles that violate school norms and poison school climates. Poor neighbourhoods can worsen problems that plague urban schools, over and above the characteristics of their students. In extreme cases, schools have tried to be buffers of these street codes by implementing dress codes, security systems and tough rules for conduct.

School climate research shares with neighbourhood disorder research a focus on contextual effects. It similarly examines collective processes that affect educational outcomes net of students’ individual characteristics, though this research focuses on attributes of schools themselves rather than those of surrounding neighbourhoods (Anderson 1982; Thapa, Cohen, Guffey, and Higgins-D’Alessandro 2013; Welsh 2000). Research in this tradition sees schools as having distinct “personalities” that emerge from the interactions of administrators, teachers, and students. School climates can shape unwritten codes of conduct, communication and behaviour and academic push (Banchero

2006; Welsh 2000; Welsh, Stokes, and Green 2000). Negative school climates have been shown to lower motivation and heighten psychological withdrawal and frustration, and ultimately lessen achievement (DiPrete and Buchman 2013; Welsh, Stokes, and Greene 2000).

However, despite the contributions of research on neighbourhood effects and school climate, the mechanisms that directly link community ecologies to school outcomes remain unclear (Gephart 1997; Owens 2010; Welsh, Greene, and Jenkins 1999). While both research traditions have demonstrated the existence of contextual effects, they rarely directly measure attributes of neighbourhoods and schools themselves. These studies instead tend to create contextual variables by aggregating responses of individuals to censuses and/or surveys. Such measures are valuable but can suffer from forms of bias. One such bias emerges from discrepancies between definitions of neighbourhood boundaries. If residents' subjective definitions' of the area that constitutes their neighbourhood differs from official or resident-defined boundaries, these discrepancies can weaken the reliability of studies (Campbell, Henly, Elliot, and Irwin 2009; Coulton, Korbin, Chan, and Su 2001). Further, measures may have "same-source bias" when both outcome and predictor variables are derived from the same survey (Rundle, Badger, Richards, Neckerman, and Teitler 2011). Moreover, survey measures may have a "social desirability" bias if respondents in high crime areas do not wish to rate their school or neighbourhood as particularly disadvantaged (Dunstan, Weaver, Bell, Lannon, Lewis, Paterson, Thomas, Jones, and Palmer 2005).

Perhaps most importantly, aggregated variables do not directly measure characteristics of neighbourhoods or schools themselves (see Macintyre, Ellaway, and Cummins 2002; Mayer and Jencks 1989; Odgers, Caspi, Bates, Sampson, and Moffitt 2012; Sampson, Morenoff, and Gannon-Rowley 2002). Studying physical disorder has the advantage of directly observing properties of neighbourhood settings. Indeed, studies of disorder are part of a ‘process turn’ in neighbourhood research that moves from aggregating measures of individuals to directly observing the physical environment. They offer a further step towards uncovering the social mechanisms that transmit neighbourhood effects. Disorder is one element of a complex ecology consisting of demographics, social interactions and social control that generates unequal health, crime and school outcomes.

The Orientation of the Dissertation

This dissertation takes a mixed-methods approach to understanding how physical disorder in areas surrounding schools might affect their educational outcomes, such as achievement, climate and discipline, over and above the demographic characteristics of their students. It also points to two possible mechanisms to determine how these net effects might arise. These issues are addressed in three empirical chapters.

The first paper, Chapter 2, is quantitative and method-intensive. Novel practices for collecting data on disorder, developing scales, and exploring relationships between disorder and a variety of census, neighbourhood, and school measures are discussed. It also discusses my own qualitative experiences with systematic social observation (SSO), outlines the strengths and weaknesses of that methodological technique, and suggests new

ways to improve measures. This chapter fully describes the data collected in neighbourhoods surrounding 169 elementary and secondary schools in Hamilton, ON. Though this paper does not address school outcomes per se, it offers a solid and thorough methodological grounding for the remainder of this dissertation.

In the second paper, Chapter 3, ordinary least squares (OLS) regression is used to examine the different ways that observed disorder relates to three school outcomes (test scores, discipline, and feelings of safety), net of school type (public versus Catholic) and various census measures for neighbourhoods surrounding schools. The results show that graffiti is a particularly salient element of disorder, in that it is a strong predictor of school outcomes. The goal of this chapter is to build on the previous paper by thoroughly examining the different ways that disorder does and does not relate to school outcomes, trying different scales and control variables. In conclusion this research discusses future research on mechanisms that might generate these statistical associations.

The third paper, which appears as Chapter 4, uses qualitative methods to attempt to answer the question: just *how* does disorder, including graffiti, have net effects on school outcomes, as found in chapter 2? This chapter explores 2 possible mechanisms: 1) that disorder affects school outcomes by directly triggering student deviance, and/or 2) that disorder indirectly affects school outcomes by triggering family self-selection, in which disorder encourages aspiring, ambitious, and achievement-oriented families to self-select out of schools that are proximate to disorder. To uncover these possible mechanisms, this chapter adopts multiple methods in an attempt to capture deeper, more qualitative and more holistic accounts of schools, going beyond just a few quantified

indicators. It develops case studies of four secondary schools that vary widely in their levels of disorder, and uses a variety of data collection techniques, including stakeholder interviews, field observations, and systematic social observation (SSO) repeated over successive weeks in order to inspect the permanence or transience of disorder around schools. By combining methods, I provide an in-depth examination of the two purported mechanisms: whether neighbourhood residents and students really perceive disorder as signaling weak social controls and thereby triggering student deviance, or whether disorder is a proximate cue used by achieving families to select out of schools. This chapter sacrifices much of the breadth of the previous chapters in favour of more depth. Since broad relationships between variables have already been established, this research uncovers how self-selection and reputational processes generate them.

Overall, this dissertation combines citywide, systematic data on physical disorder, neighbourhood demographics and school outcomes, with qualitative data on the views of stakeholders and repeated observations of selected neighbourhoods. The intention is to provide both broad analyses of statistical associations, and contextualized analyses of the mechanisms that generate those associations. Sociologists have long studied peer groups and classroom processes to understand why poor urban schools are perennial under-achievers, despite decades of educational reform and financial support. This research adds an additional layer to this field of research by examining the broader socioeconomic ecologies that surround schools by combining analyses of demographics, disorder in the built environment, and reputational processes in local communities. Additionally, a contribution of this research is to offer new forms of evidence that can shed light on the

varying roles of schools versus neighbourhoods in producing educational disparities. This is achieved by systematically comparing the effects and correlations of neighbourhood disorder and those of school disorder in chapters 1 and 2, and by probing stakeholder views about the role of schools in neighbourhoods with varying levels of physical disorder in chapter 3.

Chapter 2

Exploring Neighbourhood Disorder Near Schools: Data Collection, Measures and Correlates

Even if we wish it were not so, disorder triggers attributes and predictions in the minds of insiders and outsiders alike.

(Sampson and Raudenbush, 1999, Pg. 604)

Social scientists have long been interpreting visible cues of disorder as socially and spatially patterned symbols of public ‘incivility’ and neighbourhood differentiation. Comprised of physical and social problems ranging from visible garbage to graffiti to loitering in streets and other public areas, disorder is predominantly conceived in the literature as a multi-dimensional construct that plays a role in the *use* and *social ranking* of public place (Sampson, 2012). Popular in the writings of urban sociology and crime, the ‘broken windows theory’ (BWT) of urban decline sees visual cues as objective and obvious in their meaning. Signs of visible disorder, especially in areas of concentrated poverty, may serve as proximate cues to individuals that the location can be used as a staging area for other types of deviant activities (Wilson and Kelling, 1982; Sampson and Raudenbush, 2004). Not repairing minor problems, like broken windows or graffiti and strewn garbage, can serve as a signal of the unwillingness of residents to confront strangers, intervene, or call the police (Sampson, 2009). Simply put, proponents argue that disorder serves as a direct environmental cue and is an essential link in the ecological pathway that can entice potential predators and eventually, crime.

An alternative argument, although less noticed, frames disorder not simply as a direct cause of crime, but as ‘part and parcel of crime itself’ (Sampson et al, 1999;

Sampson et al, 2004; Sampson, 2012). By rethinking disorder as a proximate cue of neighbourhood disorganization, and merely a symptom of underlying poverty, it becomes clear that the connection between disorder, predatory crime, and even poor health for that matter, are likely manifestations of the same explanatory process, and signal a deeper neighbourhood malaise. Robert Sampson's *Great American City: Chicago and the Enduring Neighbourhood Effect* argues that physical disorder, predatory crime, and health at the neighbourhood-level share similar theoretical features and can be explained through their spurious association with concentrated poverty and lowered collective efficacy (2012). This means that the link between physical disorder, health, and crime can be explained through their common roots in concentrated disadvantage, and how neighbourhoods fare as units of social control over their own public spaces, which is the real mediator of the impacts of structural inequality.

Though researchers are still undecided whether disorder is an explanatory mechanism or an outcome of neighbourhood inequality, it is safe to conceptualize disorder as a social and physical manifestation of urban settings that perpetuates social inequality at the neighbourhood-level. Disorder continues to be of theoretical and empirical interest precisely because of its visual salience and symbolism that reflects powerfully on shared understandings and expectations of urban communities. Theorizing disorder reflects a 'process turn' in neighbourhood effects research that moves beyond more static features of socio-demographic composition (such as race and class; Sampson, Morenoff, and Gannon-Rowley, 2002). While census and administrative data provide indicators such as population stability, socio-economic and ethnic composition, they do

not reveal the collective and physical dimensions of neighbourhood life (i.e. abandonment, signs of social control, and safety), which may be equally important as determinants of individual well being (Mayer and Jencks, 1989; Macintyre, Ellaway, and Cummins, 2002). By focusing more on theorizing and measuring social processes and mechanisms, while continuing to recognize compositional characteristics of public spaces, we have witnessed a concerted attempt by neighbourhood researchers to account for how neighbourhood effects are transmitted. This rising interest in studying social mechanisms aims to uncover ‘plausible contextual processes’ that link putative causes and effects (Sampson, 2011).

Keeping with the tradition that visual cues matter, this chapter applies the method of Systematic Social Observation (SSO) to the study of neighbourhood physical disorder and school ecologies. This body of techniques sends trained researchers into urban neighbourhoods with structured rating tools that seek to identify the presence or absence of various features of the environment (Sampson, 2012). Using observational data collected in neighbourhoods surrounding 168 elementary and secondary schools in Hamilton, ON, this research departs from prior research in three ways. First, it will describe novel practices for observing and recording local neighbourhood disorder using a reliable, relatively unobtrusive, and low cost ‘walking’ technique. Second, it will discuss innovative approaches to developing scales of observed physical disorder using original data and a comprehensive scan of the disorder literature. Finally, it will explore how observed disorder relates to a variety of census measures and other neighbourhood and school measures in the city of Hamilton. This quantitative and methods-intensive

paper presents evidence that the proposed ‘walking’ SSO (W-SSO) methodology can provide a reliable and cost effective means of neighbourhood assessment, and highlights the complex association between neighbourhood physical disorder and schools.

Data Collection

Recent developments in socio-ecological research have collected data on disorder either through survey measures that focus on individual-level perceptions (Plank, Bradshaw and Young, 2009; Sampson et al, 2004), or through standardized approaches that systematically measure neighbourhood ecologies directly (Earls, Raudenbush, Reiss, and Sampson, 1995; Sampson et al, 1999; Cohen, Spear, Scribner, Kissinger, Mason, and Wildgen, 2000). While there is now a very large literature showing sizeable ‘neighbourhood effects’ on a variety of outcomes (notably human capital outcomes, such as early child development, youth well-being, and educational outcomes)², critics have argued that it continues to over-rely on individual-level measures of perceptions in lieu of standardized neighbourhood-level and multi-level analysis (Sampson et al, 2002; Odgers, Caspi, Bates, Sampson, and Moffitt, 2012). Although residents’ perceptions are valuable, biases are a major shortcomings of some surveys, particularly social desirability bias, as some respondents may not view their neighbourhood as disadvantaged, or feel comfortable disclosing that they live in a disadvantaged area (Dunstan, Weaver, Araya, Bell, Lannon, Lewis, Patterson, Thomas, Jones, and Palmer, 2005), and same-source bias, if both outcome and predictor variables are collected from the same survey data source (Rundle, Bader, Richards, Neckerman, and Teirler, 2011). Residents’ subjective

² Boyle, Georgiades, and Mustard, 2007; Lloyd and Hertzman. 2010; and Van Ham, Manley, Bailey, Simpson, and Maclellann, 2012.

definition of what constitutes ‘their’ neighbourhood may also be significantly different from official boundaries, resulting in discrepancies between researcher and resident-defined neighbourhoods (Coulton, Korbin, Chan, and Su, 2001; Campbell, Henly, Elliott, and Irwin, 2009). From this perspective, to improve the quality (or robustness) of the neighbourhood-level research currently being conducted, more standardized approaches are required that directly measure neighbourhood conditions.

The most cited example of this approach to the direct measurement of neighbourhood attributes in urban sociology is ‘ecometrics’, particularly systematic social observation of neighbourhood attributes (SSO). Developed by sociologists in the field of crime research, SSO has been a significant advance in the area of neighbourhood effects research, complementing census and resident perception data. The most common attributes coded with these kinds of methods are physical disorder (e.g., broken windows, graffiti, unkempt properties) and social disorder (e.g., loitering, public alcohol consumption) (Sampson, 2009). After coding the attribute(s) of interest into quantified measures, researchers are then able to examine their relationship to a variety of outcomes independent of residents’ perceptions (Sampson, 2009).

A variety of SSO approaches to data collection have been used in the neighbourhood literature. Inspired by the writings of Charles Booth (1889) and Albert Reiss (1971) that advocated for the mapping, and systematic recording of social phenomena in natural settings ‘that lends itself to replication’ (p. 4), scholars of the city have gradually begun to gather reliable information about local neighbourhood conditions (such as disorder) using Google Street View (GSV) and geo-referenced video SSO (V-

SSO) (Sampson et al, 2009; Odgers et al, 2012; Hwang and Sampson, 2014). Available by Google Maps, GSV is a virtual library of street-level views, in which users can freely navigate city streets using high definition images (i.e. panning 360 degrees, zooming in and out, and more). Research indicates that using GSV is a practical alternative to traditional SSO data collection, with relatively high levels of concordance between GSV and field observation data for larger or more temporally variable neighbourhood characteristics (Rundle et al, 2011). By permitting researchers to conduct virtual field audits (across multiple cities) from one central location, this innovative data collection methodology not only eliminates travel costs, but also concerns of intrusiveness and researcher safety.

V-SSO is also an emerging technology that usually involves mounting video camera(s) on a motorized vehicle equipped with a global positioning system (GPS) to collect video data along a planned route (Montoya, 2003). Based on the videotaping and systematic rating of more than 196 Chicago census tracts, both Sampson et al (1999), and Sampson (2012) highlight the utility of V-SSO in the study of public spaces, particularly for assessing physical conditions and social interactions within neighbourhood settings that survey respondents may be incapable of describing accurately³. More recent research has also noted that V-SSO has the benefit of analyzing both temporal and spatial elements of neighbourhood conditions by observing entire neighbourhoods comprehensively (Curtis, Duval-Diop, and Novak, 2010). It has even been used in post-disaster damage assessment (Adams, Mansouri, and Huyck, 2005), where concerns of researcher safety in

³ Both Sampson et al (1999), and Sampson (2012) suggest that this is not an issue of response bias, but that people's perceptions are impressionistic, as opposed to specific with respect of discrete events.

hazardous environments can be minimized through driving rather than walking. While V-SSO has more significant initial capital investment costs compared to the use of W-SSO, archived video data can help researchers revisit neighbourhoods to verify coding procedures and to extract additional variables not observed in previous investigations. More significantly, by allowing for later review of V-SSO data, this new technology provides a mechanism for in-depth qualitative analysis of neighbourhoods (Kwan, 2002). For example, collected video data can be viewed by resident ‘insiders’ that may be able to provide alternative interpretations and additional insights given their knowledge of the neighbourhood history.

Measurement

Guided by these data collection methodologies, disorder theorists have typically relied on a wide range of quantified measures to design scales that either capture individual perceptions surrounding signs or cues, or evaluate spatial patterns across a wide range of contextual settings. Multi-attribute scales tend to be used in this type of research as disorder is thought to be multi-dimensional, and hence best captured through a series of indicators, each measuring a different component of disorder. These scales tend to converge on a number of items such as the presence or absence of litter, broken glass, or trash to graffiti to loitering and drinking in public⁴.

After driving a sport utility vehicle (SUV) at a rate of five miles per hour down 23,000 street segments, Sampson et al (1999) and Sampson (2012) assessed the sources

⁴ Although the previous section outlined the shortcomings of questionnaires that focus on resident’s perceptions, the utilization of this methodology has merit in guiding research studying the effects of disorder.

and consequences of physical disorder by videotape coding a sample of 15,141 face blocks for mainly land use, traffic, the physical condition of buildings, and the evidence of physical disorder (Sampson et al, 1999; Sampson, 2009; Sampson, 2012). Intended to capture the presence or absence of physical disorder (0 = absent and 1 = present), a scale was constructed based on the following 10 items: *cigarette or cigar butts* in the street or gutter; *garbage or litter* on the street or sidewalk; *empty beer bottles* visible in the street; *tagging graffiti*; *graffiti painted over*; *gang graffiti*; *abandoned cars*; *condoms* on the street or sidewalk; *needles/syringes* on the street or sidewalk; and *political message graffiti*. While it should be expected that less serious indicators of physical disorder (i.e. the presence of *cigarettes*) arise more often than do items that might be regarded as more serious (i.e. abandoned cars), this physical disorder scale is found to behave well as an ecological measure since it will not be dominated by a single item (Sampson et al, 1999).

Sampson et al (2004) distributed a neighbourhood survey in 196 Chicago Census tracts to understand the grounds on which individuals form perceptions of disorder. Their theoretical framework also focused on how individual perceptions of disorder vary within and between neighbourhoods (Sampson et al, 2004). Respondents answered six questions about ‘how much of a problem’ they considered physical and social disorder to be within their neighbourhood:

- 1) How much of a problem is litter, broken glass, or trash on the sidewalks and streets?
- 2) How much of a problem is graffiti on buildings and walls?
- 3) How much of a problem is vacant or deserted houses or storefronts?
- 4) How much of a problem is drinking in public?
- 5) How much of a problem is people selling or using drugs?
- 6) How much of a problem is groups of teenagers and adults hanging out in the neighbourhood and causing trouble?

Sampson et al (2004) then constructed composite scales for both perceived physical disorder and social disorder using survey questions 1-4, and questions 5 and 6, respectively. With individual reliability coefficients of .65 and .67, the block-level Cronbach's alpha raised to .70 when these disorder scales were combined to reflect the physical and social aspects that are observed in public spaces (Sampson et al, 2004). For them, these relatively high reliability indicators reflect how the majority of variation in perceived disorder lies between block groups.

Cohen et al (2000) constructed a 'broken windows' index, using direct observation, to examine the relationship between neighbourhood conditions and health (i.e. gonorrhea). After videotaping a sample of 55 block groups in New Orleans between 1994 and 1997, researchers coded the conditions of the physical structures on a simple 4-point scale (i.e. 1= no visible damage; 2= minor cosmetic damage; 3= minor structural damage; 4= major structural damage; Cohen et al, 2000). In addition, researchers walked through each block group and assessed other physical features, such as garbage accumulation, graffiti, abandoned cars, billboards and advertisements, and general upkeep of non-structures and recreational facilities. To evaluate these neighbourhood conditions, dichotomous variables were created and a score was allocated to each face-block that reflected the percentage of street segments that reflected any accumulation of physical disorder (Cohen et al, 2000). Using physical plant inspection reports of public schools, researchers coded any reported problem of the school site and play areas, buildings, toilet facilities, handling of solid wastes, and water supply issue, a score of 1 (Cohen et al, 2000). By aggregating these measures of neighbourhood structural damage,

physical disorder, and building violations in public schools, a ‘broken windows’ index was created to reflect neighbourhood deterioration.

Plank et al (2009) administered an anonymous survey in 2004-5 and 2005-6 to students in grades 6-8 that included multiple survey items of school organization. By conceptualizing physical disorder as a property of the school, a composite measure was developed by combining five survey items. Based on a four-point scale, students were asked how much they agreed or disagreed with the following questions:

- 1) The school building is clean (reverse coded).
- 2) The temperature in my school is comfortable all year-round (reverse coded).
- 3) The bathrooms in my school are clean (reverse coded).
- 4) There are a lot of broken windows, doors, or desks at my school.
- 5) Vandalism of school property is a problem at the school.

Taken together, this composite scale of physical disorder reported a Cronbach’s alpha coefficient of .90 and .93 for the two years, at the school-level (Plank et al, 2009). At the student level, the same alpha reliability indicators are significantly lower, at .52 and .57, respectively. These trends indicate not only a fairly wide range of perceptions within schools, but that a significant proportion of the variation in the physical disorder composite scale resides between schools, suggesting that the school-level should be treated as the unit of analysis.

Correlates of Disorder

This past research has identified that empirically measuring neighbourhood effects, especially ‘unpacking’ disorder, has been a challenging task for researchers. Nevertheless, many of the findings about disorder demonstrate that neighbourhood mechanisms are not produced in a vacuum; many social processes, such as disorder and

collective efficacy, reflect the demographic composition, institutional resources, and public ‘civilities’, or lack thereof, of their ecological setting. A common theme throughout this research has been that disorder appears to be part of urban ecologies, typically correlated with things like crime, concentrated poverty, and collective efficacy (Sampson et al, 1999; Sampson, 2012). These correlated variables all seem to form a “socioeconomic ecology” in urban neighbourhoods. However, there are disputes among scholars about causal processes. BWT see disorder as having direct causal impacts on crime. Others, like Sampson, believe that collective efficacy has ultimate causal power that impacts both disorder and crime⁵.

