The built environment and the experience of walking: being a pedestrian in Santiago's deprived neighbourhoods

Cristhian Alfonso Figueroa Martínez

Submitted in accordance with the requirements
for the degree of Doctor of Philosophy

The University of Leeds
Institute for Transport Studies (ITS)

August 2019

Declaration

The candidate confirms that the work submitted is his own, except where work which has formed part of jointly authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

The work in Chapter 2 of the thesis has appeared in publications as follows:

> **Figueroa, C.**, Hodgson, F., Mullen, C. and Timms, P. 2018. Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile. *Journal of Transport Geography*, 67, pp.102-109.

This article includes findings of the analysis of secondary data of Santiago de Chile. I developed the theoretical approach, gathered and analysed the data and wrote the manuscript, which were discussed with the co-authors and enriched with their suggestions and comments.

The work in Chapter 3 of the thesis is a submitted manuscript as follows:

> **Figueroa, C.**, Hodgson, F., Mullen, C. and Timms, P. (submitted). The narratives of disadvantage: understanding the public space in deprived neighbourhoods of Santiago de Chile. *Journal of Urban Design.*

This article includes findings obtained from data collected on-site; in deprived areas of Santiago de Chile (walking interviews, non-participant observation, mapping and semi-structured interviews with residents of deprived areas). I developed the theoretical approach, designed the methods, collected data on-site, completed the analysis, and wrote the manuscript, which were discussed with the co-authors and enriched with their suggestions and comments.

The work in Chapter 4 of the thesis is a manuscript as follows:

> **Figueroa, C.**, Hodgson, F., Mullen, C. and Timms, P. (forthcoming a). Walking the line: negotiating the environment of Santiago de Chile's deprived neighbourhoods.

This article includes findings obtained from data collected on-site; in deprived areas of Santiago de Chile (walking interviews, non-participant observation and mapping). I developed the theoretical approach, designed the methods, collected data on-site, completed the analysis, and wrote the manuscript, which were discussed with the co-authors and enriched with their suggestions and comments.

The work in Chapter 5 of the thesis has appeared in publications as follows:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2019. Walking through deprived neighbourhoods: meanings and constructions behind the attributes of the built environment. *Travel Behaviour and Society*, 16, pp.171-181.

This article includes findings obtained from data collected on-site; in deprived areas of Santiago de Chile (walking interviews, non-participant observation and mapping). I developed the theoretical approach, designed the methods, collected data on site, completed the analysis, and wrote the manuscript, which were discussed with the co-authors and enriched with their suggestions and comments.

The work in Chapter 6 of the thesis is a manuscript as follows:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (forthcoming b). Pedestrianizing deprived neighbourhoods: exploring the limits of the built environment as a means to ease walking.

This article includes findings obtained from data collected on-site; in deprived areas of Santiago de Chile (semi-structured interviews with residents of deprived areas). I developed the theoretical approach, designed the methods, conducted the interviews, completed the analysis, and wrote the manuscript, which were discussed with the co-authors and enriched with their suggestions and comments.

Acknowledgements

I would like to thank my three supervisors, Frances Hodgson, Caroline Mullen and Paul Timms. You guided me during the process, enriched my ideas and allowed me to explore different fields on my own. Thank you Frances, for your support; Paul, for your patience, and Caroline, for your kindness. I learn so much from you.

I would like to thank the ITS stuff, my friends and colleagues in Leeds and Santiago. To Kate and Gina who gave me valuable insights during and after the viva. To my family which, despite the distance, supported me during the whole process and to my partner Natan(s) who enriches every day of my life.

Many thanks to all.

Abstract

Existing research on relations between features of the built environment and walking has mostly focused on people's propensity to walk in the given area. Measuring impacts as variations on the metrics of walking, the existing body of research has given little attention to pedestrians' experience and, seeking for direct correlations between the physical structures and human behaviour, it has tended to separate the built environment from the social sphere, the local context and the public life. Little work has investigated the impacts of the built environment on pedestrians' walking experience. Still less research has done so in a context of disadvantage.