Concentrated poverty can be constructed as a scale that reflects the following demographic characteristics: *percentage living in poverty*; *percentage living on public assistance*; *percentage of unemployed*; and *percentage of single parent families* (Sampson et al, 1999). Other measures of neighbourhood structural differentiation can include concentrated immigration (i.e. the percent foreign born), and residential stability (i.e. the percent living in the same house for 5+ years and percentage of owner occupied dwellings). Carpiano, Lloyd, and Hertzman (2009) attempt to utilize a more comprehensive measure of concentrated poverty, called the Index of Concentration at the Extremes (ICE). Using indicators of income, education, concentrated immigration, and residential stability, it provides a precise estimation of the impact of competing forces of concentrated affluence and disadvantage (Carpiano et al, 2009). In addition, mixed-land use is often used as an ecological construct that reflects a neighbourhood’s density of

⁵ In addition to collective efficacy, Sampson recognizes the importance of concentrated poverty on disorder and crime (Sampson, 2012).

residentially and commercially designated geographic space (Sampson et al, 1999). By studying concentrated poverty and mixed land-use as joint social processes, physical disorder is found in this research to be a robust contextual variable at the neighbourhood-level.

Community level variations in collective efficacy and social control have also been found to contribute to varying crime rates and observed disorder. Collective efficacy is a neighbourhood's informal capacity to buffer disorder and protect its public space by means of strong social networks (Sampson, 2012). Areas possessing high levels of collective efficacy are found to share a common understanding among members to *be aware of, prevent, and intervene with* deviant behaviours that the collective does not deem appropriate. Based on Sampson, Raudenbush, and Earls' (1997) study, Morenoff, Sampson, and Raudenbush (2001) construct a collective efficacy scale to test whether *shared expectations for social control*, and *social cohesion and trust* are a robust mediator of the impacts of structural inequality. They found that after controlling for concentrated poverty, land-use characteristics, prior rates of predatory crime, and perceived disorder, collective efficacy is highly predictive of observed disorder and *the location* of predatory crime at the neighbourhood-level (Morenoff et al, 2001; Sampson, 2012). While collective efficacy is found to be stable over time, concentrated poverty is identified as its most effective independent predictor at the neighbourhood-level. Sampson et al (2012) conclude that collective efficacy is a strong inhibitor of crime and disorder. This is through the link between neighbourhood cohesion and mutual trust that serves to intervene with public incivilities in support of neighbourhood control.

A number of recent studies suggest that social perceptions of neighbourhood disorder, as opposed to only its physical measurement, can also be an important part of the story of neighbourhood ecologies. Perceived disorder has been found to strongly predict later poverty, better than observed disorder, crime, and demographic composition (Sampson et al, 2004; Sampson, 2012). Although not everyone interprets local disorder in the same way, different groups sometimes associate disorder with types of people—especially in the US context. Sampson et al. (2004) finds that whites tend to express more fear of disorder than do blacks, and that both whites and blacks report more disorder as the percentage of black residents increases. Even when controlling for observed disorder, racial composition also affected community leaders' evaluations of disorder (Sampson, 2012). Such findings suggest that socially evaluated disorder might be firmly implicated in how the character of a neighbourhood evolves over time. They also highlight how the social meaning attached to disorder among residents might not necessarily be linked to merely its physical presence.

The results summarized in this section underscore how, similar to crime, both observed and perceived disorder are deeply rooted in neighbourhood demographics and neighbourhood structural characteristics, such as concentrated disadvantage, residential instability, race/ethnicity and collective efficacy. Until recently, most published SSO tools have been developed in the United States (i.e., Chicago), and research shows that these findings cannot simply be assumed to be at work in Canadian cities (Parsons, Singh, Scott, Nisembaum, Balasubramaniam, Jabbar, Zaidi, Sheppard, Ramsay, O'Campo, and Dunn, 2010). Few Canadian settings have the kinds of conditions described in the US

urban problems literature- old mixed land uses, decaying housing stocks, brownfields, old city cores, etc⁶. Oreopoulos (2008) notes how Canadian neighbourhoods, compared to many major American cities, are less racially segregated, and have lower concentrations of unemployment and single parent families. Research studying the appropriateness of extending American and European use of the urban underclass thesis to Canada, found only 2 census tracts (one in each of Toronto and Montreal) demonstrated unusually high rates of joblessness, lone parenting, welfare dependency, and high school non-completion (Ley and Smith, 1997). However, as income polarization continues to increase in many Canadian cities, like Toronto, more may inevitably be headed in this direction (Hulchanski, 2010).

The Setting: A Mid-Size Canadian City

The setting for my research is Hamilton ON, a mid-size Canadian city that was once a quintessential industrial city, with many working class neighbourhoods that, while never overtly affluent or culturally vibrant, were socially stable (e.g. low crime rate) and economically vital (e.g. low unemployment). While Hamilton is still recognized as Canada's 'Steeltown' the closing of Stelco and other production facilities (starting in 1980) has produced a gradual socio-economic shift in many of Hamilton's neighbourhood ecologies, specifically, the 'clustering' of disadvantage and the spread of concentrated poverty (Mayo, Klassen, and Bahkt, 2012). Any march through the city, particularly in North Hamilton, reveals settings that resemble a traditional post-industrial urban streetscape, characterized by decaying housing stocks, empty lots, brownfields, and

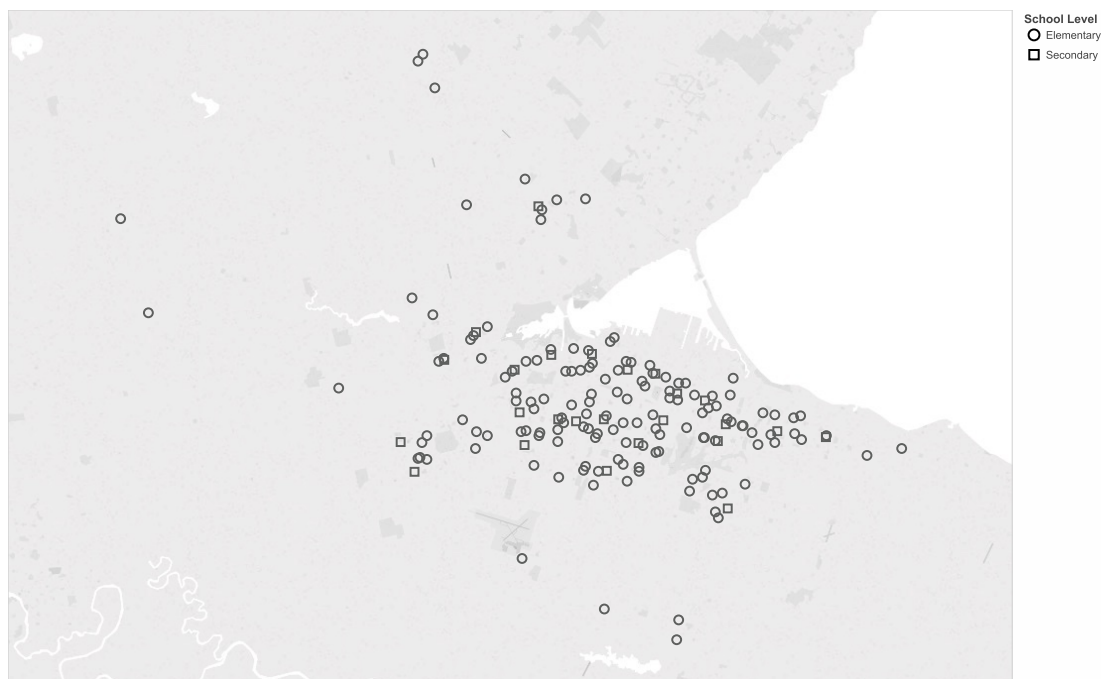
⁶ Poorer urban areas in Canada tend to have post-war inner suburb designs.

derelict physical settings (Gephart, 1997; Wilson, 1999; Sampson, 2012). If taking a birds-eye-view approach, these social landscapes have a growing population of Aboriginals, female lone parents, persons with disabilities, and visible minorities that experience the highest rates of poverty *across* the city—reported to surpass the provincial average (Mayo, 2011)⁷.

Systematic Social Observation

From May 2009 to the present, I have helped develop a SSO protocol to collect data on neighbourhood disorder surrounding each of Hamilton's 168 elementary and secondary schools (144 elementary schools, 25 secondary; Figure 1). Adopted from Earls et al's (1995) Project on Human Development in Chicago Neighbourhoods (PHDCN) this protocol measures the organization of each neighbourhood's *physical* environment, such as land usage, types of residences and businesses, building maintenance, amount of garbage, graffiti and drug paraphernalia, and so on, as well as the physical characteristics of local business establishments. The physical plant external to each school can also be coded for the presence or absence of visible signs of disrepair and security precautions, ranging from broken windows, garbage accumulation, cigarettes on the ground, and graffiti, to educational advertisements, landscaping, renovations, and security cameras (Appendix 1).

⁷ In fairness, it is important to note that unlike pockets in many major American cities (or hyper-ghettos, to use Elijah Anderson's term), Hamilton neighbourhoods are less characterized by racial and economic segregation (Anderson, 1999).



Map based on Longitude and average of Latitude. Shape shows details about School Level.

Figure 1 A Map of 168 Elementary and Secondary Schools in Hamilton, ON.

This is a map of Hamilton ON. Each coloured dot represents one of the city's 168 elementary (circles) and secondary schools (squares). School addresses are available online, and were later geocoded and mapped using the mapping function in Tableau.

In all, 550 school face blocks were observed and recorded. Unique to this research design is that the data were collected by having two trained researchers independently *walk* both sides of a school street block, plus 100 yards in all directions where a block face exists (Figure 2)⁸. The explicit rule to have observers walk an additional 100 yards was a predetermined attempt to capture the physical and social disorder within each school's purview. If a school did not have 4 valid street blocks then we would simply measure only the adjoining streets [with the idea that if a school is surrounded by houses or a forest, there is simply less physical disorder]. This block-specific methodology, as

⁸ Under the supervision of Dr. Scott Davies, SSO data were collected over two summers. In 2009, Nicole Malette and myself worked together to develop our SSO protocol, and collected data surrounding 25 Hamilton secondary schools. In 2010, Nicole Malette and Kris Clark continued to collect SSO data surrounding the remaining 144 Hamilton elementary schools.

opposed to studying the entire neighbourhood, made conducting SSO surrounding these 144 school's doable and cost-effective. It more importantly allowed us to characterize the physical area proximate to each school, which we believe is likely to have an impact on school-related processes, since students spend much time there.

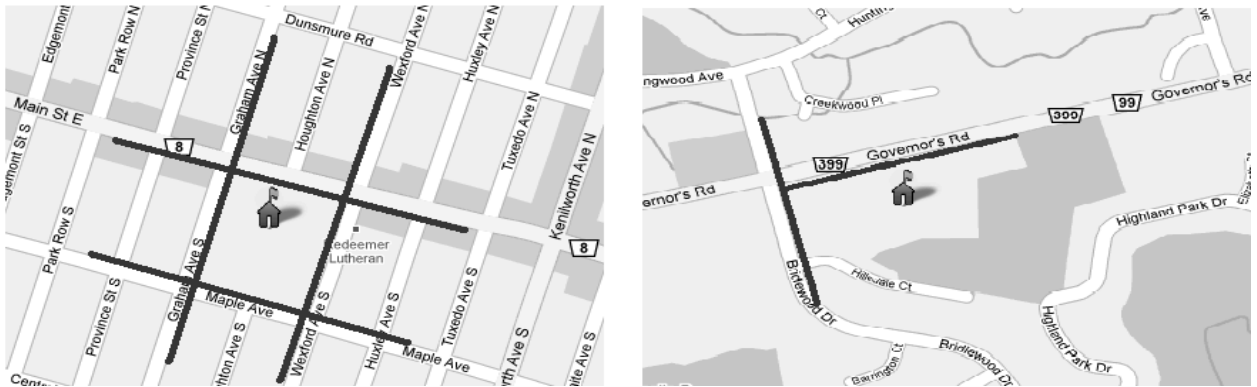


Figure 2 Two Examples of Face Blocks Measured with SSO

Two examples of face blocks measured with SSO in which researchers walked both sides of a school street block, plus 100 yards in all directions.

Original Measures and Scales

From these observer logs, 35 variables, focused mainly on *physical disorder* and each school's *physical plant*, were used to create a dataset. Borrowing from Sampson (1999), each item was initially dummy coded, 0 = absent and 1 = present⁹. Less serious indicators of disorder (i.e. cigarette butts and garbage/litter) were assigned a minimum cut-off (i.e. 5+ instances) for appearing more frequently on school property and in public spaces. Instances of graffiti were coded for their raw count on school property and in each block face (Appendix 1). This item was defined as the number of walls, surfaces, and the like,

⁹ Each school's physical plant received only one dichotomized score per item, whereas, the surrounding neighbourhood received one for each face block. Block scores were then added together to assign a final score.

that displayed any presence of tagging graffiti, gang graffiti or political message graffiti¹⁰.

A final measure was then assigned to *each* item by averaging the reported scores between coders. Observers agreed on over 93% of the coding's for physical disorder variables, and 89% of the school exterior variables (Table 1). The inter-coder reliability for observed school and neighbourhood graffiti is $r = .78$ and $.94$ ($P < .001$), respectively between observer logs (Table 2)¹¹.

Table 1 Inter-coder Reliability of School Exterior and Physical Disorder Items

Variable Name	# Agreed	Total Observations	Agreement Rate (# Agreed/Total Obs)
Physical Disorder	5599	5988	93%
School Exterior	3148	3528	89%

Table 2 Correlation Matrix of Graffiti Count Between Observer Logs

Variable Name	Total Graffiti Count (Observer 1)	School Exterior Graffiti Count (Observer 2)
Total Graffiti Count (Observer 1)	.7788*** 168	
School Exterior Graffiti Count (Observer 1)		.9428*** 168
<i>One-tailed test</i> + $p < .10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$		

Physical Disorder (Baseline)

Our baseline physical disorder scale (PD-I) was constructed using seven items intended to capture its presence or absence in *each* school's surrounding face block (i.e. North, East, South, and West). In declining order of observed frequency, these physical disorder scales include the presence or absence of *cigarette or cigars* in the street or sidewalk (19= absent; 149= present); *garbage or litter* on the street and sidewalk (15 =

¹⁰ Tag graffiti, identified by stylized labelling, such as block letter art or scribbling, was observed most frequently. Other forms of graffiti were rarely observed, especially those with political messages.

¹¹ While SSO is considered a standardized approach to data collection, it still has a subjective element in which raters have to make many judgement calls when coding variables.

absent; 153= present); *broken glass* on the street and sidewalk (131= absent; 37= present); *empty alcohol bottles* in the street (132= absent; 36= present); *visible signs of vandalism* (132= absent; 36= present); *drug paraphernalia* on the sidewalk (159= absent; 9= present); and *abandoned cars* (166= absent; 2= present). Similar to Sampson (1999), the frequency distribution of these items tells us less serious indicators of disorder (i.e. cigarette butts and litter) arise more frequently than do indicators that may be regarded as more serious (i.e. drug paraphernalia and abandoned cars), with the presence of broken glass, empty alcohol bottles and visible signs of vandalism arising with moderate frequency. By adding the 7 items mentioned above, this physical disorder scale was constructed with a Cronbach's alpha coefficient of .61. Unique to baseline scale is that it *does not* include the presence of any graffiti measure; the addition of total graffiti count (TGC) tended to dominate the scale due to its wide range resulting in the reliability coefficient to *decrease* from .61 to .04¹².

Physical Disorder and Graffiti

In an attempt to construct a comprehensive disorder scale that included a graffiti measure, two binary measures of TGC were constructed and added separately to my original baseline scale. The first scale (PD-II) includes a dummy coded measure of the original TGC variable in order to restrict its large range that caused it to dominate the baseline scale. Schools with a TGC above the mean for that variable (5.15) were coded as 1, and those below that mean were coded as 0. This binary coding based on the mean reduced the variability of the graffiti indicator, and when added into the disorder scale,

¹² Since in preliminary analyses I found TGC dominated the baseline disorder scale, I treated TGC as its own measure of disorder separate from the other measures and scales presented in Table 3.

the Cronbach's alpha coefficient was .63 (an increase of .03 points).

The second scale (PD-III) included a graffiti binary consisting of any indication of graffiti =1, and no graffiti =0. When this new graffiti measure was included into our baseline scale, the Cronbach's alpha coefficient was .68.

School Exterior Disorder

Our 'school exterior' disorder scale (SED) was constructed to measure disorder in each school's physical plant. The scale items include the presence or absence of *garbage or ground litter* (7= absent; 161= present 161); *property landscaping* (reverse coded; 7= absent; 161= present), *signs of disrepair* (21= absent; 147= present); *riot bars on entrances or windows* (39= absent; 129= present); *cigarette or cigars* (65= absent; 103= absent); *garbage bins* (reverse coded; 72= absent; 86= present); *student uniforms* (reverse coded; 112=absent; 57= present); *security cameras* (116= absent; 52= present); *security precautions* (131= absent; 37= present); and *student smoking area* (150= absence; 18= present). Using the mean graffiti count (4.52) for the population of schools, a graffiti measure was then included into this scale by coding 0 = below the mean, and 1 = above that mean. A final scale was then constructed by summing these binary indicators, as was done with the other physical disorder scales. Since most schools have the same outcomes for the variables *garbage or ground litter* and *property landscaping*, some of the between school variability of this disorder scale might have been diminished. The Cronbach's alpha coefficient for this scale was .60

Measuring Ecological Correlates of Disorder: Concentrated Poverty and School Outcomes

We then merged this school-level disorder data to data on neighbourhood and school characteristics, including neighbourhood census demographics, measures of school outcomes (such as student achievement and suspension rate), student survey data on perceptions of school safety, and a parent survey data on neighbourhood safety. Table 3 presents summary statistics for these measures and scales.

The primary sources of socio-demographic data are *three* summary measures from the Ontario Marginalization Index: the level of *material deprivation*, *residential instability*, and *minority status* in each school's surrounding neighbourhood¹³. *Material deprivation* is an index based on the following proportions that are: individuals 20 years and over without a high-school diploma, lone parent families, individuals receiving government transfer payments, individuals fifteen years and over who are unemployed, individuals considered low-income, and dwellings that are in need of major repair. *Residential instability* is based on the proportion of: individuals living alone, residents over the age of 16 years old, average number of persons per dwelling, dwellings that are apartment buildings, the population who are single/divorced/widowed, dwellings that are not owned, and the population who moved during the past 5 years. *Minority Status* represents the proportion of the population who are recent immigrants (arriving in the 5 years prior to census) and who self-identify as a visible minority. These three summary

¹³ The Ontario Marginalization Index actually has four dimensions: the level of *material deprivation*, *residential instability*, *minority status*, and *dependency*. Dependency represents the proportion of the population who are: aged 65 and older, and not participating in the labour force (over the age of 15 years old). It also includes a dependency ratio that sums the total population between ages 0 to 14, and 65+, then divides it by the total population ages 15 to 64. This indicator was removed from the analysis portion because its primary components are not considered important to the theoretical framework of this research, and because preliminary research findings did not identify dependency to have any significant relationships with disorder, graffiti, and school outcomes.

measures were constructed using 2001 and 2006 Census data at the dissemination area (DA) level. Matheson, Dunn, Smith, Moineddin, and Glazier (2012) have shown that these measures are stable across time and geographic space and are associated with health and behavioural problems.

The second set of school-level data examines student achievement and suspension rates. *Student achievement* is measured using select Education Quality and Accountability Office (EQAO) test scores for each school, and averaging them over 3 successive years. Each observation represents the percentage of grade 6 or 9 students in a school that met either the provincial standards for reading, or mathematics, over the past 3 years¹⁴.

Suspension rate is a 3 year average of student suspension rates at 112 public elementary and secondary schools in the Hamilton Wentworth District School Board (2010). Data for this measure was unavailable from the Catholic board, and hence it includes only public schools.

The third source of data measures *student perceptions of school safety* by aggregating individual level data from a Hamilton Wentworth District School Board (HWDSB) Safe Schools Survey. This variable represents the percentage of students in each school that reported feeling ‘unsafe’ when they were on school property. These data do not contain any Catholic schools (N=102).

¹⁴ EQAO is an independent, arm's-length agency of the Ontario provincial government that provides educators and the public with reliable and valid data about student achievement at the school and board level (<http://www.eqao.com/results/?Lang=E>).

Table 3 Descriptive Statistics: Physical Disorder, Socio-demographics, and School Outcomes

Variable Name	Observations	Mean	Standard Deviation	Min	Max
Physical Disorder: baseline (No measure of graffiti) (PD-I)	168	4.44	2.95	0	17
Physical Disorder: mean graffiti (PD-II)	168	4.82	3.14	0	18
Physical Disorder: block graffiti (PD-III)	168	5.9	3.7	0	21
Total Graffiti Count (TGC)	168	5.16	5.92	0	35
School Exterior (SE)	168	8.57	1.51	4.5	13
School Exterior: Total Graffiti Count (STGC)	168	4.52	6.06	0	49.5
Achievement (EQAO)	159	61.17	13.09	29.17	89.11
Suspension Rate	112	5.36	5.76	0	33.13
Feeling Unsafe	102	.23	.08	.08	.52
Material Deprivation	168	.11	1.03	-1.44	4.34
Residential Instability	168	-.16	.91	-.168	2.83
Ethnic Diversity	168	.09	.92	-.93	5.90
Collective Efficacy (CE)	25	12.81	1.33	8.99	14.81

We then developed a collective efficacy measure with a strong Cronbach's alpha coefficient of .84 by summing responses to the following 9 questions from the

Kindergarten Parent Survey (KPS):

- 1) Is it safe to walk alone at night?
- 2) Is it safe for children to play outside during the day?
- 3) There are safe parks, playgrounds and play spaces.
- 4) If there is a problem around here, the neighbours get together and deal with it.
- 5) There are adults my children can look up to.
- 6) People are willing to help each other.
- 7) When I'm away from home, I know that my neighbours will keep their eyes open for possible trouble.

- 8) You can count on adults to make sure children are safe and don't get in trouble.
- 9) There are meeting places where parents get together to talk?

Originally answered by 2381 kindergarten parents, we grouped elementary schools that were designated to “feed” into secondary schools ($N = 25$) in order to comply with privacy regulations.