In this thesis, I aim to examine the impacts of the built environment on the practice of walking of those who live in deprived neighbourhoods. I investigate walking as situated social interaction and a complex learning process that is moulded over time, and the built environment as a dynamic and complex matter that, by being deeply intertwined with the social sphere, can affect walking in a variety of forms. To this end, I report the results of a research conducted in deprived areas of Santiago de Chile. The capital of Chile which, like other Latin American metropolises, has clear patterns of segregation and suffers from profound social divides. With a sequential design, I explored the context of disadvantage and inequality of Santiago (geographic mapping), observed on-site their public spaces (non-participant observation and mapping) and explored with residents their experience of walking (walking interviews). Furthermore, I asked residents if better environments can ease the practice of walking and invited policymakers to talk about those factors that deter or ease the improvement of the environments of the deprived areas of Santiago (semi-structured interviews).

The findings suggest that walking happens in a context of territorial isolation and local social fragmentation; being moulded and delimited by the built environment in a variety of forms. The level of maintenance of the built environment can affect emotions as it mirrors the qualities of the local community. Facades and territorial demarcations can suppress trips, cause detours and increase apprehensions as these reflect territorial conflicts or the activities that occur in the public space. Aspects of the urban form can reflect broader constructs and stigmas (e.g. building type) and collaborate in the definition of what is expected to happen in the public space (e.g. land use). All these features are also "cues" from which pedestrians infer risks and adjust their behaviour accordingly. The findings suggest that an improved built environment can improve people's experience of walking and increase their willingness to travel on foot. However, there are several obstacles to do so. Locals perceive that weakened communities prevent any attempt to improve the environment. Meanwhile, policymakers are constrained by a rigid and limiting framework that prevents the creation of new tools to intervene the environment.

Table of contents

List of figures

List of tables

Chapter 1

Introduction

Given the potential benefits of walking as a sustainable travel mode, a prolific body of literature has sought to identify factors that can facilitate its practice and somehow palliate the harms provoked by the introduction of cars in the everyday life, the irruption of infrastructures on the urban landscape, the suburbanisation of the territories and other issues that affect the metropolises nowadays (*see* Ogilvie *et al.*, 2007; Andrews *et al.*, 2012 for extensive reviews on this matter). In that literature, the built environment has occupied a prominent place since a few studies identified correlations between its features and travel behaviour in the decade of 1990 (*see* Cervero and Kockelman, 1997; Ewing and Cervero, 2001). Subsequent research has been abundant and has been compiled in numerous reviews that inform about the impacts of a diverse range of features of the built environment on quantifiable aspects of walking (Sealens and Handy, 2008; Ewing and Cervero, 2010; McCormack and Shiell, 2011; Wang and Yang, 2019). However, as an emerging body of research has argued (Koskela and Pain, 2000; Banerjee and Hine, 2014; Næss, 2015; Stefansdottir *et al.*, 2018), these studies often have separated the built environment from the social sphere and have reduced walking to its metrics. This has prompted challenges to the interpretations given to data gathered, and further challenges to the methods used to collect that data as means of investigating walking.

The separation of the built environment from the social sphere has obscured causalities, minimised the relevance of its arrangement for the public life (e.g. patterns of the public space) and eclipsed its impacts on other aspects (e.g. sense of normality) that, in combination with the local culture, make some behaviours more likely than others. As Næss (2015; 2016) argues, there is no clarity on why and how particular aspects of the built environment conduce to "more" walking. The simplification of walking to its metrics (e.g. frequency, length of the trips) has tended to leave out of the scope several facets of its embodied experience (*see* Edensor, 2000; Middleton, 2009; Ingold, 2011; McFarlane, 2011; Lorimer, 2011). The quality of its experience and numerous aspects that delimit its practice (e.g. social constructs, local culture, perceptions) are often absent in the literature that seeks to identify the influence of the built environment on walking. Furthermore, the relevance given to the metrics has tended to overshadow those groups that, suffering from social disadvantages, walk because they have no other option available. Reviewing the few works that somehow have addressed this by considering the socio-economic context, Adkins *et al.* (2017) indicate that the evidence is inconclusive as individuals in disadvantaged positions seem to walk no matter the environmental conditions.

Little work has investigated the impacts of the built environment on walking in a context of disadvantage. Still less research (Bostock 2001; Figueroa and Forray, 2015; Benediktsson 2018) has done so considering the multifaceted nature of walking and the built environment in interaction with the social sphere. This thesis seeks to contribute to redress these gaps.