Results: Correlates of Disorder

Neighbourhood Characteristics

Similar to past research, I found that disorder was correlated at the school-level with neighbourhood measures, such as material deprivation, residential instability, ethnic composition, and collective efficacy (all neighbourhood estimates are presented in Table 4). Turning first to material deprivation, each observed disorder scale demonstrated a positive and moderate-sized association with material deprivation ranging from $r = .43$ to $r = .44$ ($P < .001$). Figure 3 illustrates the reasonably consistent relationship between disorder and levels of concentrated poverty in a school's surrounding neighbourhood. Similarly, total graffiti count (TGC) was positively and significantly related ($r = .21$, $P < .01$) with material deprivation. As seen in Table 3, the relationship between both school measures (SED and STGC) and material deprivation proved to be weak and insignificant.

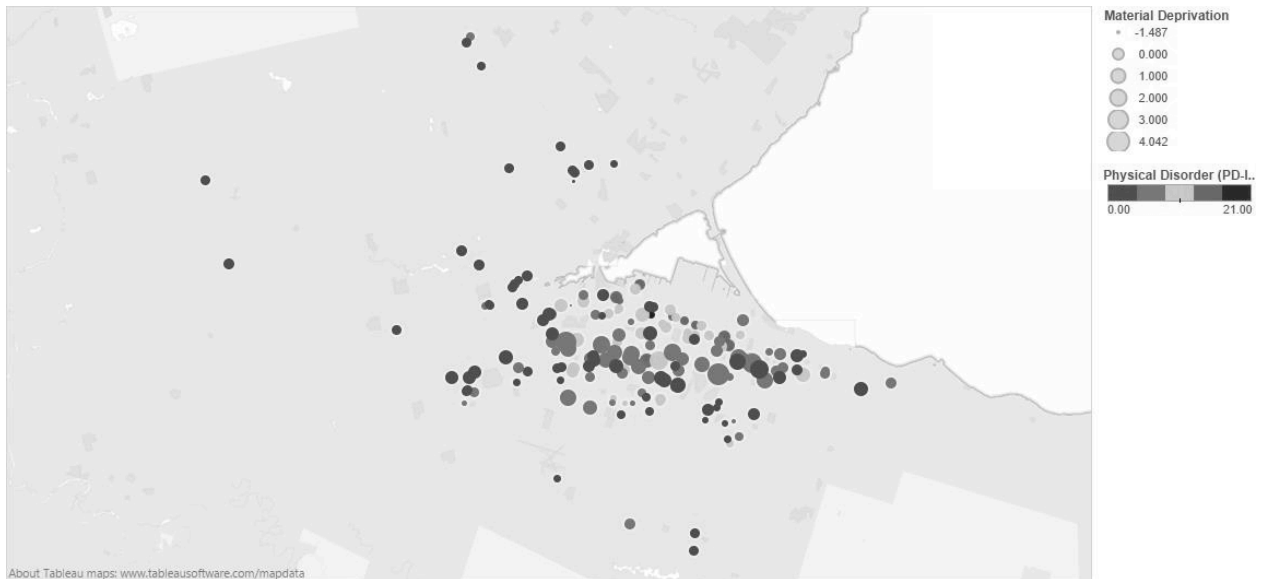


Figure 3 Spatial Concentrations of Neighbourhood Disorder and Material Deprivation

Spatial concentration of neighbourhood disorder (PD-III) and material deprivation surrounding each of Hamilton's elementary and secondary schools (N=168). Larger dots are schools in areas of more material deprivation, whereas, dots that are increasingly darker have the most disorder. To the extent that there is a positive correlation, larger dots tend to be increasingly darker.

A similar pattern of correlations appears between observed disorder and residential instability. Although relatively modest, all three disorder scales were positively correlated with residential instability, ranging from $r = .23$ to $r = .26$. Notably, however, both PD-I and PD-III were significantly correlated with residential instability at the $P < .001$ level, while only PD-II had a significant relationship at the $P < .01$ level. Once again, the relationship between TGC and residential instability was weaker but significant ($r = .18$, $P < .05$). By contrast, SED and STGC were not significantly related to residential instability.

As displayed in Table 3, observed disorder demonstrates a positive, significant relationship (r 's ranged from .23 to .24) with the proportion of Non-white and visible minority families residing near a school at the $P < .01$ level. This was also the case for

TGC, which had a correlation of $r = .20$ ($P < .01$), highlighting graffiti's positive association with more ethnically diverse neighbourhoods. But again, SED and STGC were not significantly related to minority status.

Table 4 Correlation Matrix: Physical Disorder, School Exterior, and Socio-demographics

Variable Name	Material Deprivation	Residential Instability	Ethnic Diversity	Collective Efficacy (CE)
Physical Disorder: baseline (No measure of graffiti) (PD-I)	.4273*** 167	.2330*** 167	.2388** 167	-.3177 25
Physical Disorder: mean graffiti (PD-II)	.4271*** 167	.2349** 167	.2349** 167	-.3408 ⁺ 25
Physical Disorder: block graffiti (PD-III)	.4416*** 167	.2596*** 167	.2247** 167	-.4244* 25
Total Graffiti Count (TGC)	.2143** 167	.1794* 167	.2040** 167	-.4244* 25
School Exterior (SED)	.1084 167	.0319 167	.0283 167	-.3371 ⁺ 25
School Exterior: Total Graffiti Count (STGC)	.0420 167	-.1116 .1511	-.0459 167	.1771 25
<i>One-tailed test: the upper values are alpha values, and the lower values are sample size (n's).</i>				
⁺ $p < .10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

Although the sample sizes drops dramatically (from $n = 168$ to $n = 25$), Table 4 clearly shows that observed disorder is significantly and negatively related to collective efficacy ($r = -.34$; $P < .10$ for PD-II; $r = -.46$; $P < .05$ for PD-III). The key result, however, is that the strength of this relationship depends on the presence and coding of the graffiti indicator. Similarly, collective efficacy was negatively related to both TGC ($r = -.42$; $P < .05$) and STGC ($r = .34$; $P < .10$). No significant relationship was found between SED and collective efficacy.

School Outcomes

Turning next to correlations with school measures (presented in Table 5), in all cases observed disorder has a negative, significant relationship to academic achievement, with r 's ranging from $r = -.30$ to $r = -.37$ ($P < .001$). The strongest negative correlation of $r = -.37$ emerging between PD-III and academic achievement. Each of these correlations highlights how schools located in disorderly neighbourhood settings consistently had lower EQAO test results (Figure 4).

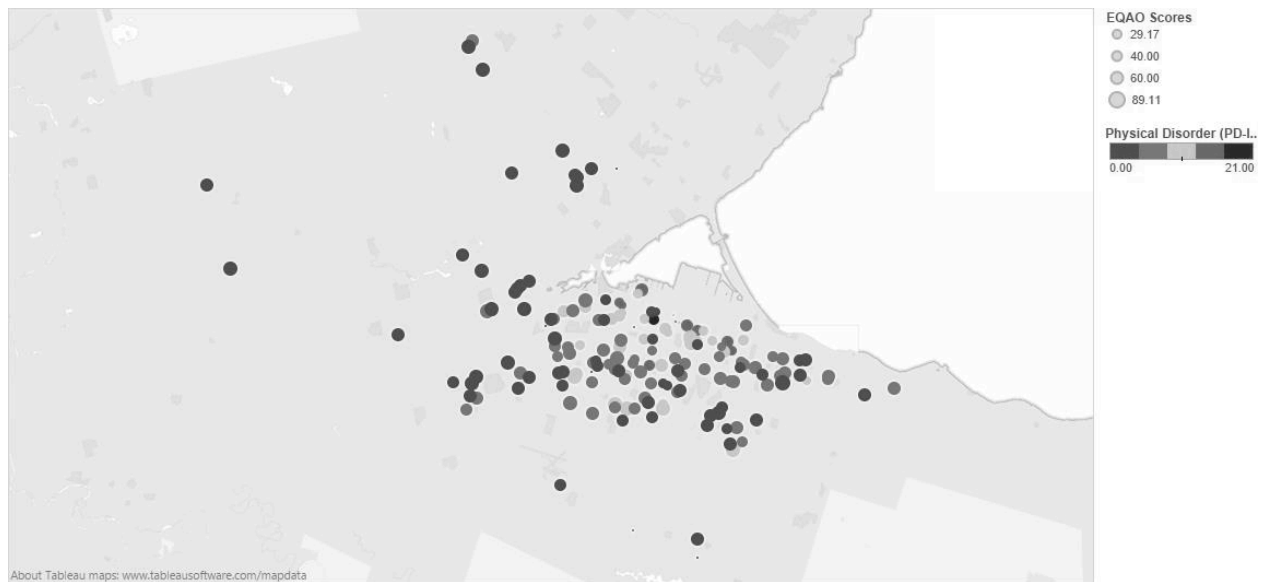


Figure 4 Spatial Concentration of Physical Disorder and School-level EQAO Results
Spatial concentration of physical disorder (PD-III) and school-level EQAO results for 168 Hamilton elementary and secondary schools. Smaller dots represent lesser achieving schools, while darker dots have more disorder. To the extent that there is a negative correlation between school achievement and disorder, dots should be smaller and increasingly dark.

In addition, TGC was negatively correlated with academic achievement ($r = -.32$; $P < .001$), as well as both SED ($r = -.30$; $P < .01$) and STGC ($r = -.17$; $P < .05$). There were also moderately sized, negative relationships between academic success and neighbourhood measures: material deprivation ($r = -.45$, $P < .001$), residential instability

($r = -.45$, $P < .001$), and minority status ($r = -.18$, $P < .01$). In contrast, there was a very strong and positive relationship of $r = .70$ ($P < .001$) between collective efficacy and academic achievement. This is the only school outcome that was significantly related with collective efficacy (Table 5).

Another interesting relationship was the positive associations between student suspension rates and all disorder scales (for PD-I, $r = .28$; $P < .011$ for PD-II, $r = .33$; $P < .001$, and for PD-III, ($r = .37$; $P < .001$). Similarly, a strong positive correlation ($r = .42$, $P < .001$) was also found between TGC and student suspension rates (Table 5). Although no significant relationship was found between student discipline and STGC, suspensions were positively correlated ($r = .40$; $P < .001$) with SED. Among demographic variables, only material deprivation $r = .44$ ($P < .001$) was significantly related to this measure of student discipline.

Table 5 Correlation Matrix: Physical Disorder, School Exterior, and School Outcomes

Variable Name	Academic Achievement (3Yr)	Suspension Rate (3Yr)	Feels Unsafe
Physical Disorder: baseline (No measure of graffiti) (PD-I)	-.3027***	.2815**	.3371***
	159	112	102
Physical Disorder: mean graffiti (PD-II)	-.3103***	.3287***	.3473***
	159	112	102
Physical Disorder: block graffiti (PD-III)	-.3701***	.3716***	.3550***
	159	112	102
Total Graffiti Count (TGC)	-.3193***	.4175***	.0938
	159	112	102
School Exterior (SE)	-.2985**	.3988***	.0106
	159	112	102
School Exterior: Total Graffiti Count (STGC)	-.1692*	.1610	.2267*
	159	112	102
Material Deprivation	-.4534***	.4441***	.3890***
	158	111	101
Residential Instability	-.2950***	.1547	.0993
	158	111	101
Ethnic Diversity	-.1826**	.0372	.09
	158	158	158
Collective Efficacy (CE)	.6971***	-.3370	-.3973
	24	18	18
<i>One-tailed test</i>			
+ $p < .10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

And finally, observed disorder was moderately and positively related to students feeling unsafe. All three scales have near-identical correlations ranging from $r = .34$ to $r = .36$ (Table 5). PD-I is significant at the $P < .01$ level, while PD-II and PD-III are significant at the $P < .001$ level. No significant relationship was found between student perceptions of safety with both TGC and SED. However, STGC did show a slight positive relationship $r = .23$ ($P < .05$). Again, material deprivation is the only socio-

demographic measure with a significant relationship $r = .39$ ($P < .001$) to perceptions of safety¹⁵.

Discussion: Data Collection Trade-offs and Implications of this Research

As called for by Sampson et al (2002), new research designs are needed to effectively measure the direct and indirect effects of neighbourhood structural and demographic characteristics on social processes. Consistent with theoretical expectations, findings from this study support W-SSO as a reliable and cost effective means of neighbourhood assessment that is well suited for collecting valuable ecological data in a mid-size city like Hamilton. As expected, observed disorder was statistically related to *neighbourhood socio-demographics* (i.e., material deprivation, residential instability, and ethnic composition), *collective efficacy*, and various *academic outcomes* (i.e., achievement, suspension rates, and feelings of safety). What is surprising, however, is that the explanatory power of each observed disorder scale varied by whether or not a graffiti indicator was present, and how it was coded. Observed disorder had the strongest effects when I used a scale consisting of summed binary measures (including a graffiti binary).

Another key finding was the moderate-sized associations between graffiti and the above-mentioned neighbourhood and school measures. In addition to disorder scales, graffiti can function as a robust SSO measure independently. My third chapter will attempt to isolate the independent contributions of graffiti, to understand whether its

¹⁵ The lack of association between ethnic diversity and school outcomes is noteworthy, given the recent Jason Richwine controversy where he proposed that Hispanics and blacks are intellectually and socially inferior to whites because of a supposed genetic predisposition to lower IQ (Carroll, 2013). Richwine later resigned from his position at the Heritage Foundation.

explanatory power simply reflects its more precise measurement based on counts rather than binaries, or if graffiti is an especially salient cue to people because it is more loaded with social meaning compared to most other forms of disorder.

It is notable that, by contrast, our measures of school exterior disorder (i.e., SED and STGC) had little to no explanatory power compared to observed disorder and graffiti in the face blocks surrounding schools. This result may be driven by school funding formulae that have the effect of detaching the characteristics of school buildings from the characteristics of their surrounding neighbourhoods. If this is the case, schools in highly disordered neighbourhoods may be ‘oases’ for youth, in that they temporarily isolate students from many corresponding forms of disorder in the surrounding neighbourhoods.

While our ‘user-friendly’, pen-and-paper, W-SSO protocol did reliably measure the physical dimensions of neighbourhood life and relate them to other aspects of local surroundings, such as educational outcomes, it did involve some important methodological trade-offs that warrant further consideration. For example, since the physical settings were not visually recorded, my fellow researchers and I could not verify our measures or code additional variables without physically revisiting each school neighbourhood. There are also potential safety concerns to having trained observers re-enter some of the less visible public spaces to collect data (ally-ways, parks, and other secluded areas).

Another, more fundamental issue, is that the *timing* of observations might bias our measures. Since our data collection took place over two consecutive summers when students were not actually attending school, it is possible that we would have observed

more physical disorder if we visited those sites during the school year (September to late June). This issue of timing is even more important for measuring social disorder, where illicit behaviours, such as public intoxication, may be more likely to be observed at night, on weekends, and during non-winter seasons. So, by having trained researchers visit each school only once during the daytime, important diurnal, day-of-the-week, and seasonal variations in neighbourhood conditions are missed, though social disorder is far more likely to vary accordingly than is physical disorder.

Although leading SSO researchers have begun to utilize V-SSO to address many of these shortcomings (i.e. concerns of safety, recoding, and timing), traditional W-SSO has its advantages. Researchers can capture some relatively subtle elements of disorder that are often difficult to observe from a van on the street such as cigarette butts, broken bottles on the sidewalk, and drug paraphernalia. Walking also allows researchers to enter secluded areas where motorized vehicles are not permitted such as alleyways, parks, etc. Since W-SSO consists of small teams of researchers observing and coding disorder *on foot*, it also allows researchers to experience the sights, sounds, and feel of a street block, or experience an unusual event, with little or no initial capital investment, unlike V-SSO. While V-SSO is undoubtedly a more efficient means for collecting ecological data in larger geographic settings (i.e., Chicago), it is also visibly intrusive to local people in neighbourhoods, which could affect the reliability of some measures, such as social disorder.

Conclusion

By linking theories of disorder (and proverbial ‘broken windows’), social disorganization, and neighbourhood effects in education, I am able to examine several contextual factors that may directly and indirectly influence school outcomes like achievement, discipline, and safety. While research centered on neighbourhood effects on school outcomes has been a popular topic in the sociology of education, gaps still exist regarding conceptualizing the relationship between school and community ecologies (Gephart, 1997; Welsh, 2000; Welsh, Greene, Jenkins, 2000; Owens, 2010). My next chapter will test a key hypothesis: do higher levels of neighbourhood disorder serve to lower academic achievement, weaken school institutional controls and erode school climate, net of a series of relevant control variables? Most past research has centered strictly on the effects of socio-demographics on school outcomes. No research to my knowledge has measured neighbourhood disorder as a mechanism with the potential to disrupt school processes.

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Appendix A: Systematic Social Observation (SSO) Protocol

Researcher Name:	Are there student sitting areas?	Is there evidence of security precautions?
Date:	Yes	Yes
HWDSB School:	No	No
Time:	Examples:	Examples:
What year was the school constructed?		
_____	Are there designated smoking areas?	Are there surveillance cameras on property?
<u>School Exterior:</u>	Yes	Yes
	No	No
Is the school lawn maintained?	Are there cigarette butts present on the ground? (5+)	Are there riot bars on windows and doors?
Yes	Yes	Yes
No	No	No
Did the school have matching windows?		Does the school have a uniform?
Yes	Is there graffiti? (# of instances)	Yes
No	Yes	No
Were there signs of Disrepair to the exterior of the school?	No	
Yes	# _____	Are there educational advertisements?
No	Is there a presence of painted over graffiti?	Yes
Examples:	Yes	No
	No	Examples:
Is there ground litter? (5+)	Are there areas obstructed from full view?	Is there evidence of landscaping?
Yes	Yes	Yes
No	No	No
Are garbage receptacles available?	Where:	Are their bike racks for students?
Yes	Are their obvious renovations or extensions to the school?	Yes
No	Yes	No
	No	

Is there a sports field on site?

Yes

No

21) Are there portables on site?

Yes

No

22) Is there an elementary school in close proximity?

Yes

No

Extra Notes:

Street/Traffic:

Which way is traffic moving?

One-way

Two-way

How many lanes is traffic?

2 lanes

2+ lanes

Are their parked cars on street face?

Yes

No

What is the flow of traffic?

No traffic

Moderate traffic (careful crossing)

Heavy traffic

Are their cars with visible parking violations (tickets)?

Yes

No

How are you regarded by the people on block face?

No people around

Paid little attention

Treated with suspicion

Friendly responses

How would you characterize land use on the block? (circle all that apply)

Residential

Commercial

Industrial

Vacant houses

Vacant lots/open space

Institutional

Recreational facilities

Undeveloped rural

Construction

Rural farmland

Extra Notes:

Physical Disorder:

Was there garbage/litter on the street/sidewalk? (5+).

Yes

No

Are there cigarette butts on the ground? (5+)

Yes

No

Are there empty beer/liquor bottles?

Yes

No

Is there evident drug paraphernalia?

Yes

No

Examples:

Is there graffiti? (# of instances)

Yes

No

Is there any vandalism?

Yes

No

Examples:

Is there broken glass on the street?

Yes

No

Are there abandoned cars?

Yes

No

Are there available public waste bins?

Yes

No

Are there warning signs (beware of dog/no trespassing)?

Yes

No

Are there dumpsters?

Yes

No

Is there evident street maintenance?

Yes

No

Are there street lights?

Yes

No

Extra Notes:

Social Disorder:

Time:

Stake out

position: _____

Are there loitering adults?

Yes

No

Where:

Is there evident alcohol consumption in public?

Yes

No

Are there examples of public intoxication?

Yes

No

Are there adults fighting/arguing in public?

Yes

No

Are their youth fighting or arguing in public?

Yes

No

Are there individuals selling drugs in public?

Yes

No

Are kids playing unsupervised?

Yes

No

Is there loud music?

Yes

No

Where:

What is the predominant style of clothing worn in area?

Urban

Cultural

Business

Business casual

Casual

Other

Is a police officer visible? (circle all that apply)

Foot patrol

Mobile patrol

Horse patrol

Traffic patrol

No police visible

Are there police sirens?

Yes

No

Are there any stray animals?

Yes

No

Are there any visible homeless individuals?

Yes

No

Are there visible prostitutes?

Yes

No

Is there a presence of children? (5+)

Yes

No

Is there a presence of
teens? (5+)

Yes

No

Is there a presence of
adults? (5+)

Yes

No

Which age group has the
majority prevalence?

Children

Teens

Adults

Extra Notes:

Residential Area:

What are the types of
buildings on this block?
(circle all that apply)

High-rise apartments

Low-rise apartments

Above store apartments

Bungalow houses

2+ story houses

Are the majority single
dwelling homes?

Yes

No

Are there any visible
vacant houses?

Yes

No

Do the houses display
cut grass and maintained
gardens?

Yes

No

Is there evidence of
garbage/litter on
ground? (5+)

Yes

No

Are there riot bars on
doors/windows?

Yes

No

Are there markers of
defensible space
(barriers, fences, walls,
bars)?

Yes

No

Examples:

Are there properties for
sale?

Yes

No

Are there public alley
ways?

Yes

No

Are there public parks?

Yes

No

Is there an attempt to
maintain a green
appearance?

(5+ trees)

Yes

No

Are there bus stops
available?

Yes

No

Are there in-home
businesses?

Yes

No

Examples:

What races/ethnicities
are evident in the area?
(please list)

Are there signs of social
control (neighbourhood
watch)?

Yes

No

Examples:

Extra Notes:

Parks:

What types of park(s)
are present? (circle all
that apply)

Play ground

Open field

Public garden

Bike and walking trail

Sports field

Public pool

Is there evidence of park
maintenance?

Yes

No

Secluded areas andParking lots:

Is there visible graffiti?
(# of instances)

Yes

No

Is there garbage/litter on
the ground?

Yes

No

Are there empty bottles
of alcohol?

Yes

No

Are there cigarette butts
on the ground? (5+)

Yes

No

Are there indicators of
youth loitering?

Yes

No

Examples:

Are there indications of
drug use?

Yes

No

Examples:

Extra Notes:

Businesses:

What kinds of
businesses are located in
the area? (circle all that
apply)

Franchises

Mom and pop shops

Boarded/closed down

Bars

Liquor stores

Drug paraphernalia

Pawn shops

Thrift stores

Tattoo parlours

Unemployment office

Educational centers

Religious centers

Health centers

Emergency response

Cheque cashing

Addiction centers

What types of
Franchises are in the
area? (List)

What types of mom and
pop shops are in the
area? (List)

Are there hand painted
signs?

Yes

No

Is there use of riot bars?
(5+)

Yes

No

Is there graffiti on
exterior walls? (# of
instances)

Yes

No

Are there obvious
businesses that cater to
students?

Yes

No

Examples:

Are there non-English
and non-French
advertisements?

Yes

No

Examples:

Are there damaged
signs?

Yes

No

Are there markers of
defensible space
(barriers, fences, walls,
bars)?

Yes

No

Extra Notes:

Chapter 3

Neighbourhood Disorder and School Outcomes in a Canadian City

Visible cues of disorder have long been interpreted as socially and spatially patterned symbols of public ‘incivility’ and neighbourhood differentiation. Comprised of physical and social problems ranging from visible garbage to graffiti to loitering in streets and other public areas, disorder is predominantly conceived as a multi-dimensional construct that plays a role in the *use* and *social ranking* of public places¹⁶. This chapter examines the complex association between neighbourhood physical disorder and schools. Using observational data collected in neighbourhoods surrounding 168 elementary and secondary schools in Hamilton, ON, this investigates the possibility that beyond the recognized effects of socio-demographic composition (race and class), additional mechanisms in neighbourhoods, such as disorder and collective efficacy, become entrenched in certain spatial contexts and may indirectly affect school outcomes such as achievement, discipline and safety. The guiding research question of this dissertation chapter is: *Does neighbourhood physical disorder influence school outcomes such as student achievement, discipline and perceptions of safety, net of the other aggregate characteristics of neighbourhoods?* This question is addressed using ordinary least

¹⁶ Theorizing disorder reflects a ‘process turn’ in neighbourhood effects research that moves beyond more static features of socio-demographic composition (race and class) to account for how neighbourhood effects are transmitted. Though researchers are still undecided whether disorder is an explanatory mechanism or an outcome of neighbourhood inequality, disorder continues to be of theoretical and empirical interest precisely because of its visual salience and symbolism that reflects powerfully on shared understandings and expectations of urban communities.

squares (OLS) regression to compare the different ways that observed disorder relates to school outcomes (including test scores, discipline, and feelings of safety), net of school type (public versus Catholic) and various census measures for neighbourhoods surrounding schools. Although social scientists have studied the influence of neighbourhood disorder on crime (Sampson, 2012), collective efficacy and social control (Morenoff, Sampson, and Raudenbush, 2001), physical health (Cohen, Spear, Kissinger, Mason, and Wildgen, 2000) and mental health (Latkin and Curry, 2003; Curry, Latkin, and Davey-Rothwell, 2008), very few have related it to school outcomes. To date, the only attempt to apply hypotheses of physical disorder to school contexts has estimated that after accounting for prior levels of collective efficacy, student perceptions of threatening or violent interactions are [directly and indirectly] affected by the physical appearance of a school (Plank, Bradshaw, and Young, 2008). Not only does this study suggest that educators and researchers should be vigilant about contextual factors that influence student perceptions of school climate and safety, it highlights the lack of needed research on how physical disorder, and collective efficacy, may *directly* and *indirectly* influence other school outcomes as well.

Neighbourhood Effects and School Outcomes

Research centered on neighbourhood effects on school outcomes has been a popular topic in the sociology of education, mostly centered on how neighbourhoods have few net effects on school processes. Many sociologists have emphasized the effects of neighbourhoods on various school outcomes, such as, verbal ability (Sampson, Sharkey, and Raudenbush, 2007), academic achievement (Raudenbush, Jean, and Mansfield,

2011), graduation rates (Wodtke, Harding, Elwert, 2011), educational attainment (Garner and Raudenbush, 1991), dropout rates (Harding, 2003), and juvenile behaviour (N. Bowen and G Bowen, 1999; Duncan and Magnuson, 2011; Burdick-Will, 2013).

Sampson et al (2007), for example, shows quantitatively how African-American children living in disadvantaged neighbourhoods are prone to disadvantage in verbal ability later in life that is equivalent to missing a year or more of schooling. Raudenbush et al (2011) describe how "...urban families living in poverty move more frequently, and as a result of school sorting based on socio-economic status, children attending elementary schools with considerable student mobility make less progress in mathematics than students in schools with a low level of student mobility" (Pg. 14). Sustained exposure to disadvantaged neighbourhoods has been estimated to reduce the probability of high school graduation from 96 to 76 percent for black children, and from 95 to 87 percent for nonblack children (Wodtke et al, 2011). Earlier research by Garner et al (1991) identified a significant negative association between neighbourhood deprivation and young people's end-of-school attainment, in addition to the effects from individual and family-background influences. More recent research by Harding (2003) compared youth experiencing different neighbourhoods during adolescence using a counterfactual framework. He found that the youth exposed to high-poverty neighbourhoods are more likely to drop out of secondary school (and have a teenage pregnancy) than those in low-poverty neighbourhoods. Finally, K. Bowen et al (1999) emphasized how measures of neighbourhood and school danger are predictors of school outcomes. They argue that measures of neighbourhood danger are predictive of student attendance and juvenile

behaviour, especially for low-income, African American, males from urban settings that report being increasingly exposed to environmental dangers. There is now considerable evidence supporting the conclusion that school and neighbourhood crime have a negative effect on both reading and math standardized test scores. Research here tends to relate this effect to direct reductions in classroom learning, through physical harm, psychological stress, and various anti-social behaviours increasingly prevalent among low-income youth upon entering kindergarten (Duncan et al, 2011; Burdick-Will, 2013).

These kinds of studies imply that scholars are increasingly recognizing that neighbourhoods matter— especially in relation to the problems that plague urban schools. However, researchers interested in school achievement, school climate, and youth cultures, acknowledge that gaps still exist in the sociology of education regarding conceptualizing the relationship between school and community ecologies (Gephart, 1997; Welsh, Greene, Jenkins, 1999; Owens, 2010). Critics note that recent attempts to measure neighbourhood effects have tended to too focused on aggregate and individual characteristics (i.e. population stability, socio-economic and ethnic composition) rather than its direct contextual attributes (i.e. abandonment, signs of social control, and safety), which may be equally important as determinants of individual well being (Mayer and Jencks, 1989; Macintyre, Ellaway, and Cummins, 2002). This rising interest in studying social mechanisms, while continuing to recognize compositional characteristics of public spaces, is a concerted attempt by neighbourhood researchers to reveal the collective and physical dimensions of neighbourhood life and account for how neighbourhood effects are transmitted.

A New Look at ‘Disorder’ and School Ecologies

Several existing theories address the effects of such neighbourhood settings on schools and school outcomes. Employing social disorganization theory (Sampson *et al*, 1999), broken windows theory (Plank *et al*, 2009), and collective efficacy (Sampson, Raudenbush, and Earls, 1997), the following studies show how disorderly neighbourhoods may weaken school institutional controls and erode school climate. In this case, there is a ‘spill over’ effect, whereby school outcomes (i.e., achievement, suspension rates, and safety) may be negatively influenced by the wider context of the surrounding neighbourhood(s) (Morenoff, 2003). Over the last two decades, educators and researchers have recognized that there are complex elements that make up school climate. Education policy makers and administrators are interested in defining and understanding school climate because it has a deep rooted connection to academic achievement and school violence (Welsh, 2000). According to school climate research, schools are like “people”, each with their own characteristic personality. Unhealthy organizational climates contribute to low motivation, psychological withdrawal, and lack of complacency and frustration (Welsh, Stokes, Greene, 2000). All actors within the institution govern the social etiquette of each school: administrators, teachers, and students. Together their interaction determines the unwritten codes of conduct, which includes how actors communicate, behave, understand and perceive influencing roles, and establishes social rewards and sanctions (Welsh, 2000; Welsh, Stokes, Green, 2000; Banchero, 2006).

According to social disorganization theory, schools geographically located in impoverished and disorderly neighbourhoods may be at a disadvantage relative to schools in more affluent and orderly areas. While the majority of past research has centered strictly on socio-demographics to account for these gaps, no research has been conducted that conceptualizes neighbourhood disorder (or context) as a mechanism that has potential to disrupt school processes. By rethinking disorder as a proximate cue of neighbourhood disorganization, and not merely a symptom of underlying poverty, I propose that neighbourhood disorder has potential to break down not only the formal and informal controls of the surrounding neighbourhood of a school, but also of the school itself. My hypothesis is that disorder may serve as either a possible mechanism that generates delinquency by directly triggering student deviance, and/or, serves as a visual cue for self-selection out of schools that are proximate to disorder¹⁷.

Mechanism 1: Disorder as a Direct Trigger of Student Deviance (and Low Achievement)

A school's location in disorderly neighbourhoods could make it increasingly vulnerable to contact with oppositional subcultures and behaviours that encourage student deviance and discourage student achievement. According to Routine Activities Theory, public spaces that lack social controls have suitable targets and the presence of motivated offenders increase the likelihood of an offence taking place (Morenoff et al, 2001). Urban sociology has demonstrated that impoverished environments similar to this are more

¹⁷ An alternative hypothesis is that signs of disorder may not only result from but also lead to a wider breakdown in social control. Chapter 3 will qualitatively explore these different mechanisms, and issues of causal ordering in more detail.

susceptible to social interactions that are guided by intimidation and hostility much more than by co-operation and decency (Anderson, 1999). Since physical disorder is predictive of concentrated poverty, lowered collective efficacy, and crime, this purported mechanism may directly symbolize lax social controls, attract predatory criminals, provoke fear, and stigmatize neighbourhoods. If broken windows theory and routine activities theory are correct, students attending schools located in disorderly neighbourhoods may be increasingly tempted to criminality directly if they interpret disorder as signalling loose social controls. Instead of risking being caught by school administrators on school property, students may opt to seek refuge in secluded and unsupervised areas off-site (in the school's surrounding 'disorderly' neighbourhood). From smoking cigarettes, to marijuana, or fighting with fellow students, neighbourhood conditions influence behaviours and attitudes of students. For some, this street-level interaction may expand the range of behaviours considered acceptable by students and desensitize them to more serious examples of crime and delinquency. Given that students must attend class, these deviant activities taking place 'just' off of school property certainly have potential to enter the school, especially if it too shows signs of and has a reputation for being disorderly. While schools have always dealt with substance abuse and interpersonal conflict between students (including bullying), schools located in disorderly and impoverished neighbourhoods may be at greater risk of high-risk behaviours disrupting school processes (i.e. learning and safety). School climate research already concludes that poverty is the most accurate predictor of student misconduct (Welsh, 2000). This fact could be exacerbated in schools located in environments

displaying deterioration, graffiti and vandalism and that draw students from impoverished catchment areas. Furthermore, the combination of socio-demographic and socio-ecological factors external to the school setting can restructure the perimeters of behaviour inside the school as it disrupts academic performance, and instils fear among all actors.

Alternatively, other contextual factors outside of, and internal to, a school may buffer any forces that could otherwise disrupt school processes. Higher levels of collective efficacy in school neighbourhoods, for instance, may reduce opportunities for risk-taking on or off school property. Community level variations in collective efficacy and social control have been found to contribute to varying crime rates (Morenoff et al, 2001). Schools located in orderly and community focused neighbourhoods may further reduce the likelihood of students taking part in high-risk behaviours off school property, potentially creating a rationale to avoid them all together. Within the school, informal and formal controls may prevail over the effects of its surrounding neighbourhood and student socio-demographic composition. As Arum (2000) states, institutional processes can create in some ways a uniform education system with little variation between schools. Consequently, bureaucratic structure (i.e. standardized rules and regulations), increased funding, new security technologies (i.e. security cameras, metal detectors, etc) and personnel (i.e. security guards, hall-monitors, police monitoring), are attempts by institutional administrators to make schools oases that are conducive to learning and safety, regardless of the school's geographic location and neighbourhood ecology.

Mechanism 2: Disorder as a Visual Cue for Family Self-Selection Out of Schools

It is also possible that disorder may trigger family self-selection out of schools that are proximate to disorder. Achievement oriented and aspiring families may perceive disorderly school ecologies to symbolize a deeper neighbourhood malaise and utilize these contextual cues, or lack thereof, to aid their choices about schooling. Similar to Davies' (2013) explanation of school sector effects in Ontario, schools in more orderly neighbourhoods may achieve more, have fewer discipline problems, and generally feel safer, because they attract a disproportionate number of 'good' students compared to their more disorderly counterparts. Schools located in disorderly neighbourhoods may be increasingly prone to developing or reinforcing negative school reputations that trigger self-selection by achievement oriented and aspiring families into schools outside of their normal attendance boundaries, if they have the needed resources. For them, visual signs of graffiti might be more loaded with social meaning (and deviant associations) than other forms of disorder. This could demonstrate an indirect effect of disorder on school outcomes because school choices by achievement oriented and aspiring families may be based on how they perceive disorder in the first place, and attach meaning to public places, like schools.

Procedures and Data

This article analyzes observational data compiled using "systematic social observation" (SSO), a standardized approach for observing and recording local neighbourhood disorder. Inspired by the writings of Charles Booth (1889) and Albert Reiss (1971), SSO has been a significant advance in the area of neighbourhood effects research,

complementing census and resident perception data. This body of techniques usually involves sending trained researchers into urban neighbourhoods with structured rating tools that seek to identify the presence or absence of various features of the environment¹⁸. After coding the attribute(s) of interest into quantified measures, the field researchers are then able to examine their relationship to a variety of outcomes independent of residents' perceptions (Sampson, 2009; Sampson, 2012).

Data collection phase for this project took place over two summers in 168 Hamilton school neighbourhoods (144 elementary schools, 25 secondary). Adopted from Earls et al's (1995) Project on Human Development in Chicago Neighbourhoods (PHDCN) our protocol measured the organization of each neighbourhood's *physical* environment, such as land usage, types of residences and businesses, building maintenance, amount of garbage, graffiti and drug paraphernalia, and so on, as well as the physical characteristics of local business establishments. The physical plant external to each school was also coded for the presence or absence of visible signs of disrepair and security precautions, ranging from, broken windows, garbage accumulation, cigarettes on the ground, and graffiti, to educational advertisements, landscaping, renovations, and security cameras (Appendix 1).

A data merging exercise was then used to marry this original SSO data with census demographics, and various school measures (ranging from population, type, level,

¹⁸ The most common attributes coded with these kinds of methods are physical disorder (e.g., broken windows, graffiti, unkempt properties) and social disorder (e.g., loitering, public alcohol consumption) (Sampson, 2009).

achievement, discipline, and perceptions of safety) into a comprehensive school-level data set. Table 6 presents summary statistics for these measures and scales.

School Outcomes

Student achievement is measured using select Education Quality and Accountability Office (EQAO) test scores for each school, and averaging them over 3 successive years. Each observation represents the percentage of grade 6 or 9 students in a school that met either the provincial standards for reading, or mathematics, over the past 3 years¹⁹.

Suspension rate is a 3 year average of annual student suspension rates at N=112 public elementary and secondary schools in the Hamilton Wentworth District School Board (2010). Data for this measure was unavailable from the Catholic board, and hence only examines only public schools. This rate measures the average yearly suspension rate, over three years.

Feeling Unsafe uses aggregated individual level data from a Hamilton Wentworth District School Board (HWDSB) Safe Schools Survey. This variable represents the percentage of students in each school that reported feeling ‘unsafe’ when they were on school property. These data do not contain any Catholic schools (N=102).

SSO Measures

Physical Disorder is a scale constructed using eight items intended to capture its presence or absence in *each* school’s surrounding face block (i.e. North, East, South, and

¹⁹ EQAO is an independent, arm's-length agency of the Ontario provincial government that provides educators and the public with reliable and valid data about student achievement at the school and board level (<http://www.eqao.com/results/?Lang=E>).

West). Borrowing from Sampson (1999), each item was initially dummy coded, 0 = absent and 1 = present²⁰. Less serious indicators of disorder (i.e. cigarette butts and garbage/litter) were assigned a minimum cut-off (i.e. 5+ instances) for appearing more frequently on school property and in public spaces (Appendix 1). Any indication of graffiti (as described below) on each face block was given a value of 1. A final measure was then assigned to *each* item by averaging the reported scores between coders. In declining order of observed frequency, this physical disorder scale includes the presence or absence of *garbage or litter* on the street and sidewalk (15 = absent; 153= present); *cigarette or cigars* in the street or sidewalk (19= absent; 149= present); *tag graffiti* (35 = absent; 133= present); *broken glass* on the street and sidewalk (131= absent; 37= present); *empty alcohol bottles* in the street (132= absent; 36= present); *visible signs of vandalism* (132= absent; 36= present); *drug paraphernalia* on the sidewalk (159= absent; 9= present); and *abandoned cars* (166= absent; 2= present). By adding the 8 items mentioned above, a physical disorder scale was constructed with a Cronbach's alpha coefficient of .68. Coders agreed on 93% of their observations for these physical disorder variables (5599= agreed; 5988= total observation).

Graffiti uses the total number of walls and surfaces that displayed any presence of tagging graffiti, gang graffiti or political message graffiti²¹. Instances of graffiti were coded for their raw count on school property and in each block face.

School Exterior Disorder is a scale constructed to measure disorder in each

²⁰ Each school's physical plant received only one dichotomized score per item, whereas, the surrounding neighbourhood received a score for each face block that was then summed into a final score.

²¹ Tag graffiti, identified by stylized labelling, such as block letter art or scribbling, was observed most frequently. All other forms of graffiti were rarely observed, especially political messages.

school's physical plant. The scale items include the presence or absence of *garbage or ground litter* (7= absent; 161= present); *property landscaping* (reverse coded; 7= absent; 161= present), *signs of disrepair* (21= absent; 147= present); *riot bars on entrances or windows* (39= absent; 129= present); *cigarette or cigars* (65= absent; 103= present); *garbage bins* (reverse coded; 72= absent; 86= present); *student uniforms* (reverse coded; 112=absent; 57= present); *security cameras* (116= absent; 52= present); *security precautions* (131= absent; 37= present); and *student smoking area* (150= absence; 18= present). Using the mean graffiti count (4.52) for the population of schools, a graffiti measure was then included into this scale by coding 0 = below the mean, and 1 = above that mean. A final scale was then constructed with a Cronbach's alpha coefficient of .60 by summing these dummy coded indicators, as was done with the below physical disorder scale²². Coders agreed on 89% of their observations for these school exterior items (3148= agreed; 3528= total observations).

School Characteristics

Catholic School is a dummy coded indicator of school type that represents whether a school is public (0) or Catholic (1).

School Level is a dummy coded indicator of elementary (0) and secondary (1) schools.

School Population represents the total number of students enrolled in each school.

Neighbourhood Characteristics

Material deprivation is a socio-demographic index from the Ontario

²² Since most schools have the same scores for the variables *garbage or ground litter* and *property landscaping*, there was little between school variability for these items in the disorder scale.

Marginalization Index based on the following proportions that are: individuals 20 years and over without a high-school diploma, lone parent families, individuals receiving government transfer payments, individuals fifteen years and over who are unemployed, individuals considered low-income²³, and dwellings that are in need of major repair.

Table 6 Descriptive Statistics: SSO Measures, Neighbourhood Characteristics, and School Outcomes

Variable Name	Observations	Mean	Standard Deviation	Min	Max
Achievement (EQAO)	159	61.17	13.09	29.17	89.11
Suspension Rate	112	5.36	5.76	0	33.13
Feeling Unsafe	102	.23	.08	.08	.52
Physical Disorder (PD)	168	5.9	3.7	0	21
Graffiti	168	5.16	5.92	0	35
School Exterior Disorder	168	8.57	1.51	4.5	13
Catholic School	169	.34	.47	0	1
School Level	169	.15	.36	0	1
School Population	169	474.87	345.06	66	1898
Material Deprivation	168	.11	1.03	-1.44	4.34

Data Analysis

Data were analyzed using OLS regression to assess the extent in which observed disorder influences academic achievement, suspension rates, and student perceptions of safety.

While this analysis refers to other school and neighbourhood effects, for the purposes of this study these serve as control variables. The focal interest is on the effects of disorder, *net* of the other variables.

Academic Achievement

Observed physical disorder is found to have a negative association with academic achievement. When test scores are regressed on disorder alone (Table 7-I), or when

²³ “Low income” is defined as below the low-income cutoff (LICO), a Statistics Canada measure that is adjusted for community size, family size and inflation (Matheson, Dunn, Smith, Moineddin, and Glazier, 2012).

controlling for school type, level, population, and neighbourhood demographic composition (Table 7-II), disorder has a statistically significant effect at the $P < .001$ level. Catholic schools had significantly higher achievement scores than their public school counterparts (Table 7-II). Whereas secondary schools tended to have lower levels of achievement (at the $P < .05$ level), there is no significant relationship between school population and EQAO test scores (Table 7-II). Higher levels of material deprivation on a school block predicted lower aggregate school achievement (at the $P < .001$ level; Table 7-II). While there are no significant relationships between a school's physical exterior and test scores²⁴, the coefficients and significance levels associated with physical disorder and the other control variables decrease slightly but their patterns remain the same (Table 7-III).

Graffiti also has a negative association with academic achievement at the $P < .001$ level when regressed alone, and at the $P < .01$ level when controlling for neighbourhood and school characteristics (Table 7-IV; Table 7-V). Though school type and material deprivation again have positive and negative associations with test scores at the $P < .001$ level, respectively, school level and school population do not (Table 7-V). Similar to Table 7-III, there are no significant relationships between academic achievement and school exterior disorder (Table 7-VI). When controlling for school exterior disorder, the coefficients for the school and neighbourhood variables (such as graffiti) decrease slightly.

²⁴ Preliminary research identified that school exterior disorder has a significant negative relationship (at the $P < .001$ level) with test scores, and suspension rates, when controlled for independently. However, this relationship disappears when neighbourhood disorder, and other school variables are included in the model.