In this thesis, I aim to examine the impacts of the built environment on the practice of walking of those who live in deprived neighbourhoods. To this end, throughout this document, I report the results of a study in which, first, I explored with quantitative tools the unequal access to the available opportunities in the city of Santiago de Chile, the capital and biggest city of the country. Second, I registered in sketches and maps the features of three deprived neighbourhoods, observed on-site the patterns of their public spaces and invited residents to walk and have a guided conversation about the environmental features that are relevant for them when going on foot. Lastly, I asked participants about their willingness to walk through better environments and invited policymakers to talk about those factors that deter or ease the improvement of the environments of deprived neighbourhoods.

The focus on Santiago de Chile seeks to explore settings that have received scant attention in the literature. Unlike the cities where the studies about walking and the built environment are normally conducted (e.g. suburban territories, car-dependent societies), Latin American metropolises are relatively dense and compact and, although car ownership is growing, public transport and walking still represent a significant portion of the trips daily performed (Vasconcellos, 2010; SECTRA, 2012). Having almost eradicated irregular settlements and having extended the provision of basic services (e.g. drinkable water, sanitation, electricity), amenities (e.g. paved roads, sidewalks, squares) and facilities (e.g. schools, health centre) to all neighbourhoods due to robust public policies, Santiago de Chile also offers the opportunity to explore emerging forms of deprivation in Latin America. Those forms that are not necessarily related to informality, but to a general weakening of the physical and social structures of the neighbourhoods, a deep distrust towards others and the institutions and a high exposure to urban violence (Ducci 1997; Rodríguez and Sugranyes 2004; Rodriguez *et al.*, 2014).

In order to examine and investigate the built environment and walking, this thesis drawn together works from a range of theoretical approaches including social geography, urban studies and mobilities. This integrative approach has been adopted because the research on walking and the built environment has been conducted from a range of disciplinary frameworks. Consequently, an integrative approach provides the best potential to identify the significant factors and processes in the relationship between the built environment and walking and to appreciate their relative influence. The traditional approaches towards the built environment, mainly informed by

social geography, have provided insights about the importance of the urban form and the physical arrangement of the spaces, conceptualising their symbolisms and interactions with the social space. Urban studies have given evidence of the relevance of the symbolism and construction of meaning for the individual. Finally, the work on walking as a practice, mostly informed by mobilities, have provided evidence of the relevance of the codes of behaviour that pedestrians develop to interact with their surroundings and to be able to walk.

The understanding of the insights and knowledge from existing work has formed the theoretical framework for this thesis. I investigated walking from pedestrian's experience in the public space, as situated social interaction and a complex learning process that is moulded over time, and the built environment as a dynamic matter that can affect walking in a variety of forms. This framework informed the design of the walking interviews, and specifically the types of questions that were asked and the way in which I focused on the interactions in the built environment, and it also informed the analytical approach that was adopted. I used the factors and processes from this framework of previous work to inform the initial set of codes/nodes and categories that were used in the analysis of the interviews and the observation of the built environment.

This overview is arranged in four sections. Section 1.1 covers the relevant literature for this thesis, that is, the traditional approaches towards the built environment mainly informed by social geography, the emerging body of research that, informed by urban studies and mobilities, understands the built environment in interaction with the social sphere (Section 1.1.1), the multifaceted nature of the practice of walking informed by sociology and mobility perspectives (Section 1.1.2), disadvantage in the scale of the public space and the production of urban space in Latin America (Section 1.1.3). Section 1.2 explores the case study (Santiago de Chile). Section 1.3 comprises the questions and objectives of this thesis. In Section 1.4 the methods outlined earlier are described in depth. As this thesis was developed in an alternative format (by publications), Section 1.5 contains a "roadmap" that relates the five publications that comprise the thesis with the objectives.

1. 1. The built environment and walking

The rapid transformation of the urban landscape that took place in the middle of the past century illustrated the intertwined relationship between social and physical structures of the cities. In increasingly complex landscapes, Lynch (1960) provided insights of the symbolism of the urban structures and its effects on the comprehension and delimitation of the territories. Jacobs (1961), Gehl (1987) and Whyte (1988) warned about the damaging consequences of the introduction of cars in the cities (e.g. reduction of pedestrian space), and the growing segregation of the territories

(e.g. exclusively residential neighbourhoods). They emphasised the relevance of the interaction between the private and the public space (e.g. permeable facades) and the diversity of the neighbourhoods (e.g. functions in the private property, activities in the public space) as means to enrich the public life, ensure its diversity and secure its spaces. After observing the decline of the public space around residential high-rises, Newman (1972) suggested spatial arrangements to favour and strengthen the control, appropriation and surveillance of the communities on the public space (i.e. defensible spaces). Meanwhile, Appleyard (1980) argued that the configuration of the places can affect the reproduction of social capital and the sustainability of the communities.

The influential insights provided by these authors shaped many aspects of the cities by the end of the past century. Those insights prompted theories and inspired policies (like the "Broken Windows" later translated into zero-tolerance policies, *see* Kelling and Coles, 1997) and influenced the production of urban spaces across the cities. In decaying centres that are recovered by increasing the attractiveness of their public spaces (like "Streetscape design" *see* Childs, 2010). In peripheries that reproduce schemes of social control and community appropriation in intricate urban layouts or gated communities (*see* Aalbers, 2003; Grant and Mittelsteadt, 2004; Blandy, 2007). In new towns that emulate the spatial arrangement and the features of traditional cities (like "New Urbanism" *see* Calthorpe, 1993; Katz *et al.*, 1994).

Particularly in the United States, the combined effects of sedentary lifestyles, car-dependence and suburbanisation led a renewed interest in the physical arrangement of the cities. The novel study of Cervero and Kockelman (1997) comparing traditional suburbs and those produced under the guidelines of the New Urbanism found correlations between the—now called—built environment and people's behaviour. Densities (i.e. population and employment), land-use and the arrangement of the urban layout (i.e. design) were suggested to have impacts on the means chosen to travel; discouraging the use of cars if densities are high, land-use is diverse, and urban designs are pedestrian-oriented. As mentioned earlier, the subsequent research has provided evidence of the existence of correlations between the built environment and people's travel behaviour (*see* Sealens and Handy, 2008; Ewing and Cervero, 2010; McCormack and Shiell, 2011).

In the case of walking, most of the literature represents the built environment as a sum of quantifiable variables, often aggregated in "walkability indexes" of a given area, and measures effects on walking as variations on its metrics (e.g. frequency or length of the trips *see* Wang and Yang, 2019). For instance, Cleland *et al.* (2008) argue that the availability of alternative routes (i.e. connectivity), measures to slow down traffic and the presence of local facilities can predict increases in walking; Frank *et al.* (2010) suggest that low-density and single-use neighbourhoods can

be less conducive to walking; Christian *et al.* (2011) indicate that walking had a significant association with a more diverse range of land uses and Sehatzadeh *et al.* (2011) who indicate that walkable built environment features make trips on cars less likely to happen. However, despite the literature being successful in demonstrating certain correlations between the built environment and walking, the findings, the interpretations given to data gathered and the suitability of the data and the methods used to collect it as means of investigating the built environment have been contested.

Gallimore *et al.* (2011) argue that highly aggregated results can neglect singularities that can make walking a difficult chore. In their argument, a neighbourhood which is for the most part walking-friendly, therefore walkable in numbers, can still hide hostile pockets which, located at key points, can inhibit journeys on foot. Kamphuis *et al.* (2010) argue that the built environment and how individuals perceived it are often considered as equivalents. This, despite that the correspondence between both is "moderate" in the most optimistic scenario due to multiple factors such as personal trajectories, gender or age (Lamíquiz and López-Domínguez, 2015; Van den Berg *et al.*, 2016). From time geography perspectives, Schwanen *et al.* (2008), Lindelöw *et al.* (2014), Shen *et al.* (2015) point out that the influence of the built environment on walking can depend on the characteristics of the trips. Journeys with fixed destinations and rigid schedule (e.g. trips to the school or work) can have a "low" correlation with the built environment as these must be completed no matter the conditions of the surroundings.

Furthermore, as mentioned in the introduction, the simplification of the built environment in a sum of quantifiable variables has tended to separate it from other social processes; obscure causalities and minimise other less-visible forms in which the built environment can be influencing walking or any other behaviour (Næss, 2015; 2016). The measurement of the impacts of the built environment as variations on the metrics of walking has reduced the relevance of the experience of walking and has left outside of the scope those groups that travel on foot because they have no other feasible option. Reviewing the few works that have differentiated individuals according to socioeconomic context, Adkins *et al.* (2017) point out that walking shows a low correlation with the built environment among those who suffer from socioeconomic disadvantage. Their behaviour, understood as a function of the metrics of walking, varies little in different environments.