Table 7 Coefficients for Ordinary Least Squares Regression Models for School-Level Achievement

Variable Name	(I) EQAO	(II) EQAO	(III) EQAO	(IV) EQAO	(V) EQAO	(VI) EQAO
Physical Disorder Scale	-1.313*** (.263)	-.845*** (.236)	-.820** (.242)			
Graffiti Count				-.710*** (.167)	-.358* (.153)	-.333* (.157)
School Exterior Disorder			.309 (.643)			-.506 (.654)
Catholic School		9.964*** (1.712)	9.857*** (1.730)		9.511*** (1.743)	9.355*** (1.758)
Secondary Level		-10.261* (4.302)	-9.454* (4.629)		-7.616 (4.457)	-6.461 (4.705)
School Population		.001 (.004)	.001 (.005)		-.00005 (.005)	-.0004 (.005)
MI: Deprivation		-4.829*** (.853)	-4.829*** (.855)		-5.689*** (.813)	-5.655*** (.826)
Cons	68.935*** (1.833)	64.402*** (2.034)	66.933*** (5.646)	64.870*** (1.321)	61.621*** (1.829)	65.889*** (5.813)
<i>N</i>	159	158	158	159	158	158
<i>R</i> ²	.132	.437	.434	.102	.411	.409
<i>t</i> statistics in parentheses * <i>p</i> < 0.05, ** <i>p</i> < 0.01, *** <i>p</i> < 0.001						

Suspension Rate

Table 8-I and Table 8-II respectively show that observed disorder is positively associated with school suspensions rates at the $P < .001$ level when regressed alone, and at the $P < .01$ level when controlling for school level, population, and neighbourhood demographics. Higher suspension rates are also reported at the $P < .001$ level by secondary schools, and schools in impoverished neighbourhoods (Table 8-II). However, schools with larger student populations report fewer suspensions annually (at the $P < .001$ level; Table 8-II). Once again, school exterior disorder has no significant relationship with

student discipline. All other school and neighbourhood coefficients tend to decrease (except for material deprivation) when this variable is controlled for (Table 8-III).

Neighbourhood graffiti demonstrates a positive and significant association with student suspension rates at the $P < .001$ level (Table 8-IV). Additionally, secondary schools continue to have the highest suspension rates among all public schools, whereas schools with larger student populations tend to have the lowest rates (Table 8-V). When controlling for graffiti, material deprivation seemingly reports a stronger (positive) association at the $P < .001$ level with this measure of student discipline. School exterior disorder had no significant relationship with a school's suspension rate. When this variable is controlled for, the coefficients for total graffiti count, school level, and population slightly decreased (Table 8-VI).

Table 8 Coefficients for Ordinary Least Squares Regression Models for School-level Suspension Rates

Variable Name	(I) Suspension Rate	(II) Suspension Rate	(III) Suspension Rate	(IV) Suspension Rate	(V) Suspension Rate	(VI) Suspension Rate
Physical Disorder Scale	.613*** (.146)	.379** (.111)	.372** (.116)			
Graffiti Count				.424*** (.088)	.247*** (.067)	.242** (.069)
School Exterior Disorder			.067 (.325)			.098 (.319)
Catholic School						
Secondary Level		11.249*** (1.619)	11.071*** (1.835)		9.408*** (1.62)	9.190*** (1.776)
School Population		-.007*** (.002)	-.007*** (.002)		-.006** (.002)	-.006** (.002)
MI: Deprivation		1.686*** (.373)	1.692*** (.376)		2.035*** (.341)	2.036*** (.343)
Cons	1.925* (.962)	4.222*** (.881)	3.697*** (.325)	3.214*** (.668)	5.068*** (.768)	4.280 (2.681)
<i>N</i>	112	111	111	112	111	111
<i>R</i> ²	.130	.498	.494	.167	.506	.501
<i>t</i> statistics in parentheses * <i>p</i> < 0.05, ** <i>p</i> < 0.01, *** <i>p</i> < 0.001						

Feeling Unsafe

There is a positive and significant association between observed disorder and more students feeling unsafe at the *P* < .001 level when regressed alone (Table 9-I), and at the *P* < .01 level when controlling for school type, level, population, and neighbourhood demographics (Table 9-II). Schools in more impoverished neighbourhood settings are also perceived to be increasingly unsafe by their students at the *P* < .01 level (Table 9-II). Surprisingly, schools with larger student populations report feeling slightly safer at the *P* < .001 level, whereas, school level did not seem to have any significant effects (Table 9-II). Unique to Table 9-III is that school exterior disorder positively predicts student

perceptions of safety at the $P < .05$ level, meaning that more disorder leads students to feel increasingly unsafe. While controlling for school exterior disorder may cause the other variables coefficients to decrease slightly, their significance levels and patterns stay the same (Table 9-III).

Table 9 Coefficients for Ordinary Least Squares Regression Models for School-level Perceptions of Student Safety

Variable Name	(I) Feeling Unsafe	(II) Feeling Unsafe	(III) Feeling Unsafe	(IV) Feeling Unsafe	(V) Feeling Unsafe	(VI) Feeling Unsafe
Physical Disorder Scale	.008*** (.002)	.007** (.002)	.006** (.116)			
Graffiti Count				.001 (.001)	.003* (.001)	.002 (.001)
School Exterior Disorder			.012* (.006)			.014* (.006)
Catholic School						
Secondary Level		.044 (.029)	.014 (.032)		.019 (.030)	-.012 (.032)
School Population		-.0002*** (.00003)	-.0002*** (.00003)		-.0001*** (.00004)	-.0001** (.00003)
MI: Deprivation		.022** (.007)	.023*** (.007)		.029*** (.006)	.029*** (.006)
Cons	.177*** (.015)	.246*** (.017)	.156** (.047)	.218*** (.011)	.269*** (.015)	.160** (.049)
<i>N</i>	102	101	101	102	101	101
<i>R</i> ²	.120	.385	.404	-.001	.345	.374
<i>t</i> statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Although graffiti does not demonstrate any significant total effects on student perceptions of safety (Table 9-IV), this changes when controls are added for school type, level, population, and neighbourhood demographics. Table 9-V shows that neighbourhood graffiti is positively related (at the $P < .05$ level) to the proportion of

students in each school that reported feeling unsafe. This is also the case for material deprivation, which positively predicts more students feeling unsafe at the $P < .001$ level (Table 9-V). Though schools with larger student populations were perceived as safer (at the $P < .001$ level), school level reported no significant relationship (Table 9-V). Again, students reported feeling increasingly unsafe in more disorderly school settings at the $P < .05$ level (Table 9-VI). Whereas material deprivation and school population maintained their significance level and pattern, graffiti count was no longer significant net of all other controls.

Assessing Effect Sizes of Physical Disorder and Graffiti

Using Cohen's (1988) guidelines as a benchmark²⁵, effect sizes were calculated by dividing the coefficients associated with the dummy coded disorder and graffiti variables²⁶, by the standard deviations of the three outcome variables. Table 10 shows that the effect sizes for physical disorder are sizeable, ranging from .26 to .44, while the effect sizes of graffiti range from non-existent at .03 to a more modest effect at .30. Physical disorder demonstrates the largest net effects on school-level achievement, suspension rates, and perceptions of student safety, in comparison to graffiti. This means, it is possible to expect schools located in more disorderly neighbourhoods to show lower EQAO results (by .35 standard deviations), as well as higher suspension rates (by .26

²⁵ Assessing effect sizes: 0.2= small (yet socially noteworthy); .5= medium; .8= large.

²⁶ Dummy coded disorder and graffiti variables were constructed using natural threshold points in their distribution to separate high from low levels. Schools were considered 'high' disorder if they reported a disorder score of 5.5 or more. They were then given a value of 1. Similarly, schools that showed 4.5 or more instances of graffiti were given a value of 1.

standard deviations), and more negative perceptions of school safety (by .44 standard deviations).

Table 10 Effect Sizes of Physical Disorder and Graffiti on School-level Achievement, Suspension Rates, and Perceptions of Student Safety

Variable Name	EQAO	Suspension Rate	Feeling Unsafe
Physical Disorder	.35 (Table 7-III)	.26 (Table 8-III)	.44 (Table 9-III)
Graffiti	.03 (Table 7-V)	.23 (Table 8-V)	.30 (Table 9-V)
Note: Reference to final model from Table 2-4 in parenthesis			

For graffiti, although the magnitude of graffiti on academic achievement is not noteworthy, it does demonstrate modest net effects on both school discipline and safety (Table 10). It can be expected that school settings with large amounts of graffiti, may show more suspensions annually (by .23 standard deviations), and have a higher proportions of students report feeling unsafe (by .30 standard deviations). Still, in comparison to physical disorder, the effect size of graffiti on all three outcomes can be considered small in magnitude.

Discussion

Consistent with my theoretical expectations, disorder has its hypothesized impacts on school outcomes, net of relevant controls. The findings from this study support the notion that (neighbourhood) disorder is a robust predictor of lower academic achievement, higher suspension rates, and negative perceptions of safety. Additionally, graffiti is found to be a salient ecological measure with robust net effects on these same school outcomes. There also seems to be a surrounding ecology that influences school outcomes; material deprivation has consistently strong effects, as one would expect. This highlights an

important ‘neighbourhood effect’, one that is not simply an aggregate of individual-level measures, but is a true measure of the (school’s) physical setting.

In contrast, school exterior disorder lacks such consistent effects, and instead seems only to affect student feelings of safety. This result may be driven by school funding formulae (i.e., funding equalization) and other standardizing forces (i.e., teachers, principals, and school rules) that have the effect of detaching the characteristics of school buildings from the characteristics of their surrounding neighbourhoods. If this is the case, disorder on the school exterior may take on somewhat different meanings because of these countervailing forces made possible by funding equalization, and schools in highly disordered neighbourhoods may be ‘oases’ or ‘equalizers’ for youth, in that they temporally isolate students from many corresponding forms of disorder in the surrounding neighbourhoods.

Conclusion

Researchers interested in the sociology of education and urban studies should consider theoretical frameworks that explore the ‘multiplicative effect’ (Owens, 2010), that schools and neighbourhoods interact with and alter *each other*. By doing so, future research will be better equipped to make inferences on the dynamics between neighbourhood mechanisms (such as disorder) and school factors, and how students are affected by this relationship. My next chapter will proceed by devising qualitative methods that attempt to answer this question: just *how* does disorder affect school outcomes? More specifically, I will explore the effects of graffiti as a particularly potent form of disorder that is loaded with social meaning. This will be achieved using two techniques to explore 2 possible

mechanisms: 1) that disorder generates delinquency by directly triggering student deviance, and/or 2) that disorder serves as a visual cue for family self-selection, in which disorder encourages (aspiring, ambitious, achievement-oriented) families to self-select out of schools that are proximate to disorder. This exercise will reconceptualise theories of disorder by providing an-depth examination of the purported mechanisms, to clarify whether neighbourhood residents and students really perceive disorder as signalling weak social controls, as inviting crime, as *disruptive to school processes by triggering student deviance*, or as *a proximate cue used by achieving families to select out of schools*.

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Chapter 4

Unpacking the Effects of ‘Disorder’ on School Outcomes: A Qualitative Exploration

The traditional argument of Broken Windows Theory (BWT) is that 'seeing' disorder is a straightforward matter of observing salient environmental cues (Sampson, 2012). While it is understandable that graffiti, litter, and other signs of public ‘incivility’ may be problematic for some people, there is now a large literature debating whether disorder is an explanatory mechanism, or an outcome of neighbourhood inequality that is typically correlated with concentrated poverty (Sampson and Raudenbush, 1999), crime (Sampson, 2012), poor physical health (Cohen, Spear, Scribner, Kissinger, Mason, and Wildgen, 2000), and mental health (Curry, Latkin, and Davey-Rothwell, 2008). Chapter 3 weighed in on this debate by comparing the different ways that observed disorder relates to various school outcomes. I found that disorder was a robust predictor of lower academic achievement, higher suspension rates and negative perceptions of safety, net of other aggregate characteristics of neighbourhoods (i.e., socioeconomic status). Graffiti was also found to be a salient neighbourhood measure with robust net effects on these same school outcomes. But my models could not identify causality.

This third dissertation chapter uses qualitative methods to attempt to answer this question: just *how* does disorder, including graffiti, affect school outcomes? How do the *net effects* found in chapter 3 arise? This chapter explores 2 possible mechanisms: 1) that disorder affects school outcomes by directly triggering student deviance, and/or 2) that disorder indirectly affects school outcomes by triggering family self-selection, in which

disorder encourages aspiring, ambitious, and achievement-oriented families to self-select out of schools that are proximate to disorder.

To examine these possible mechanisms, this chapter adopts multiple methods in an attempt to capture deeper, more qualitative accounts of schools, going beyond just a few quantified indicators, as did the previous chapters. It develops case studies of four secondary schools that vary widely in their levels of disorder, and uses a variety of data collection techniques, including stakeholder interviews, field observations, and repeated systematic social observation (SSO) to inspect the permanence or transience of disorder around schools. Key stakeholders from 4 school neighbourhoods were interviewed about their perceptions of neighbourhood disorder, school reputations, and whether parents take account of disorder when selecting schools²⁷. Repeated SSO over several weeks was also used to measure whether disorder patterns are consistent or variable on school grounds and their surrounding street blocks. By combining methods, I provide an in-depth examination of the two purported mechanisms: whether neighbourhood residents and students really perceive disorder as signaling weak social controls and triggers student deviance, or whether disorder is a proximate cue used by achieving families to select out of schools. This chapter sacrifices much of the breadth of the previous chapters in favour of more depth. Since broad relationships between variables have already been established, this research attempts to uncover the social processes that generate them.

²⁷ Student movement across school catchment boundaries is Ontario provincial policy, and is also common in most North American jurisdictions. If space is available, a student can attend a school outside of their catchment area if they acquire permission from the Board and provide their own means of transportation.

Does Disorder Trigger Student Deviance (and Low Achievement)?

BWT sees disorder as visual cues of urban decline that are objective and obvious in their meaning (Wilson and Kelling, 1982; Sampson, 2012)²⁸. Signs of visible disorder, especially in areas of concentrated poverty, may serve as proximate cues to individuals, signalling that the location can be used as a staging area for other types of illicit activities (Plank, Bradshaw, and Young, 2009). Not repairing minor problems, like broken windows or graffiti and garbage, can serve as a signal of the unwillingness of residents to confront strangers, intervene, or call the police (Sampson, 2009). Proponents of Broken Windows theory thus assume that disorder has harmful consequences on individual health and welfare. Following BWT, many international cities (such as New York City, Paris, London) have attempted to regain ‘public order’ through police crackdowns, and by keeping an aggressive watch on elements of physical and social disorder (Sampson, 2012).

While most research on disorder has focused on whether it causes crime, a logical extension of BWT is that disorderly neighbourhoods may encourage student deviance and discourage student achievement. From this perspective, schools geographically located in impoverished and disorderly neighbourhoods may be at a disadvantage relative to schools in more affluent and orderly areas if disorder exposes them to a greater variety of

²⁸ In a recent blog post, urban designer Erin Chantry describes the concept of ‘place identity’; in which people define how they feel, and perceive themselves, through the built environment around them. For her, the physical landscape, ranging from the appearance of streets, buildings, and even public spaces, is the medium of urban designers that contributes to why parts of the city are perceived as ‘different’. See http://helmofthepublicrealm.com/2012/02/04/place_identity_a_sensual_city/

subcultural norms, including deviant ones. School climate research already concludes that poverty is the most accurate predictor of student misconduct (Welsh, 2000; Khoury-Kassabri, Benbenishty, Astor, and Zeira, 2004)²⁹. Urban sociology has also demonstrated that prolonged exposure to environmental dangers on and off school property can negatively affect school outcomes, especially attendance and behaviour (Bowen and Bowen, 1999). Disadvantaged neighbourhoods are thought to expose adolescent boys to older peers who might reinforce local norms of violence and cultural frames that oppose schooling (Harding, 2009). For instance, Elijah Anderson (1999) has written extensively about ‘the code of the street’, which suggests that within socioeconomically challenged neighbourhoods, social interaction can sometimes be governed by norms of aggression and intimidation, rather than cooperation and ‘decency’. If BWT is correct, students attending schools located in disorderly neighbourhoods may be increasingly drawn into delinquency if they interpret nearby cues of disorder (such as signs of disrepair, graffiti and vandalism) as signalling lax social controls. For some, such neighbourhood conditions may expand the range of attitudes and behaviours considered acceptable by students, and even desensitize them to more serious examples of delinquency. From smoking cigarettes, to marijuana, or fighting with fellow students, students may opt to seek refuge ‘just’ off of school property in secluded and unsupervised areas instead of

²⁹ Drawing from questionnaires from 10, 400 students in grades 7 to 11 to predict school violence, Khoury-Kassabri et al (2004) report that the socioeconomic status of a school’s neighbourhood and its students has a moderate effect on victimization rates. Their discussion of school climate highlights the importance of allocating more resources to schools in impoverished neighbourhoods in order to protect those students from school violence.

risking being caught by school administrators on school property³⁰. Given that students under the age of 18 must attend class, there is certainly potential for these deviant activities happening nearby to ‘spill-over’ and negatively affect the school climate as they disrupt academic performance, trigger other rule-breaking behaviours, and possibly instil fear.

As highlighted in Chapter 2, an alternative hypothesis is that other contextual factors both outside of, and internal to, a school may buffer any negative factors that could otherwise disrupt school processes. For instance, higher levels of collective efficacy in school neighbourhoods may reduce opportunities for risk-taking on or off school property. Collective efficacy – the cohesion and trust among residents combined with shared expectations of social control in public spaces – has been found to contribute to varying crime rates (Sampson et al, 1999, 603; Morenoff et al, 2001). By this account, schools located in more orderly and community focused neighbourhoods may further reduce the likelihood of students taking part in high-risk behaviours off school property. Additionally, schools may develop informal and formal controls that ‘dis-embed’ them from their neighbourhood ecologies (Arum, 2000). These institutional practices may range from strict bureaucratic structure (i.e. standardized rules and regulations), increased public funding that serves to standardize school grounds and their upkeep, new security technologies (i.e. security cameras, metal detectors, etc.), personnel (i.e. security guards,

³⁰ Routine Activities Theory suggests that the likelihood of criminality taking place coincides with public spaces lacking social controls, having suitable targets, and having motivated offenders (Morenoff, Sampson, and Raudenbush, 2001). From this perspective, disorder in areas next to schools can trigger delinquency by attracting motivated offenders, providing available targets for victimization (such as fellow students who cannot defend themselves, or local businesses), and lessening the impact of guardians who might otherwise oversee conduct in nearby alleys, vacant lots, secluded areas, side streets, etc.

hall-monitors, police monitoring), and possibly by embracing the level of collective efficacy (i.e., cohesion and shared expectations) in the neighbourhood around them.

Across the full range of neighbourhoods, these institutional processes may serve to make student experiences more similar in schools than their experiences outside of schools. In some cases, schools in highly disordered neighbourhoods may serve as ‘oases,’ temporarily shielding youth from harsher conditions beyond school grounds (Morris, 2012; Paille, 2013).

‘Seeing’ Disorder: A Visual Cue for Family Self-Selection Out of Schools?

Another interpretation of neighbourhood disorder de-emphasizes its capacity to trigger deviance, and instead sees disorder as part of a larger process in which neighbourhoods acquire reputations that influence other social outcomes (Sampson et al, 1999; Sampson et al, 2004; Sampson, 2012). Neighbourhoods with high levels of disorder are prone to develop enduring reputations as ‘bad’ and associated with high rates of fear and dissatisfaction (Skogan, 1990; Sampson, 2012). This reasoning suggests that disorder may have indirect effects on school outcomes by influencing school choices by achievement-oriented and aspiring families. If such families perceive disorder negatively and associate it with a public school, that school can acquire a reputation as a place to be avoided. Disorder can thus serve to spoil reputations of achievement-oriented and ambitious parents associate graffiti, litter and vandalism with lesser academic quality. If they do, more ambitious families may decide to self-select out of high disorder schools,

and head towards schools in more orderly settings (by crossing catchment boundaries if they can afford it).

Approximately 2/3 of Canadian parents exercise some form of school choice, ranging from residential selection to use of various performance indicators (Davies and Aurini, 2011). Parents with higher education and incomes, as well as parents who are increasingly engaged in their children's schooling are particularly prone to actively choose schools. Similar to Davies' (2013) explanation of school sector effects in Ontario, schools in more orderly neighbourhoods may have higher academic achievement, fewer discipline problems, and more students that feel safe by attracting a disproportionate number of 'good' students compared to their more disorderly counterparts. This framework implies a 'poverty trap' effect, where shared perceptions of disorder might not only reinforce the relative position of neighbourhoods over time, but also the durable reputations and outcomes of their neighbouring schools.

Methods

The setting for this research is Hamilton ON, a mid-size Canadian city that was once a quintessential industrial city, with many working class neighbourhoods that, while never overtly affluent, were socially stable (e.g. low crime rates) and economically vital (e.g. low unemployment). To understand just how neighbourhood disorder affects school outcomes, a strategic sub-sample of four Secondary schools (both public and Catholic) was selected, consisting of high, medium, or low levels of disorder, based on findings in

my previous chapters³¹. Using this sub-sample, a mixed data collection approach was used, including stakeholder interviews, repeated SSO, and field observations. By combining these methodologies, I aim to create a holistic, semi-case study approach that allows for a deeper exploration of the potential mechanisms that may connect disorder to schooling.

Qualitative Interviews with School and Community Stakeholders

A total of 30 interviews were conducted with multiple stakeholders from these high schools and their surrounding neighbourhoods, including: 14 local businesses, 7 teachers, 6 students³², 1 real estate agent, 1 Police Service representative, and 1 education journalist from the local newspaper (Appendix B)³³. The benefit of this broad ‘stakeholder’ approach was that it offered multiple viewpoints about each school and neighbourhood stemming from a variety of social positions and vested interests. I reason that these stakeholders would be ‘in the know’ through years of informal observation, and would have keen insights into local social processes, including those related to the two mechanisms proposed.

My interviews were semi-structured to provide a framework to explore themes while allowing unexpected ideas to be developed during the interview. Appendix C is the interview guide that outlines the questions asked of participants. These questions centred on whether stakeholders perceived disorder as having an important impact on their schools and neighbourhoods, and if so, whether it directly triggers student deviance

³¹ Each school was given a pseudonym of a Toronto Transit Commission subway stop to maintain their confidentiality. See <https://www.ttc.ca/Subway/interactivemap.jsp>

³² Due to difficulty recruiting student participants, this sample included both current and former students.

³³ In appreciation for each participant’s time, they were given a \$5 Tim Horton’s card.

and/or self-selection. Each interview lasted between 30 and 45 minutes, and took place either face-to-face or by telephone depending on the preference of the participants, such as their schedule and space availability.

Repeated SSO and Field Notes of School and Neighbourhood Disorder

To complement this interview data, small-scale SSO was conducted at each school in order to understand the signalling power of disorder: whether disorder in some schools is more permanent than others, or whether schools have the collective efficacy to remove it quickly (Appendix A). I visited each school once per week, around 3pm, for five consecutive weeks. The rationale for doing this over consecutive weeks was to dig deeper into the idea of ‘signalling’, and whether relatively permanent disorder around schools-observed at similar levels over consecutive weeks – is more likely to generate enduring reputations than is fleeting, temporary disorder. Field notes and photos were also taken to deepen my observations of these selected schools, and to document variations in physical disorder in each school’s surrounding neighbourhood, as well as their physical plant. The data analyzed in chapters 1 and 2 were based on single, one-time observations, and hence are only suggestive for this issue of whether disorder lingers or not. Thus, a unique contribution of this chapter is its direct observation of disorder over consecutive weeks; those observations offer a further glimpse into reputation-building processes, and thus complement your interviews and field observations.

Findings

Is Neighbourhood and/or School Disorder Emphasized in the Interview?

When asked to describe the physical and social landscape of their respective neighbourhoods, it was common for school and community representatives to emphasize the amount of disorder (or lack thereof) in each interview. In high disorder areas, their descriptions of physical disorder tended to focus on the appearance and vacancy of homes, apartments, and storefronts, as well as the amount of strewn garbage and cigarette butts on the ground. They also commented on social disorder - the prevalence of deviant behaviours surrounding each school, such as drug and alcohol use, prostitution and violence. The degree to which participants emphasized these environmental cues to be either a temporary or chronic problem differed between high, medium, and low disorder neighbourhoods.

High disorder: Located just outside of the downtown core, “St. Andrew’s” is surrounded by high traffic streets and concentrated poverty. On each face block surrounding St. Andrew’s the built environment includes many small and vacant businesses, as well as subsidized housing. Those businesses that were open mostly catered to low-income individuals, such as the Salvation Army, a Money Mart, and a discount mobile phone provider. Although this school's physical plant is relatively modern and well maintained, just nearby was a disorderly neighborhood riddled with tag graffiti and litter on the ground. It is also known for having a wide range of social problems, such as drug addiction, prostitution, and people openly exhibiting psychiatric symptoms. While the school attracts many youth each day, its surrounding neighborhood’s lack of attractive

businesses and little greenery seemingly provides little incentive for outsiders to routinely visit this area.

Participants from this inner-city school neighbourhood most frequently saw physical and social disorder as a chronic problem. Described as being comprised of mostly low-income subsidized housing, as well as a large number of struggling and vacant storefronts, this high disorder neighbourhood is often referred to as “out-dated, run-down, and a bit of an ‘eye-sore’” (Business_1). One participant even called its housing situation “derelict and unliveable” (Real estate agent), while another said the type and number of businesses is “going downhill” and “not the same as it was twenty years ago” (Business_2). Other signs of physical disorder, such as tag graffiti and strewn garbage, were also described as making the neighbourhood “dirty” and “not the cleanest place in the world” (Business_3). As highlighted by the Hamilton Police Service (HPS) representative “an example of disorder is tag graffiti. I don’t mean public art graffiti, but the random spraying of initials somewhere for the sake of it”. The high amount of garbage, cigarette butts, and other forms of litter were also believed to be a regular problem seen on its streets, sidewalks, and in alleyways.

There is always garbage and cigarette butts on the ground. We always find lots of garbage in the alleyways next to our store. It’s often difficult to clean up, and it always takes a lot of time. We sometimes find needles around the front of the store too-- it’s really dangerous to touch but I can’t just leave them there...(Business_4).

A surprising finding came when asking teachers and students to describe the physical plant of their school. Both groups spoke positively about how well maintained the school property was in relation to its surrounding neighbourhood. Some even praised it in comparison to other schools in more affluent (and less disorderly) parts of the city.

One student commented, “If you got blindfolded and taken here, you would not expect to be walking out into the streets of downtown Hamilton” (Student_1). Only the school’s sports field was noted as showing many signs of physical disorder, such as litter, drug paraphernalia, and dog feces. As a result, sports teams were noted to patrol this field before each practice to clean up strewn garbage, as well as to ensure their personal safety.

The greatest level of emotion and detail came when participants described the level of social disorder as, “kids shouldn’t have to see what happens down here” (Business_5). The area was said to attract a high proportion of ‘sketchy people’ at all times of the day, especially at night. Participants commonly identified the neighbourhood as having a ‘negative energy’ because of its high proportion of drug users, prostitutes and interpersonal violence inhabiting the area:

No matter the time of day it’s possible to see druggies, prostitutes and other people stumbling around. At night the neighbourhood is especially full of low-life’s that tend to cause the trouble. All they worry about is having a beer, mooching a few cigarettes, and where they can find their drugs. When they finally find the stuff they want, it’s time to ‘hang out’ and ‘chill’ until it’s time to do it again (Business_5).

Drugs and alcohol addiction were believed to be serious problems in the area. Many participants commented on how “there is always somebody strolling around here either drunk or high” (Business_2). This was often followed by a snide remark about residents being “so high that they probably think they are on a different planet...” (Business_2), or a vivid story about some ‘addict’ they encountered or witnessed on the street. One business owner even described his sadness after watching an inebriated man get struck by oncoming traffic as he and others waited for the city bus to go home (Business_1).

In addition to emphasizing the high rates of drug and alcohol users, participants also acknowledged the prevalence of prostitutes and many interpersonal crimes as types of social disorder. Prostitution was seen as a neighbourhood problem at all times of the day, as teachers noted either seeing or being approached by prostitutes before and after school on multiple occasions (Teacher_1; Teacher_2). Storeowners also noted witnessing or falling victim to many forms of interpersonal crime, ranging from fighting to robbery, “I see fights all the time, between drunks and druggies, and sometimes between students too. I guess that’s what happens when you open a store in a low-income neighbourhood” (Business_5). One even commented that a few employee vehicles had recently been broken into, “this happens during the day, such as last Tuesday afternoon. I was actually working at the time, what am I supposed to do?” (Business_3). These chronic problems often prompted teachers and businesses to develop strategies to ensure the safety of their students and employees, such as organizing (female) extracurricular activities directly after school, installing alarm systems, or by closing their storefronts early each day.

Medium disorder: “Lansdowne”, a medium disorder school, is nestled within a quiet residential neighbourhood comprised mostly of single-family homes, tree-lined streets, and a large public park. Although its physical plant shows signs of disrepair, such as peeling paint, painted over graffiti, and strewn garbage, the surrounding neighbourhood is relatively well maintained except for the cleanliness of its streets and sidewalks that are often riddled with strewn garbage, cigarette butts, as well as some instances of tag graffiti. Still, this school neighbourhood could be perceived as seemingly peaceful and safe, since

many of its inhabitants were often observed walking their dogs, maintaining their lawns, or utilizing the nearby skateboard park.

“Dufferin” is a second medium disorder school, located on a major traffic artery, directly across from a mix of ‘mom-and-pop’ shops, an addiction management center, and a variety of vacant storefronts. Above each of these are apartments that seemingly cater primarily to storefront owners and low-income individuals. The rest of the neighbourhood can be described as a very residential area, with tree-lined streets and quaint homes. Although these residential properties are relatively clean and well maintained, their surrounding streets, sidewalks, and secluded areas appear riddled with strewn garbage, cigarette butts, and tag graffiti. These same signs of physical disorder can also be found throughout this school’s physical plant. This is especially the case behind the school where litter and tag graffiti can be found in many secluded areas. Although its street life should be considered somewhat positively [and safe], participant interviews provided evidence that only a few individuals other than students regularly frequented this medium disorder neighbourhood.

Participants tended to highlight how these two school neighbourhoods were relatively clean and well maintained, especially compared to other Hamilton neighbourhoods. Although participants repeatedly identified their neighbourhood’s physical characteristics as “aging and tired” (Business_6), there was little to no emphasis about social disorder. Both schools were described as being located in “middle-class” residential neighbourhoods, mostly comprised of “older bungalows that are not overly affluent” (Business_8; Business_11). They were also noted to have many small ‘mom and

pop' businesses, as well as a few vacant lots nearby. While these businesses were said to be "...pretty busy from Monday to Friday", they were believed to "not appeal to everyone" since they mostly sold new-and-used cars, antiques, specialty items (i.e. dancewear), as well as auto-repair services (Business_7; Business_10).

The prevalence of tag graffiti and strewn garbage was referred to as only minor signs of disorder that could be easily painted over, or cleaned-up in the spring. Though tag graffiti, litter and cigarette butts were recognized as "everywhere" on the streets and sidewalks (Business_6), they were seen as simply temporary signs of physical disrepair that could be managed in both neighbourhoods. Only the poor road conditions nearby Lansdowne were seen as a chronic sign of disrepair (Business_9). It was stressed that the city had done little to maintain these streets, evidenced by the many potholes and lack of road surface markings. While signs of disorder were highlighted, these neighbourhoods believed they did a good job of informally guarding and maintaining its own spaces, independent of government.

I've lived and worked here for over 30 years. We're located in an old part of town. There hasn't been anything new built here for a long time. Still, I'm very happy with how clean and tidy this neighbourhood is. I don't think this neighbourhood is perfect, but people do seem to take care of their property and respect others too. In the spring, the area will start working on their flowerbeds (Business_10).

Unique to these two schools is how differently teachers and students described their physical appearance. One was described as "old and outdated" (Teacher_3), while the other was referred to as "lovely building with heritage status" (Teacher_5). Although no recent renovations were identified at either school, teachers emphasized how their administration teams took pride in maintaining their physical plant by often painting over

graffiti, maintaining their flowerbeds, and picking up strewn litter and cigarette butts. This was often in response to student claims that their school's appearance was "ugly, dirty, and terrible", as well as parents who believed that even minor improvements to the property were important (Teacher_4). These schools were noted as showing some interest maintaining and guarding their own physical plant, as did their surrounding neighbourhoods.

In comparison to St. Andrew's, the high disorder school, participants at Lansdowne and Dufferin did not identify any significant signs of social disorder. These schools were described as being located in quiet neighbourhoods, except "when the students are on lunch or after school" (Business_8). Although teachers recognized that the catchment areas for both schools had many "interesting characters" (Business_11), this was not believed to be a problem of their immediate surroundings. Unlike the downtown core, these neighbourhoods were said to be friendly, and frequented by mostly individuals that kept to themselves and infrequently caused trouble.

Low disorder: Separated from the downtown core by a natural boundary, "Rosedale" is a low disorder school located in a suburban community, comprised of multiple subdivisions of single-family homes, a large public park, and a variety of well-known businesses. Since this neighbourhood was recently developed from acres of farmland, its built environment [including the school itself] can be described as being rather new and well maintained. Its surrounding streets and sidewalks are also clean of strewn garbage, cigarette butts, and tag graffiti. Due to the many attractive businesses and

green spaces nearby, individuals (of all ages) seemed eager to routinely frequent this low disorder neighbourhood.

Participants from this neighbourhood had little to comment about the prevalence of physical and social disorder. It was clear that participants took pride in how clean and well maintained their neighbourhood was compared to others nearby. The social problems found downtown (i.e. its high proportion of drug users, prostitutes and interpersonal violence) were seen as infrequent and not a concern for this part of Hamilton. Developed from acres of rural farmland in the 1950's³⁴, this neighbourhood was described as a "middle-class and Italian community", comprised mostly of "older homes and subdivisions", as well as a "few strip malls that are frequented mostly by area residents and students" (Real estate agent). With homes costing approximately \$250,000 to \$300,000, one participant commented that the area was 'not impoverished by any means' (Real estate agent)³⁵. This translated into "crazy busy" and "booming" business for many nearby storefronts (Business_13); one even commenting, "I'm not sure if we can actually handle being more busy" (Business_14).

The physical environment was identified as clean and well maintained. In fact, both tag graffiti and strewn garbage were not said to be a problem there. When litter and garbage was found, participants tended to blame students for "...tossing their paper plates on the ground and in gardens" (Business_12). This was seen as only a temporary problem, since the school and residents would routinely team-up to clean the streets. The nearby

³⁴ Kaulback, Gary. 2011. *On the Mountain: The Story of the Hamilton Escarpment*. Film.

³⁵ According to the National Household Survey (2011) the average value of dwellings in the City of Hamilton is \$308,307. This is rather low compared to nearby cities, such as Oakville (\$510,886) and Toronto (\$517,309).

plazas were also praised for “removing snow, garbage, or anything that might prevent people from stopping” in the neighbourhood (Business_12). Likewise, the absence of physical disorder was also noted on the school’s physical plant. The school was described as being new compared to many, as well as having a beautiful athletics stadium [with artificial turf] that would open regularly to the community. As mentioned before, no participant in this low disorder neighbourhood acknowledged any signs of social disorder. However, a strong police presence was identified to routinely patrol the school and surrounding area.

How is disorder (or lack thereof) interpreted?

Disorder was interpreted to reflect the level of poverty in each area. Its presence (or lack thereof) was also found to correspond with how participants perceived the level of safety and collective efficacy (i.e. the sense of community), and how inviting a neighbourhood is to insiders and outsiders.

Poverty

As expected by BWT, signs of physical and social disorder were often used to describe a neighborhood's socioeconomic level, as well as their relative standing to other Hamilton neighborhoods. Participants regularly made reference to a wide range of physical and social characteristics as visible neighbourhood indicators of poverty and wealth. As mentioned previously, these included: the physical appearance of homes, apartments, and storefronts, the amount of strewn litter and graffiti, and the frequency of illicit activities. These salient neighbourhood cues were believed to provide many participants with important details about whether a neighbourhood is economically

depressed, up-and-coming, or affluent. For instance, the derelict physical appearances of homes and apartments, as well as the large amount of vacant closed storefronts in the high disorder neighbourhood, were all noted to signal a deep malaise to insiders and outsiders. As one storefront worker commented “anyone that visits this part of *Bloor* quickly recognizes that our neighbourhood is depressed. It’s clear from the street that there are a lot of struggling businesses on every corner” (Business_4). This was also the case for the physical appearance and social behaviours of neighbourhood inhabitants, as one participant noted, “you clearly know this is a poor part of town. People are definitely struggling and you see that on their faces and through their daily activities. It makes you think about the economic challenges here that aren’t often seen in other parts of Hamilton” (Real estate agent). These examples of physical and social disorder were interpreted to symbolize the downward economic trajectory of the high disorder neighbourhood, and to perpetuate its negative reputation.

This neighbourhood definitely has a bad reputation—it looks like nobody cares about it. What do you expect people to think when they see garbage, graffiti, sad looking storefronts, and hookers. Nobody wants to come shop here, and no new businesses want to open here. Who would want to open a business in a neighbourhood filled with lazy people who only care about cashing their welfare cheque, and how to score some drugs? (Business_5).

In neighbourhoods perceived to be less disorderly, the clean streetscapes, improved living conditions, and sustainable commerce were often interpreted as positive signs of economic development. For instance, Rosedale, the low disorder neighbourhood, was described to be “a healthy place to live” because of its growing suburbs and stable business community (Business_14). Likewise, the affordable housing costs, busy storefronts, and public parks located in both medium disorder neighbourhoods were each

noted to make them “a wise investment opportunity for any home-buyer or new business” (Business_9). As one teacher highlighted “since housing is so cheap, I always hear about people looking to invest or move into the area. It gives us a lot of hope that things are on the up-and-coming around here” (Teacher_4). Although instances of strewn garbage, graffiti and property damage were identified in these less disorderly neighbourhoods, compared to the high disorder neighbourhood they were seen as relatively minor cosmetic problems, “this part of town is no different than anywhere else in this city. It’s not perfect but it’s clean enough for us who live and work here” (Business_10).

Safety

In addition to being an indicator of poverty, signs of disorder (or lack thereof) were also used to assess the level of safety of a neighbourhood. Put simply, signs of disorder were perceived to mean, “that bad things are happening” (HPS). The high disorder neighbourhood was frequently described as being “below average” in safety compared to less disorderly counterparts such as “Yorkdale” or “Lawrence” (Business_3). Its high prevalence of physical and social disorder was seen to signal that the neighbourhood was an unsafe and negative public space, which should be avoided. As one teacher noted “people feel isolated around here. There is no safe meeting place, or community gather spot, just lots of poverty, vacancies, crime, and a drug problem. Crack and heroin are very much in your face, and students are exposed to it daily” (Teacher_2). Although students, teachers, and businesses identified each of the medium disorder neighbourhoods to have a ‘few bad apples’, they were still considered safer than the high disorder neighbourhood since individuals regularly frequented the area to walk or shop,

and it had a visible police presence. This was also the case for the low disorder neighbourhood, which was considered above average in safety. One student even described its level of safety as “8.5 on a scale of 1 to 10” (Student_5).

Quite often, participants expressed their concern for individual safety because of the deviant demeanor of individuals inhabiting the high disorder neighbourhood. For instance, one student noted being “shocked” when he first moved into this neighbourhood because of the “shady characters walking around” (Student_2). Another described it as, “it’s not the sort of neighbourhood where you can leave your bike outside unlocked. People aren’t very friendly and nobody is going to smile at you as they walk past you on the sidewalk” (Student_1). Since many of these inhabitants were perceived to have alcohol problems and drug addictions, participants commonly noted exercising caution in daily interactions, as well as attempting to avoid them altogether. As one storefront worker put it quite bluntly “I don’t dare look at anyone too long because you never know what they might do” (Business_1). This was especially the case at night, as one teacher noted, “this neighbourhood isn’t safe for the most part. It’s not a place where people want to go or stay” (Teacher_1). For many businesses, this meant closing early each day to avoid such troublesome behaviors.

In less disorderly neighbourhoods, concerns for individual safety were not considered a problem. Instead their inhabitants were described as being polite and friendly. For instance, a new storefront owner described her pleasure when interacting with customers, as “everyone that comes here is great, we actually hear please and thank you” (Business_14). Like Anderson’s (1999) ‘code of civility’ that tends to regulate in

safe, secure, and orderly neighbourhoods, they believed it was a good decision to have recently moved into this low disorder neighbourhood since their business was busy, the surrounding area was clean, and it felt safe no matter the time of day.

Collective Efficacy

A primary reason why participants frequently noted feeling unsafe in the presence of neighbourhood disorder was because they perceived it as signalling the breakdown of community. Although they did not use the term ‘collective efficacy’ in its traditional sense (Sampson, Raudenbush, and Earls, 1997), participants highlighted using environmental cues of property upkeep, social controls, and their sense of cohesion among residents to evaluate whether they felt safe or unsafe in a neighbourhood. The high disorder neighbourhood was described as lacking any form of neighbourhood cohesion and mutual trust. Both the residents and storeowners were described as being highly transient, to lack pride in property upkeep, and to primarily keep to themselves. For instance, this neighbourhood was referred to as a “free-for-all” of urban problems, and somewhere students preferred to stay away from “even when skipping class” (Teacher_2). The high disorder neighbourhood was perceived to lack a sense of community and safety, and to perpetuate a gradual decline of shared expectations of property upkeep, as well as interpersonal conduct in its public spaces.

I feel like we have been forgotten in this part of the city. Look at all the shit that happens around here, it’s like we aren’t even a priority of City Hall whatsoever. Sadly, this gives the people around here no incentive to clean up their behaviors, or for new businesses to move in. This neighbourhood isn’t anything like Lawrence where people put care into their neighbourhood. Other than guys like me who own their business here, nobody cares to even try...It’s often not even worth it for me (Business_2).

In contrast, less disorderly neighbourhoods identified stronger community relationships/networks, and higher levels of safety than their disorderly counterpart. Having a sense of community was perceived to be important, since it not only encouraged neighbourhood inhabitants to put pride in their homes, storefronts, and properties, but to respect each other as well. Additionally, these neighbours were described as looking out for each other, and openly communicating about troublesome behaviours. As noted by a teacher, “if our kids get into trouble we definitely get a call” (Teacher_7). Although these situations were believed to be infrequent, they tended to happen if students were witnessed littering or loitering in large groups in front of neighbouring residents and storefronts. School administrators would then relay these messages to the students. This sense of community was also found to create a sense of place, as well as act as a form of informal social control. Since many students resided in the nearby sub-divisions, they were noted to appreciate and respect others property because they also felt part of the community.

There is a sense of community between neighbors because they want to reduce the amount of vandalism done to their property. Even the students don't seem to vandalize property because they have a connection to the area. Many live right around the corner. There is a sense of pride, and a feeling that this is their community (Teacher_6).

Furthermore, the strong sense of collective efficacy in these less disorderly neighbourhoods created by looking out for each other, and maintaining open communication was found to result in a positive perception of safety to insiders and outsiders, especially compared to other neighbourhoods: “This is a really good and nice neighbourhood. Everyone seems to know each other. We just moved in and I feel like we

know the community already. We come from the other side of Spadina where people are not nearly as friendly” (Business_14).

Inviting/Welcoming

In addition to disorder being perceived to symbolize a lack of safety and collective efficacy, these spatial characteristics were frequently noted to indicate how inviting and welcoming a neighbourhood is to insiders and outsiders. The physical appearance of a neighbourhood was noted to have a lot to do with what individuals and businesses entered the neighbourhood, and why. Signs of disorder were perceived to attract the “wrong” individuals, and push attractive customers and businesses into other more orderly neighbourhoods, as one storefront worker noted:

I think all the problems happening around here really hurt my business. Unless people have something important to do around here, they likely will go somewhere else in the city. Personally, I only come down here for work. You would never catch me down here at any other time (Business_5).