1. 1. 1. The built environment and the social sphere

Questioning the traditional body of literature about the built environment, Næss (2015; 2016) argues that the built environment is a product of the society that affects people's behaviour in a variety of ways. It influences people's aesthetic experience,

conveys messages on its features, provides situated opportunities to engage in activities and collaborates on the definition of several social constructs (e.g. sense of normality, perception of insecurity) that, in combination with other causal powers like personal preferences or local culture, make certain behaviours more likely to happen. Many of these aspects of the built environment are well-known in other fields like architecture or urban design (*see* Ball, 1986; Rapoport, 1990; Gieryn, 2000), yet have remained absent in most of the studies investigating the influences of the built environment on walking or on any other behaviour. The few exceptions that somehow have addressed the intricacy of the built environment are detailed below.

Investigating the urban form and travel behaviour in Northern Ireland, Banerjee and Hine (2014) suggest that the consequences of the ethno-nationalist conflict, land use policies and over-investment on roads led to lifestyles (i.e. residential immobility), urban forms (i.e. suburban layouts), territorial patterns (i.e. dispersion of jobs, satellite towns) are compatible with the use of cars and adverse for others means of transport. Studying walking and cycling in Norway, Stefansdottir *et al.* (2019) indicate that the level of physical activity in these two modes is less related to the territorial availability of amenities (e.g. green areas, secondary centres) and more linked to positive attitudes towards physical activity and territorial features (e.g. traffic, concentration of services in walkable distances) that favour the perception of walking being convenient. In both studies, the built environment does make certain behaviours more likely to happen, but in combination with perceptions and attitudes or as a result of complex social processes.

Studying fear of crime, Koskela and Pain (2000) argue that the built environment mirrors the social qualities of the public space it confines. Somehow demonstrating functional implications of the relationship between the physical structures and the public life described by Jacobs (1961) and others (Lynch 1960; Appleyard *et al.*, 1981; Gehl, 1987; Whyte 1988; Jacobs 1995; Zukin 1995), Koskela and Pain indicate that the features of the built environment are meaningful cues from which individuals infer the occurrence of activities, the presence of individuals who can cause harm and, hence, the latent risks of particular locations (e.g. dark places tend to be lonely).

The built environment imbued with meaning has been also explored in architecture and urban design. In these disciplines, the built environment is designed to purposely convey messages; to communicate norms (e.g. shopping malls *see* Rapoport 1990; Zukin 1998) or to prompt the appropriation of the public space (Newman, 1972).

Bostock (2001) provides evidence in a study conducted in the Midlands (United Kingdom) that places confined by deteriorated physical structures cause despair and sadness for low-income mothers that walk to open space on restricted budgets. For women walking, the physical structures of the places constitute an unavoidable reminder of their social disadvantages. Investigating suburban low-income

communities in American cities, Benediktsson (2018) argues that pedestrians walk in the residual margins of places designed for the dominant social categories (i.e. drivers and consumers). Walking happens, yet it is difficult and unpleasant because of the material (e.g. inadequate pedestrian infrastructure), symbolic (e.g. neglected urban spaces) and institutional (e.g. prohibitions) barriers that acquire form in the physical structures of the places. The research findings relevant to this aspect can be found in chapters 5 and 6 (Figueroa *et al.*, 2019; forthcoming b).[1]

1. 1. 2. The practice of walking

There is an emergent body of literature that has expanded the predominant comprehension of walking as a means to reach a particular end and have suggested new lines to explore it as a meaningful act and an embodied practice (Lorimer, 2011). Ingold (2011) indicates that walking is an innate act and a skill learnt in a relational environment during childhood and developed further over the years. As a skill (Sennett, 2009), walking is polished within specific settings and systems of belief. On personal experiences and in complex spaces that, with particular social and physical architectures, shape the forms in which pedestrians perceive and interact with their surroundings (Rüetschi and Timpf, 2004; McFarlane, 2011; Hund and Gill, 2014). Embedded within ritual and mundane rhythms, walking is also a recurring, flexible, emotional and sensual habit (Matos, 2008). It is beneficial in several ways; for people's physical and mental health and the quality of life of the cities (Lee and Buchner, 2008; Roe and Aspinall, 2011). As a situated social interaction, walking is a crucial element to construct meaning, reproduce and transmit culture, knowledge and capitals of different type (Demerath and Levinger, 2003; Ingold and Vergunst, 2008; Jensen, 2009; Middleton, 2018). It is a form of political action and a key practice to access the public realm, participate in the public sphere and practise citizenship (Bauman, 2000; Sheller and Urry, 2003; Matos, 2008; Spinney *et al.*, 2015).

The empirical work has provided evidence of how experiences, norms and codes of behaviour, local constructs and other aspects mentioned above shape people's comprehension of walking, its embodied practice and the forms in which pedestrians interact with the broader context (Edensor, 2000; Middleton, 2009; Horton *et al.*, 2014; Sharmeen and Timmermans, 2014). Pooley *et al.* (2014) and Hanson *et al.* (2016) found that the sociocultural sphere shapes people's understanding of walking and physical activity in the form of walking groups respectively. In both studies, walking is less likely to happen due to expectations of normality, lifestyles and other aspects of the social sphere that make it an "unusual" or "odd" activity. Hodgson

1 The five articles that are part of this thesis are cited as follows: Figueroa *et al.* (2018; 2019) are published articles, Figueroa *et al.* (submitted) is a submitted article and Figueroa *et al.* (forthcoming a; b) are articles in preparation for submission.

(2011; 2012) illustrates how individuals interact with the broader environment. Grounded and reproduced in cumulative experiences, social networks and other collective processes, Hodgson indicates that walking is a combination of competences and patterns of action through which pedestrians synchronise their practices with the rhythms of the cities and their lives, navigate the urban space and negotiate the unpredictability of the public realm (e.g. presences and absences, activities, encounters).

Studying women living in deprived neighbourhoods of Santiago de Chile, Figueroa and Forray (2015) argue that the social construction of gendered roles affects walking in a number of ways. Like several studies about gender suggest (Alcaíno and Gutiérrez, 2009; Akyelken, 2013; Ávila *et al.*, 2015), Figueroa and Forray indicate that domestic labour restricts women's available time. Like Bostock's findings, Figueroa and Forray also suggest that women face public spaces that, by being neglected and deteriorated, worsen already high perceptions of insecurity. Women walk constricted by the schedules of those members of their family who need help to have a functional life (e.g. bring children to school or accompany elders to health care facilities). They walk overloaded; chain trips to be "efficient", to keep households functioning (e.g. buy goods, pay bills) and to fulfil their own needs in short spans of time—and through impoverished environments that force them to articulate strategies to mitigate fears (e.g. have company, detour, walk just during daylight hours). Relevant finings can be found in Chapter 4 (Figueroa *et al.*, forthcoming a).

Moreover, the body of literature described above has been accompanied by the emergence of novel methods to investigate the complexities of walking. Combining features of ethnographic observation, interviews and "shadowing" techniques (i.e. researchers accompanying participants), mobile methods have been adopted to observe on-site behaviours, interactions, attitudes and manners that participants could unintentionally dismiss or omit in sedentary methods (Kusenbach, 2003; Jones *et al.*, 2008; Carpiano, 2009; Harada and Waitt, 2012; Warren, 2017). Mobile methods have complemented other traditional forms of collecting data about walking (e.g. diaries, interviews, surveys) and often include technologies to register relevant environmental features (e.g. camera, voice recorder) and precisely track routes (e.g. GPS) (Ricketts *et al.*, 2008; Evans and Jones, 2010; Harris, 2016).

1. 1. 3. The everyday spaces in Latin American cities

There is agreement on the importance of the capacity to travel for people's quality of life and wellbeing. The difficulty of doing so can undermine goals, expectations and standards, compromise the acquisition of the necessary goods to sustain adequate standards of life and affect the ability to participate in the normal activities of the

society.[2] However, as the work of Benediktsson (2018) cited earlier suggests, the discussion has rarely addressed "the fabric of place itself" (p. 394) where deprivation, inequalities and exclusion take place and directly affect people's experience. Little work has investigated how drawbacks are reproduced in the intimate spaces of the vicinities and the neighbourhoods.