It became clear that signs of disorder were interpreted to portray an uninviting and negative energy. This was believed to prevent houses from selling, to reduce property values, and to negatively impact the long-term desirability of the area³⁶.

I think everyone needs to work together to clean up this neighbourhood so the bad reputation goes away. Appearance has a lot to do with it. If you make the area look ‘nice’ then the problem people will go somewhere else. I hope they go somewhere they can get cleaned up too. The goal is to help the neighbourhood become inviting, instead we push people and new businesses away (Business_1).

When a neighbourhood was perceived to be less disorderly, it was noted to be increasingly inviting to outsiders. These neighbourhoods often prided themselves about

³⁶ While average real estate prices increased in nearby neighbourhoods by 70 to 89%, they only increased by 50% in this high disorder neighbourhood during 2012 to 2013 (<http://www.cbc.ca/news/canada/hamilton/news/sold-how-a-hot-real-estate-market-is-changing-hamilton-1.1317197>).

how individuals and businesses were drawn to the area because of their walkability, prosperous storefronts, and positive reputation. As one storefront in the low disorder neighbourhood commented “I’m very busy these days, so we must be doing something right around here. Like I said, compared to other neighbourhoods where I’ve had businesses this one seems to be a great fit” (Business_13).

Does disorder trigger student deviance?

Student misconduct was described as being guided by immaturity and disengagement, rather than by street codes and perceptions of lax social controls³⁷. Although students at each school were noted to occasionally smoke marijuana, fight, and skip class, these behaviours were perceived as “something kids do at every school” and “kids being kids” (Teacher_5; Teacher_7). Only students at the high disorder school were noted to be “a bit rough” behaviourally; as one student commented, “my peers are not afraid to tell a teacher to F-off” (Student_2). This is not to imply that disorder had independent effects as a teacher noted how low-income students regularly expressed their frustrations and dissatisfaction with schooling through oppositional behaviours in the classroom. These problems were believed to stem from their complicated lives (and daily challenges of survival in tough areas) that made it difficult to align with school activities and goals.

No matter whether a school was located in a high or low disorder neighbourhood, students and teachers perceived their school climate rather positively, as well as somewhat safe. For instance, it was common for teachers to refer to their schools as somewhere students wanted to ‘hang out’. This was especially the case at the high

³⁷ Social psychologists often refer to ‘fundamental attribution error’ when problems are attributed to their personality rather than social or environmental causes (Sabini, Siepmann, and Stein, 2001).

disorder school, which was believed to be a safer environment than many of its students' home environments.

When students are here, it might be the safest place for them to be. Pardon my French, but the home life of some of these kids is 'shit'. The school is better than where some of these kids live. For many kids they don't want to leave here because their home life is terrible (Teacher_1).

For many students, their school was somewhere safe where they could socialize, attempt their homework, or engage in extracurricular activities. It was also a place where less affluent students could improve basic skills, such as literacy and numeracy, as well as interact with positive role models. Students often felt so comfortable doing this that teachers noted having to ask them to leave at night: "what's interesting is that students don't want to leave. This is a place where they can talk or socialize in a safe setting. The students would stay here all night if you let them, we actually have to tell them to leave" (Teacher_2).

Students and teachers also identified a decline in suspension rates at their respective schools. While the low disorder school prided itself for having "only a handful of minor suspensions annually" (Teacher_7), the high and medium disorder schools each reported issuing fewer suspensions as of late. This was believed to reflect the recent implementation of more progressive school discipline practices that no longer suspended students to simply "put out fires" (Teacher_3). At one medium disorder school these practices were credited with encouraging their school administration team to 'roll with the punches', and to be empathetic towards the needs and challenges of their students.

Since our staff is pretty understanding of this [behavioural problems associated with low income youth], students may not get suspended here for things that they might be at different schools. For instance, if a student is having a bit of a mental

breakdown and tells the teacher to ‘fuck off’ then we talk about why, instead of simply suspending them (Teacher_3).

These changes reflect high schools’ mandate to retain (almost) all of their students. Many jurisdictions have dropped older ‘zero tolerance’ forms of discipline that suspended and expelled many students in favour of ‘progressive discipline’ that aims to re-integrate rule-breakers into regular school life (Milne and Aurini, 2014). As such, schools may serve as ‘oases’ of sorts within poor neighbourhoods, in which youth would otherwise get few second chances or opportunities to form restorative circles and discuss their problems. By this account, more disorderly schools might report fewer suspensions annually since they promoted trying to understand the root cause(s) of each student discipline problem, as well as dealing with them internally.

Academic Achievement

Having a large proportion of low-income students was perceived to be the primary reason why the high and medium disorder schools reported lower academic achievement scores³⁸. These students were often described as lacking basic skills, as well as comprehension. As one teacher noted, “they might know how to read, but their comprehension is limited” (Teacher_1). They were also noted as being less engaged in the classroom, and to have poor attendance since many had additional responsibilities outside of school, including “babysitting siblings” and “working part-time jobs in order to subsidize family income” (Teacher_2). Compared to other schools, these students were

³⁸ It should be noted that the high disorder school was the only high school in its Board with a French immersion program. It was likely given French Immersion in order to attract students from outside its catchment area. These students were generally described as being highly engaged in school activities, as well as academically. This might result in crosscutting selection effects since the French Immersion program attracts some aspiring families, while the school’s setting neighbourhood repels others.

identified as “dealing with responsibilities other students don’t have to deal with. School is less of a focus for them than just basic survival” (Teacher_2). This was believed to devalue academic achievement at the high and medium disorder schools, since it distracted many low-income students from completing their homework assignments, studying for upcoming tests, or participating in extra-curricular activities.

Students here are extremely low-income, with little to no family resources. We had to start a breakfast program because they weren’t getting the proper nutrients at home. Compared to when I worked in Oakville³⁹, my students have a lot of distractions to deal with that regularly prevent them from concentrating on school—it doesn’t make my job easy (Teacher_1).

A lack of parental involvement was also found to be a challenge that perpetuated low academic achievement at the high disorder school. Parents were perceived by teachers to be less engaged, since they hardly attended parent-teacher conferences, or even extra-curricular activities happening at school. Similar to their children, many of these low-income parents were believed to not see value in education.

One of our biggest challenges to deal with is the lack of parent involvement. I’ve coached basketball for years and I bet that I’ve met approximately two sets of parents. Just like with schoolwork, there seems to be very little parent involvement in extra-curricular activities. We see this at parent teacher interviews, or at grade nine night—we tend to have very few parents show up (Teacher_1).

This presented challenges for teachers since it was often difficult to communicate messages to parents about student progress, needs, and homework requirements.

Generally speaking teachers felt “lucky if assignments actually came back completed”, since only a few students were recognized to even attempt their homework with support from their parents (Teacher_2). Similar to Paulle (2013), teachers acknowledged learning

³⁹ The median household income in Hamilton (\$60,259) is much lower compared to nearby Oakville (\$101, 713; National Household Survey 2011).

to tolerate low academic engagement and achievement as inevitable outcomes of educating the urban poor, perhaps even to the detriment of many youth.

Does Disorder Trigger Self-Selection?

Participant interviews provided evidence that parents are crossing catchment boundaries to send their children to schools perceived to be higher achieving and safer. Interviewees in each of the high and medium disorder schools reported those schools as having negative reputations as low achieving and unsafe. This was believed to reflect how the public regularly associated them with the negative characteristics of their surrounding neighbourhoods. As one teacher noted “Joe Public believes that our school is very ghetto, violent, and underperforming. While it’s true that we are in a rough part of the city, this negative reputation overshadows that we actually have a lot of good kids that work hard and enjoy being here” (Teacher_4). As a result, situations considered relatively minor at most schools, such as a fight, often attracted more attention by local newspapers and the public since they reinforced enduring reputations that these high and medium disorder schools were unsafe.

St. Andrew’s has a negative reputation because of a bit of everything. There might be a fight in the crowd at a basketball game, or a police officer seen patrolling the school. Such behaviours create an environment where people are afraid. If the public hears one bad story, or sees police at the basketball game, they start to think St. Andrew’s is as bad as newspapers report (Teacher_1).

These negative reputations were then attached to each school indefinitely, even if they were no longer warranted. For instance, a past fight at the high disorder school was noted to have attracted a lot of negative press after being recorded and posted on YouTube. The local newspaper then ran a story about this event, captioned “Fight Club”, which

highlighted how the multiple students involved were facing aggravated assault charges (Education Journalist). One interviewee at a medium disorder school also noted that it was struggling to rid itself of past instances of gang violence. As a teacher noted “it’s really hard to get rid of this reputation. People still think we have gangs here, but we haven’t had them here since the 80’s. I’m not sure why this reputation persists” (Teacher_3). Such events were highlighted to stigmatize these schools, since they left long-lasting impressions on public perceptions of their school climate. Overall, it was believed that “people have a short memory for the good things that happen [at local schools], but have a long memory for the bad” (Education journalist).

On the one hand, enduring negative reputations were highlighted to discourage many (achievement-oriented) students from enrolling at these high and medium disorder schools. It was common to hear how parents would often send their children out-of-catchment to schools perceived to have better academic programs. For example, feeder schools of one medium disorder school were accused of encouraging students to register in out-of-catchment schools in order to improve their chances of attending university or college. This was also the case at the high disorder school where students from nearby feeder schools often removed themselves from language programs, crossed catchment boundaries, as well as school boards, to improve their chances of attending somewhere safe and high achieving.

You see at a young age, that parents in junior kindergarten are willing to take their children out of French Immersion when they reach high school because they don’t want to send their children to St. Andrew’s. We hardly get any Osgoode alumni, even though they are in our catchment. Students are transferring out of the Catholic board into Lawrence because of this negative reputation that I’m talking

about. It's regular to see our French Immersion students be our top performing students. It's sad but we just don't get the numbers anymore (Teacher_2).

On the other hand, the low disorder school was identified as having a positive reputation because of its high graduation rate, successful sports teams, and relatively new physical plant. It was common for teachers and students to highlight how this school had a reputation as being safe, somewhere with high expectations [for teachers and students], and somewhere students wanted to be. Students were believed to come from across the city to attend this low disorder school because "there is a perceived idea by parents throughout the city that we're stronger academically, and safer than other schools. But one of the biggest things that draws students in from all over is that our school is generally brighter, newer, and cleaner" (Teacher_6). As a result, even when a new secondary school opened nearby, and catchment boundaries changed, the students that left quickly returned the following year. Although teachers and students did acknowledge that their school's positive reputation encouraged many [achievement-oriented] students to enrol annually, the downfall was that it resulted in overcrowding and large class sizes.

Systematic Social Observation (SSO): Neighbourhood Disorder and Schools

As previously mentioned, the rationale for conducting a small-scale SSO of this strategic sub-sample of schools over five weeks is to get a strong sense of whether disorder is transient or relatively enduring on school grounds compared to their surrounding neighbourhoods.

St. Andrew's: The SSO and field notes collected over this five-week period confirmed that this inner-city neighbourhood was the most consistently disordered among the sample (Table 11). Each visit to this high disorder setting revealed signs of disrepair,

tag graffiti, strewn garbage and a variety of social problems. The built environment was noted as being poorly maintained, due to a lack of property upkeep, as well as abandonment. This ranged from storefronts and apartment buildings having damaged facades and peeling paint, to many long-term vacancies (Figure 5a; Figure 5b). Tag graffiti was found to riddle this physical setting, observed on many building facades, bus stops, and in alleyways. This was also the case for strewn garbage and cigarette butts, which was found to accumulate in front of vacant storefronts, on sidewalks, and in alleyways (Figure 6a; Figure 6b).

Social disorder⁴⁰ was also observed during each visit. It was common to observe adult inhabitants wandering and loitering during each visit; this often included young parents walking their children, storefront workers smoking cigarettes, as well as individuals showing signs of public intoxication and mental illness. Children were only observed playing in the [low-income] high-rise apartment complex on the East block-face. Over this five-week span, there was no attempt observed to clean up this high disorder neighbourhood of strewn garbage, cigarette butts, or graffiti. In fact, the level of disorder was found to increase since garbage piles [on the side of the road] were observed to only accumulate more waste (ex. bed mattresses), instead of being properly removed by property owners or city workers (Figure 7a; Figure 7b).

⁴⁰ Social disorder is understood to mean public behaviour that is considered threatening. This often includes verbal harassment, open solicitation of prostitution, public intoxication, and rowdy groups of young males on the streets (Sampson, 2012).

Table 11 Systematic Social Observation of Neighbourhood Physical Disorder Over Repeated Visits

School	Neighbourhood Disorder Rating
St. Andrew's (visit 1)	20
St. Andrew's (visit 2)	19
St. Andrew's (visit 3)	19
St. Andrew's (visit 4)	18
St. Andrew's (visit 5)	17
<i>St. Andrew's (Average)</i>	18.6
Lansdowne (visit 1)	13
Lansdowne (visit 2)	14
Lansdowne (visit 3)	14
Lansdowne (visit 4)	14
Lansdowne (visit 5)	15
<i>Lansdowne (Average)</i>	14
Dufferin (visit 1)	12
Dufferin (visit 2)	12
Dufferin (visit 3)	12
Dufferin (visit 4)	11
Dufferin (visit 5)	11
<i>Dufferin (Average)</i>	11.6
Rosedale (visit 1)	2
Rosedale (visit 2)	2
Rosedale (visit 3)	2
Rosedale (visit 4)	2
Rosedale (visit 5)	2
<i>Rosedale (Average)</i>	2
<p><i>Note:</i> This is an average neighbourhood disorder rating after five visits to each school. The rating scale represents 0 = lowest possible disorder; higher numbers indicate increased disorder up to a maximum of 32.</p>	



Figure 5a and Figure 5b Neighbourhood Disorder, Signs of Disrepair, and Vacant Storefronts

The physical condition of this high disorder neighbourhood showed signs of disrepair, as well as its many vacant storefronts.



Figure 6a and Figure 6b Physical Disorder in Secluded Areas

On each block-face, strewn garbage and cigarette butts were found to accumulate in front of vacant storefronts, on sidewalks, and in alleyways.



Figure 7a and Figure 7b The Accumulation of Physical Disorder in a High Disorder Neighbourhood

The level of disorder was found to increase since garbage piles [on the side of the road] were observed to only accumulate from week one to week three⁴¹.

The school's physical plant was recognized as being relatively well maintained and monitored (Table 12); it showed evidence of landscaping, painted over graffiti, as well as a variety of security precautions (Figure 8a; Figure 8b). Although only a few instances of tag graffiti were noted, it was common to find strewn garbage, cigarette butts, and dog feces throughout the property. This was most prevalent behind the school, where youth were observed playing and hanging out with friends during each visit. Since bus services were unavailable to students, many were observed walking home in all directions after school. During this five-week span, little to no attempt was observed to clean up any signs of disorder on this school's physical plant. Instead, there appeared to be a steady accumulation of litter and cigarettes that riddled the property. It is important to note that

⁴¹ It is worth mentioning that Hamilton's waste management efforts, which include a 1-bag per household limit (and pay for additional bags), may have the unintended side effect of increasing illegal dumping, which inequitably affects low-income neighbourhoods. This is exacerbated by the fact that in these neighbourhoods there are numerous houses converted into multiple units – these only get one bag, even though there may be multiple households living there.

school disorder is surprisingly weakly correlated with broader patterns of neighbourhood poverty and disorder, seen by comparing Table 11 and 12.

Table 12 Systematic Social Observation of School Exterior Disorder Over Repeated Visits

School	School Exterior Disorder Rating
St. Andrew's (visit 1)	7
St. Andrew's (visit 2)	7
St. Andrew's (visit 3)	7
St. Andrew's (visit 4)	7
St. Andrew's (visit 5)	7
<i>St. Andrew's (Average)</i>	7
Lansdowne (visit 1)	10
Lansdowne (visit 2)	10
Lansdowne (visit 3)	10
Lansdowne (visit 4)	10
Lansdowne (visit 5)	10
<i>Lansdowne (Average)</i>	10
Dufferin (visit 1)	9
Dufferin (visit 2)	8
Dufferin (visit 3)	8
Dufferin (visit 4)	8
Dufferin (visit 5)	9
<i>Dufferin (Average)</i>	8.4
Rosedale (visit 1)	3
Rosedale (visit 2)	3
Rosedale (visit 3)	2
Rosedale (visit 4)	3
Rosedale (visit 5)	3
<i>Rosedale (Average)</i>	2.8
<i>Note:</i> This is an average neighbourhood disorder rating after five visits to each school. The rating scale represents 0 = lowest possible disorder; higher numbers indicate increased disorder up to a maximum of 11.	



Figure 8a and Figure 8b St. Andrew's School Exterior

Although this school was located in a high disorder neighbourhood, it showed signs of being relatively well maintained and monitored.

Lansdowne: This first medium disorder school was rated the most disorderly [of the pair] because of its high levels of strewn garbage and cigarette butts, as well as tag graffiti (Table 11). On all four block-faces, garbage and cigarette butts were observed accumulating on sidewalks, streets, and yards of residents. This continued into the public park where litter was found nearby where youth were often observed skateboarding during each SSO visit. The built environment of this neighbourhood was noted as being relatively well maintained, since the majority of homeowners showed signs of property upkeep, such as manicured lawns and flowerbeds (Figure 9a). Only one residential garage door showed signs of vandalism, whereas the majority of street signs and electrical boxes were defaced with tag graffiti on each face-block (Figure 9b). During each visit, only a few residents were observed either exercising or walking their dogs. Other than students skateboarding in the park, no children were observed outside of their homes, or playing on the street. Although strewn garbage, cigarette butts, and tag graffiti remained on the streets and sidewalks, by the final SSO visit many neighbourhood residents had cleaned

up their lawns of any residual litter, as well as dead branches. This was also the case for the public park, which might have been the result of a carnival setting-up there for the weekend.



Figure 9a and Figure 9b Physical Disorder in a Residential Neighbourhood

This is a residential neighbourhood that showed signs of property maintenance. Only one residential garage door showed signs of vandalism, whereas many street signs and electrical boxes were defaced with tag graffiti.

This school's physical plant was observed as the most disorderly of the sample (Table 12). It was noted to show signs of disrepair, such as a lack of property upkeep, tag graffiti, as well as a lot of strewn garbage. For instance, the school's facade displayed peeling paint, broken bricks, and unmatched windows (Figure 10a; Figure 10b). The yard itself also showed a lack of maintenance since much of its grass and flowerbeds appeared dead, and the outdoor volleyball court seemed damaged and flooded. Although many school portables, doorways, secluded areas did show signs of painted over graffiti, tagging was still observed sporadically (Figure 11). Strewn garbage was also observed throughout the property, especially by the front entrance, on the sports field and near the parking lot. Students were observed getting onto buses, getting into cars, and walking home in all directions after school. After three weeks, this school showed signs of garbage

cleanup since most of it had been removed from corners of fences, as well as the perimeter of its property (Figure 12a). This included an old shopping cart [full of junk] that was found tipped over in front of the school where it laid for over two weeks (Figure 12b).



Figure 10a and Figure 10b Lansdowne's School Exterior

Although the front exterior was relatively well maintained, the majority of this school's physical plant showed signs of disrepair, such as peeling paint, broken brick, and unmatched windows.



Figure 11 Tag Graffiti, Secluded Areas, and School Exteriors

Although much of the school did show signs of painted over graffiti, tagging was still observed sporadically.



Figure 12a and Figure 12b Signs of Disrepair and School Exteriors (Lansdowne)

Garbage was found to accumulate on this school property. For instance, this shopping cart was found lying in front of this medium disorder school for two-weeks.

Dufferin: The SSO data identified this second medium disorder school as having high levels of strewn garbage and cigarette butts, but fewer instances of tag graffiti (Table 11). Although many residential homes showed signs of fresh cut-lawns and manicured flowerbeds, a high amount of garbage, litter, and cigarette butts were still found to riddle the streets and sidewalks on each block-face (Figure 13a; Figure 13b). This was especially the case on the North block-face, where instances of tag graffiti were also observed on bus stops, street poles, and building facades (Figure 14a; Figure 14b). Very few inhabitants were observed frequenting this neighbourhood; while residents were often observed sitting on their front porches, on one occasion there was a small group of men smoking cigarettes outside of an addiction centre. No children were observed outside of their homes, or playing on the street. During each visit, there was no evidence observed of any attempts by residents of the city to clean up this medium disorder neighbourhood, other than evidence of painted over graffiti in one alleyway on the West block-face.



Figure 13a and Figure 13b The Accumulation of Physical Disorder in a Medium Disorder Neighbourhood

Although in a well-maintained residential neighbourhood, the streets and side were riddled with strewn garbage and cigarette butts.



Figure 14a and Figure 14b Tag Graffiti, Secluded Areas, and Urban Places

Instances of graffiti were only found on the North block-face where many businesses were located.

Dufferin's physical plant was noted as showing significant signs of disrepair, such as a damaged facade, tag graffiti, and high amount of strewn garbage and cigarette butts (Table 12). Although having heritage status, its lack of general upkeep had resulted in the old brick to appear dirty, many unmatched windows, and the paint on doorways to peel (Figure 15a; Figure 15b). Behind the school, tag graffiti was observed on doorways, benches, and in secluded areas. Garbage and cigarette butts were also found to riddle the

entire property, especially along the gated perimeter behind the school (Figure 16a; Figure 16b).



Figure 15a and Figure 15b Dufferin's School Exterior

Although being a historic landmark, its lack of general upkeep had resulted in the old brick to appear dirty, many unmatched windows, and the paint on doorways to peel.



Figure 16a and Figure 16b Signs of Disrepair and School Exteriors (Dufferin)

Strewn garbage was observed to line this school's fenced perimeter, as well as riddle its front lawn.