In the Latin American context, the literature has pointed out several processes that have reproduced inequalities and drawbacks in the spaces of the everyday life. In metropolises that suffer from profound inequalities and social divides, gated communities have proliferated in the peripheries, offering safety and social differentiation (Janoschka, 2002; Borsdorf *et al.*, 2007; Coy, 2006; Glebbeek and Koonings, 2016). Meanwhile, as Stillerman and Salcedo (2012), Dávila (2018) and others (Miller, 2014; Schlack *et al.*, 2018) indicate, shopping malls and other spaces for consumption are key places in the lives and routines of those who can consume in their installations. These offer a safe refuge to encounter others and a symbolic space to construct collective identities. Along with the image of gentrified neighbourhoods, the scenic and highly controlled spaces of gated communities and places for consumption have become a social aspiration and have reinforced the unfavourable image of the public space that exists in many cities of the region (Quesada, 2006; Gómez and de Aguiar, 2015).

A high perception of insecurity has favoured the emergence of gated communities and spaces for consumption, the over-fortification of the private property and the over-surveillance of the public realm and has led to the creation of numerous strategies to design-out-crime by altering the built environment and strengthening the social structures (Harrison and Swain, 2003; Restrepo and Moreno, 2007). Scholars argue that this high perception of insecurity has roots on the combination of numerous phenomena, including the withdrawal of the State from the public realm (or its invisibility), the emergence of other structures in replacement (e.g. organised crime) and the distrust towards the institutions (e.g. law enforcement), and seems to be fuelled by the strong patterns of socio-territorial segregation of the cities of the region and several uncertainties (e.g. precarious job markets) that become tangible through fear of crime (Quesada, 2006; Restrepo and Moreno, 2007; Kessler and Focás, 2014). Referencing the experience of countries where victimisation is low and the trust on the institutions high, Dammert and Malone (2003) argue that the perception of insecurity tends to be higher in those groups that are in vulnerable positions.

2 Several works have theorised about the prejudicial consequences of the inability to travel on people's ability to participate in the wider society (Atkinson, 1998; Richardson and Le Grand, 2002; Kenyon et al., 2002; Cass *et al*., 2005; Levitas *et al*., 2007; Stanley and Lucas, 2008; Preston, 2009; Stanley and Vella-Brodrick, 2009; Delbosc and Currie, 2011; Stanley *et al*., 2011; Schwanen *et al*., 2015; Lucas *et al*., 2016). Other works have provided evidence of the correlations between accessibility, connectivity and different forms of deprivation and exclusion (Ceder *et al*., 2009; Currie, 2004; 2010; Jaramillo *et al*., 2012; Kaplan *et al*., 2014).

Other authors add that the social polarisation and socio-territorial segregation of Latin American cities have favoured fears towards social diversity. Many people fear the mixture with others, public spaces that are diverse, or those who seems to have a different social background and, in particular, the poor (Dammert, 2004; Valdebenito, 2006; Segura, 2009; Gómez and de Aguiar, 2015).

In cities with clear patterns of socio-territorial segregation, state neglect, underinvestment and limited access to opportunities have led to a general social fragmentation of the groups that inhabit the most deprived areas. Saraví (2004), Ortega (2014) and Sabatini and Wormald (2013) argue that those who are able to pursue traditional paths of social mobility abandon the local space, make use of facilities and services located in other parts of the city and construct their ties outside. Having fewer chances to follow equivalent paths, the rest is susceptible to engage in harmful activities (like drug consumption or trafficking) and prone to be confined within deprived areas that offer services, facilities and spaces which are—often—precarious and neglected. Potentially damaging activities, neglect and abandonment become the "norm" in the public space; intensifying the sense of being left behind in one group and increasing fears in the other. To the latter, the public space epitomises a harmful culture; an unavoidable realm occupied by individuals that represent threats. As these authors conclude, the public space mirrors and deepens the social fracture of deprived areas and reproduces patterns of exclusion at a micro-scale.