While most students were observed walking home immediately after school, many remained to smoke cigarettes and socialize by the East and West entrances of the building. By the final visit, only the garbage that had accumulated near the gated perimeter of the school was cleaned-up. Other instances of strewn garbage, cigarette

butts, and even a dead squirrel, remained untouched in front of the school over this three-week span.

Rosedale: The SSO data identified this suburban neighbourhood as the least disorderly among the sample (Table 11). Each residential property showed clear signs of regular maintenance, seen through updated house facades, its lack of strewn garbage, and the absence of any tag graffiti (Figure 17a; Figure 17b).



Figure 17a and Figure 17b An Orderly Suburban Neighbourhood

The residences of this suburban neighbourhood street appeared to have relatively new facades, and well-maintained properties. Even the mailboxes showed no signs of tag graffiti.

This was also the case for the nearby shopping plazas', where vibrant facades, clean parking lots, and newly planted flowerbeds were observed. Unlike its more disorderly counterparts, the majority of streets and sidewalks appeared clean of any garbage, litter, and cigarette butts. No graffiti was observed on any bus stops, street poles, or surfaces of this neighbourhood. During each visit, adults were observed walking to the park, from the shopping plazas, or picking up children from school. Children often accompanied these adults, and were observed playing in yards of nearby residents. Although no signs of any

recent clean up was observed, it was clear that regular maintenance and general upkeep was important to neighbourhood inhabitants.



Figure 18a and Figure 18b Rosedale's School Exterior

This low disorder school showed an up-to-date facade, with bright coloured bricks, and portables with fresh paint.

The SSO data also identified Rosedale's physical plant as the least disorderly, since it was well maintained, extremely clean, and had security cameras (Table 12). The physical plant was noted to have an up-to-date facade, with bright coloured bricks, and a lot of windows (Figure 18a). Similar to the school itself, the portables showed signs of fresh paint and no visual signs of graffiti or disrepair (Figure 18b). Its lawn and flowerbeds were also well maintained. While there was little strewn garbage found on the ground, there were no cigarette butts observed. Students were noted leaving on buses, or walking home with friends after school. Many were also observed entering the school's private sports field to participate in after extracurricular activities, such as soccer practice. On one occasion, a Hamilton Police Service representative was observed visiting the school. During each visit, this low disorder school was noted as appearing to have been

recently cleaned, since no instances of strewn garbage were observed to accumulate over time.

Discussion and Conclusion

The purpose of this conclusion is to summarize the major findings from this chapter, and to address its research questions. As expected, interviewees identified signs of neighbourhood disorder as meaning-laden symbols of public incivility and a deep malaise in urban public spaces. Ranging from strewn garbage, graffiti, and derelict lots, to a variety of illicit activities, both physical and social disorder were seen by interviewees as indicators of poverty, a lack of safety, and low collective efficacy. Together these spatial characteristics were found to play a role in shaping the long-term trajectories and reputations of public places by signaling how inviting and welcoming they are to insiders and outsiders. Interviewees often used examples of physical disorder to evaluate a neighbourhood's socioeconomic level, whereas instances of social disorder were primarily used to describe perceptions of individual safety, community cohesiveness, and whether individuals wanted to visit the area. Interestingly, rather than more stylistic forms of graffiti, only tagging was identified as a form of physical disorder.

Mechanism 1: Disorder, Student Deviance, and Low Academic Achievement

Based on a preponderance of interviewee opinions and observations, I conclude that disorder appears to trigger deviance in a school's surrounding neighbourhood, but not the school itself. Neighbourhood disorder was only identified to trigger fear among students and encourage them to avoid nearby public spaces, thus lowering local collective efficacy, but not necessarily generating more student deviance than one might expect in a

poor neighbourhood (Sampson, 2012). Unlike the traditional argument of BWT, my qualitative data suggest that the main mechanism that generated correlations between disorder and school outcomes is probably self-selection, rather than street codes and perceptions of lax social controls. Although schools located in disorderly neighbourhoods had lower academic achievement, higher suspension rates, and negative perceptions of safety, interviewees believed these problems reflected the fact that their catchment areas were some of the poorest neighbourhoods of the city. Similar to Welsh (2000), they identified poverty as a strong predictor of student misconduct and low-academic achievement. Instead of highlighting the independent effects of disorder, these stakeholders “in the know” tended to attribute these problems to their impoverished socioeconomic ecology as a whole. These students were regularly described as facing real challenges beyond school grounds, which resulted in them being disruptive and disengaged in the classroom, as well as lacking many basic skills, such as literacy and numeracy. They were also noted to have less parental involvement with their studies, especially compared to students at less disorderly [and more affluent] schools.

Mechanism 2: Disorder and Self-Selection

Consistent with my theoretical expectations, my interviewees believed that parents were self-selecting out of schools that are proximate to disorder, and crossing catchment boundaries. Interviewees connected to each school described how its reputation either encouraged or discouraged students from enrolling. School reputations tended to be rooted in long-lasting public perceptions of student demographics, academic achievement,

and safety⁴². Reputations were seen to also reflect how the public perceived the sense of community, safety, and economic prosperity (as inviting/welcoming) of a school's surrounding neighbourhood. Interviewees believed that school reputations reflected their surrounding neighbourhood, and affected enrolment sizes, as well as the proportion of achievement-oriented students enrolled. Thus, based on my interviewees' accounts, I reckon that self-selection processes, as well as reputational processes, likely generated the net effects associated with neighbourhood disorder and school outcomes that were demonstrated in Chapters 2 and 3.

The Stability of Disorder:

Most striking, and consistent with previous observations, is the relative permanence across levels of disorder. I found high levels of disorder to be chronic in high disorder locales, and low levels of disorder to be similarly consistent in low disorder schools. Across this sub-sample of schools there is much consistency week to week, which suggests that levels of disorder- high or low- seem to be fairly permanent. However, a tight correlation between neighbourhood and school disorder was not observed. It could be speculated that school reputations are thus reinforced and cemented by the stable nature of neighbourhood disorder, but not school disorder. This may also explain why observed disorder on school grounds had no net impact on school processes in Chapter 3, since it would likely have weaker signalling power, whether to generate student deviance or negative school reputations. The lone exception was that school (tag)

⁴² Similar findings have been found in American high schools that endure a school shooting later have their grade 9 enrolments reduced, as well as their test scores (Beland and Kim, 2014). This supports the idea that bad reputations tend to trigger self-selection processes, and that negative events may also worsen achievement.

graffiti affected students' feelings of safety; perhaps the immediacy of school graffiti gives it a visual salience that provokes fear and trepidation among students.

Schools as Community 'Oases':

The findings from this study support a 'dis-embedding' thesis when considering the relationship between school disorder and neighbourhood disorder. While schools may not be 'great equalizers' per se of physical conditions, they do not closely mirror their surrounding neighbourhoods either. Schooling's institutional processes appear to partly "detach" the characteristics of school buildings from those of their broader neighbourhoods. This illustrates how public education funding formulae serve to standardize building designs and their upkeep. In contrast, non-publicly funded buildings in schools' immediate surroundings have no parallel mechanism that can standardize their appearance and maintenance. So, children in public schools spend large portions of their weekdays in settings that are fairly common, not only in terms of their physical conditions, but also in terms of their social conditions (i.e. mandatory teacher qualifications, universal disciplinary rules and standardized curricula). These institutional processes serve to make student experiences rather similar in schools, as well as potential 'oases' that shield youth from harsher conditions beyond school grounds.

To conclude, this study has found some intriguing patterns to explain how disorder affects school outcomes. As discussed above, stakeholders identified self-selection process and reputational processes as being likely generators of the effects that were demonstrated in previous chapters. They believed that nearby disorder sends negative signals to would-be choosers of schools, creating (and perpetuating) long-lasting

perceptions and reputations amongst aspiring, ambitious and achievement-oriented families of deep-rooted problems within a school. As a result, those families were recognized to self-select out of these disorderly schools, and re-locate elsewhere. Although this relationship is seemingly indirect, disorder is still a physical ‘neighbourhood effect’ on schooling. Future research should continue attempting to capture the ‘signalling’ power of disorder. To explore this scenario, I recommend research that asks more youth and parents about the criteria they use to choose schools, and whether or not nearby disorder affects school reputations. It would also be interesting to see how important property upkeep and maintenance is to school board representatives, as well as study how such resources are allocated across schools to this cause.

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Appendix B: Summary of Interviewees (n=30)

Name	Description	School/Neighbourhood
Business_1	Employee of nearby car wash	High Disorder
Business_2	Employee of a Money Mart	High Disorder
Business_3	Employee of the Salvation Army	High Disorder
Business_4	Owner of convenience store	High Disorder
Business_5	Employee of a discount mobile phone provider	High Disorder
Business_6	Employee of a convenience store	Medium Disorder
Business_7	Employee of an antique store	Medium Disorder
Business_8	Employee of an auto shop	Medium Disorder
Business_9	Owner of a pizza shop	Medium Disorder
Business_10	Owner of an international foods store	Medium Disorder
Business_11	Employee of a convenience store	Medium Disorder
Business_12	Employee of a food retailer	Low Disorder
Business_13	Owner of a submarine sandwich shop	Low Disorder
Business_14	Manager of a gas station	Low Disorder
Teacher_1	Social sciences teacher; basketball coach	High Disorder
Teacher_2	Geography teacher; rugby coach	High Disorder
Teacher_3	Guidance councilor	Medium Disorder
Teacher_4	English teacher	Medium Disorder
Teacher_5	Mathematics teacher	Medium Disorder
Teacher_6	Guidance councilor	Low Disorder
Teacher_7	Social sciences teacher	Low Disorder
Student_1	Grade 12 student	High Disorder
Student_2	Former student	High Disorder
Student_3	Grade 10 student	Medium Disorder
Student_4	Grade 10 student	Medium Disorder
Student_5	Former student	Low Disorder
Student_6	Grade 12 student	Low Disorder
Real estate Agent	Local real estate agent	.
Hamilton Police Service (HPS)	Community liaison officer	.
Education Journalist	Local newspaper education writer	.

Appendix C: Qualitative Interview Guide

Section 1: Questions about perceptions of school reputations.

- 1) Can you tell me about the student body at (insert school name)? Such as...
 - Is there anything unique about (insert school name)'s student body compared to other Hamilton schools?
 - Where do most (insert school name) students live? Do some live outside the catchment area?
 - Does (insert school name) face challenges compared to other Hamilton schools?
- 2) Would you say, relative to other Hamilton schools, is (insert school name):
 - i. Above average, average, or below average on school achievement results (like EQAO scores)? *Why?*
 - ii. Above average, average, or below average with suspension rates? *Why?*
- 3) Do you think (insert school name) has a positive or negative reputation? *Why?*
 - How did you hear about it?
- 4) Does (insert school name) have a presence in their community? *Why or why not?*

Section 2: Questions about perceptions of neighbourhood characteristics, and sense of community.

- 5) Can you describe (insert school name)'s surrounding neighbourhood both socially and physically? *How do they impact your perceptions and experience of the neighbourhood/school?*
 - *So socially;*
 - i. *Can you describe the 'energy' of the street?*
 - ii. *Can you describe what might attract 'outsiders' to this neighbourhood?*
 - *Now, physically:*
 - i. *Can you describe the natural elements of the street?*
 - ii. *Would you consider this neighbourhood 'vibrant'? Why or why not?*
 - *Does (insert school name)'s property reflect its surrounding neighbourhood?*
- 6) Is there a sense of 'community' in this neighbourhood? *Why or why not?*
 - Do you feel like you belong in the neighbourhood?
 - Does the neighbourhood come together in any way to prevent 'troublesome' behaviours from happening (such as neighbourhood watch)?
- 7) How safe (and crime-free) would you say this neighbourhood is compared to other Hamilton neighbourhoods (I.e., Above average, average, or below average)?

- Have you ever felt unsafe in (insert school name)'s neighbourhood? *If so, why?*
- Have you ever noticed:
 - Graffiti? If yes, do you think it's a problem?
 - Groups of teenagers and/or adults loitering? If yes, do you think it's a problem?
 - Drinking in public? If yes, do you think it's a problem?
 - Selling or using drugs in public? If yes, do you think it's a problem?
- Do you feel this neighbourhood has a 'good' or 'bad' reputation? *If so, why?*
 - How did you hear about it?

Section 3: Questions about how to build 'vibrant' school communities.

- 8) Do you have any suggestions regarding how to build a 'tight knit' community surrounding (insert school name)?
- 9) Do you have any suggestions regarding how to make this neighbourhood more economically prosperous?
- 10) Do you have any suggestions regarding how to make this neighbourhood safer for students both on and off school property?

Chapter 5

Conclusion: Disorder as a Physical ‘Neighbourhood Effect’ on Schooling

The purpose of this final chapter is to summarize the major findings from this dissertation, point to policy implications, and suggest lines of future research. Each of the three papers in this original sandwich dissertation provided a different perspective on, and insight into, physical disorder as a type of ‘neighbourhood effect’ on education. This was done by taking a mixed-methods approach to understanding how physical disorder in areas surrounding schools might affect educational outcomes, over and above their demographic characteristics. This dissertation aimed to not only measure correlations and effects of neighbourhood disorder and schooling, but to also uncover processes by which those effects might arise.

Summary of Main Findings

The first paper (Chapter 2) applied the method of Systematic Social Observation (SSO) to the study of neighbourhood physical disorder and school ecologies. Consistent with theoretical expectations, this study presents evidence that the proposed ‘walking’ SSO (W-SSO) methodology can provide a reliable and cost effective means of neighbourhood assessment, and highlights the complex association between neighbourhood physical disorder and schools. For example, observed disorder was statistically related to neighbourhood socio-demographics, collective efficacy, and various academic outcomes. Observed disorder had the strongest effects when a scale consisting of summed binary measures (including a graffiti binary) was used. Another key finding was the moderate-

sized and independent associations between graffiti and the above-mentioned neighbourhood and school measures. What is surprising, however, was that school exterior disorder had little to no explanatory power compared to observed disorder and graffiti in the face blocks surrounding schools. Overall, these findings help to highlight how beyond the recognized effects of socio-demographics, additional mechanisms in neighbourhoods, such as disorder and graffiti, can directly and indirectly influence school outcomes like achievement, discipline, and safety.

The second dissertation paper (Chapter 3) directly studied the impact of characteristics of neighbourhoods by examining the direct and additive effect(s) of observed disorder on academic achievement, discipline, and safety. Two sets of findings were reported. First, ordinary least squares (OLS) regression models showed that neighbourhood disorder but not school disorder was strongly associated with neighbourhood poverty. While the former effect was expected, the latter finding is interpreted as demonstrating how institutional processes in education can detach the physical plant of a school from its immediate surroundings. Second, net of neighbourhood poverty and school size and type, higher levels of neighbourhood disorder were associated with lower school achievement, higher suspension rates, and larger proportions of students reporting to feel unsafe, though school disorder had far weaker effects. These findings are interpreted as demonstrating the power of neighbourhood disorder to trigger either student deviance or family self-selection processes, but also demonstrating how institutional processes can weaken the signalling power of school disorder.

The final paper in the dissertation (Chapter 4) provides an in-depth examination of two purported mechanisms to uncover the social processes that generated the broad relationships established in chapters 1 and 2. The research suggests that self-selection and reputational processes are likely generators of the net effects that were demonstrated in previous chapters. Across this sub-sample of schools, stakeholders believed that that nearby disorder sends negative signals to would-be choosers of schools, creating (and perpetuating) long-lasting perceptions and reputations amongst aspiring, ambitious and achievement-oriented families of deep-rooted problems within a school. As a result, those families were recognized to self-select out of these disorderly schools, and re-locate elsewhere.

The findings from this study also support a ‘dis-embedding’ thesis. While schools may not be ‘great equalizers’ per se of physical conditions, they do not closely mirror their surrounding neighbourhoods either. Schooling’s institutional processes appear to partly “detach” the characteristics of school buildings from those of their broader neighbourhoods. This illustrates how public education funding formulae serve to standardize building designs and their upkeep. In contrast, non-publicly funded buildings in schools’ immediate surroundings have no parallel mechanism that can standardize their appearance and maintenance. These institutional processes serve to make student experiences rather similar in schools, as well as potential ‘oases’ that shield youth from harsher conditions beyond school grounds.

Research Contributions

Overall, this research found an intriguing pattern of effects and non-effects of disorder on schooling. It also highlights how neighbourhood disorder can send strong signals that may ultimately shape school processes. A shortcoming of existing work is that neighbourhood attributes are measured primarily using census data, which detail the demographic composition of a neighbourhood rather than its contextual attributes. The contribution of this dissertation to sociology is that researchers are now better equipped methodologically to design their own standardized approaches and disorder scales that directly measure neighbourhood conditions. The findings of this research support the use of SSO of neighbourhood attributes to compliment census and resident perception data, as well as improve the quality of the neighbourhood-level research being conducted.

There are also theoretical contributions of this research to sociology. For instance, though many neighbourhood researchers have applied hypotheses of disorder to a variety of human capital outcomes there has been little recognition of disorder as a physical ‘neighbourhood effect’ on schooling. From this perspective, it is not only helpful to recognize that disorder in nearby areas seems to affect schooling, but that self-selection and reputation processes can explain how this specific neighbourhood effect might arise. These findings can help future researchers understand the ‘signalling’ power of disorder since it uncovered how individuals interpret disorder, in both highly disordered and less disordered areas.

My findings also suggest that public schools can weaken connections between schools and their immediate locals. It highlights how strong institutional processes create

more standardization across schools within a jurisdiction. These system-wide institutional processes have potential to make schools relatively uniform across an array of community settings (Arum, 2000). For instance, in Ontario, the site of our research, the provincial government funds all public and Catholic schools with a universal formula that directs the same monies to schools in rich and poor areas like, but also directs extra funds to schools that are deemed to be in need, whether due to high proportions of students that are poor, recent immigrants, or have special needs. Further, Ontario's Ministry of Education, like U.S. state departments of education in the United States, creates common curricula and sets standards for teacher qualifications, physical plant, class sizes, testing, and so on. This centralized funding and governance structure can serve to standardize children's experience at school during school time. This equalizing process stands in sharp contrast to non-school environments, where disparities have been widening across households and neighbourhoods over recent decades. Inequalities are rising in family income, housing conditions, parental education, and parenting practices (Duncan and Murnane, 2011). As a consequence, bureaucratic structures in educational systems that standardize schools rules, regulations, funding and technology can serve to 'dis-embed' schools from their geographic locale and neighbourhood ecology, at least to some extent.

Summary of Policy Recommendations

One policy implication of this dissertation that might help schools in disorderly neighbourhoods is 'beautification' initiatives. Although this is an extrapolation from my research, and not something that was directly measured, giving municipalities more resources to prevent crime and fix disorder might alter school outcomes and/or school

choice processes. Beautification initiatives may include increased funding for arts and cultural programming⁴³, or continuing to work alongside local Business Improvement Areas (BIA's) to support economic development. Since a major findings of this dissertation is that nearby disorder seems to harm schools, either by inducing deviance or selection, education policy should consider trying to work with neighbourhoods in efforts to reduce disorder in areas surrounding schools.

Policies that addresses socio-economic disparities among schools and students are also directly touched by this research, since schools in poorer neighbourhoods tend to have more nearby disorder. Since this research finds evidence of considerable self-selection out of high poverty / high disorder schools, an emphasis on physical conditions can be seen as one step towards larger board policies that further implicate social conditions in schools. In addition to policies that involve improving physical landscapes, both on school grounds and those nearby, school boards might also consider increasing the funding and grants available to schools with high proportions of students from impoverished neighbourhoods. This approach would allow needy schools to apply directly to their school board for additional funding that could be used towards programs and resources aimed to improve the academic outcomes of their specific student populations. Alternatively, school boards might also consider income integration, such as bussing, to maintain a healthy socioeconomic balance in every classroom. In cities like

⁴³ As mentioned in the 2013 Toronto Vital Signs report the City has recently increased its funding for arts and culture (by \$6 million), and prioritized arts programming as a means of enhancing and expanding the vibrancy of public spaces. The City's Public Art Office is currently working on more than 60 projects in 20 Toronto wards to provide free, diverse, and accessible arts programs that create a sense of place, spark civic engagement, and encourage healthy, active living. It also aims to strengthen the connections between artists in these communities and build on local art networks by conserving existing work, consulting with community groups, and mounting new exhibits.

Raleigh, North Carolina, this method to combat income and wealth inequality has been found to improve the educational outcomes for impoverished youth (Grant, 2009).

Perhaps once a school reaches an above-average proportion of vulnerable youth its board could assign and transport students across catchment boundaries.

To address enduring reputational issues that can affect self-selection processes, which then worsen student outcomes, school boards should consider new ways to strengthen school-community partnerships with nearby residents, organizations, and businesses to promote learning and positive behaviours in and beyond the classroom. The benefits might not only create a sense of pride and purpose for many students, but also improve school reputations and retention by demonstrating their commitment to linking civic engagement and student achievement.

Suggestions for Future Research

Future research should continue to compare the effects and correlations of neighbourhood disorder and those of school disorder on educational outcomes. It would be interesting to see how disorder's association with schooling differs in other locales, with larger sample sizes of schools. Additionally, researchers should continue attempting to capture the 'signalling' power of disorder. To explore this scenario, I recommend research that asks more youth and parents about the criteria they use to choose schools, and whether or not nearby disorder affects school reputations. This could be achieved by inviting interview subjects to interpret digital data, collected using innovative neighbourhood video

surveillance equipment⁴⁴. This type of data allows for virtual reality re-creations of the sights, sounds, and feel of neighbourhoods surrounding schools, and the routes students take to get there. It would also be interesting to see qualitative research that explores whether board representatives themselves see any connections between property maintenance and school outcomes, and whether resources are allocated in the name of possibility improving school outcomes. My research could be used to justify more resources for maintenance (especially for properties nearby schools) if they are seen to boost educational outcomes.

⁴⁴ An example of this innovative neighbourhood video surveillance equipment is Dr. Jim Dunn's Mobile Urban Video Recording vehicle (MUVR) and two Immersive Virtualization (ImVir) suites. This is located at McMaster University for his Collaboratory for Research on Urban Neighbourhoods, Community Health and Housing (CRUNCH) project.

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