The upgrade of irregular settlements in several cities has drawn the attention to the issues described above. Several programs of urban upgrading and regeneration in Medellin, Rio de Janeiro, Mexico City and other cities have considered the public space as an entry point to long-neglected areas and a key element of broader strategies to redress their weakened social structures. The improvement of the public space (e.g. squares, pedestrian infrastructure), along with the introduction of public facilities, transport infrastructure and several programs of social rehabilitation, is meant to create an adequate support for the reproduction of capitals of different nature and a symbolic element of inclusion in the dynamics of the formal society (Andreatta, 2005; Calderón, 2008; Berney, 2011; Pérez-Valecillos and Castellano-Caldera, 2013; Ordóñez-Barba *et al.*, 2013; Burbano, 2014). Nevertheless as several authors indicate, it is not clear if these interventions have been beneficial (Tubb, 2013), have introduced new forms of exclusion (e.g. gentrification or touristification *see* Hernandez-García, 2013) or have brought little benefit to the most vulnerable groups (e.g. informal workers *see* Brand, 2013). Research findings can be found in Chapter 2 (Figueroa *et al.*, 2018) and Chapter 3 (Figueroa *et al.*, submitted).

1. 2. Santiago de Chile

Chile is one of the most prosperous countries in Latin America. It is a high-income economy (World Bank, 2019b) and ranks high in numerous indexes like economic freedom (15 out of 162 countries, *see* Gwartney *et al.*, 2018), competitiveness (33 out of 140, *see* Schwab, 2018) and perception of corruption (27 out of 180, *see* Transparency International, 2019). It is classified as a country with a very high human development (44 out of 189, *see* UNDP, 2018) due to the improvement of numerous metrics like life expectancy (79.5 years *see* UNICEF and WHO, 2016) or under-five mortality rate (7.4 deaths per 1,000 live births, *see* Hug *et al.*, 2017). It is a stable country (150 out of 178, *see* The Fund for Peace, 2019) and one of the most peaceful (27 out of 163, *see* Institute for Economics & Peace, 2018), happiest (26 out of 156 *see* Helliwell *et al.*, 2019) and safest nations in the Americas (3 homicides per 100.000 people, *see* World Bank, 2019a).

With a population of 6.5 million inhabitants, Santiago de Chile is the capital of Chile and one of the largest metropolises of Latin America. Over the last four decades, the city has experienced a rapid process of change, eradicating severe forms of deprivation and, as Caldeira (2017) concludes, leaving behind its former precariousness. Robust public policies have almost eliminated irregular settlements (less than 2% of the population lives in these conditions, *see* Techo-Chile, 2016) and have transformed into universal the provision of basic services like drinkable water, sanitation and electricity (WHO, 2017). Paved streets, sidewalks and squares configure the public space of the neighbourhoods and public facilities and services are available across the territory of the city (Greene *et al.*, 2017). A dense network of bus services structured around subway and train lines (160 km built and 145 km under construction or implementation) allows the 13.7 million of trips that are completed combining walking, cycling and public transport every day (74% of the total, *see* SECTRA, 2012). Nonetheless, like other cities of the region, Santiago is a highly segregated city.

There is agreement on the relevant role played by the State in the patterns of segregation that Santiago and other Chilean cities exhibit today. Scholars argue that the laissez-faire credo which informed policies during the dictatorship (1973-1990) increased the distance between the different segments of the society. To mobilise capital, key markets were deregulated (e.g. land), privatised (e.g. provision of water, electricity), outsourced (e.g. social housing) or opened to private invest (e.g. healthcare or education *see* Labra, 2002; Oliva, 2008; Valenzuela *et al.*, 2008). Meanwhile, to target those in need, subsidies to the demand became the most relevant redistribute tool. With few restrictions, a new stock of affordable housing emerged in the periphery of Santiago, giving shelter to groups displaced from irregular

settlements, rural migrants and families living in poor conditions in the houses of relatives (Sabatini, 2000; Tokman, 2006; Tapia, 2011). Central areas were "cleansed" during the dictatorship, as well as most of the eastern part of the city where the affluent groups of Santiago live, however, the new periphery continued to grow after the restoration of the democracy in 1990 (Hidalgo, 2005; Hidalgo *et al.*, 2007).

Although the subsequent democratic governments opened new mechanisms to reach groups in need and modified requirements to improve the standards of the new houses and neighbourhoods, many structural definitions were kept, thus reinforcing many of the flipsides like poor-quality houses, social homogeneity and a high deterioration of the public space (Aldunate *et al.*, 1987; Chateau *et al.*, 1987; Morales and Rojas, 1987; Ducci, 1997). Along with other issues detected later, these flipsides are today a few of the many features that define the new forms of Chilean poverty. "Those with roofs"[3] have shelter and access to drinkable water, electricity and other services, but they live in isolated areas of the city. They have access to facilities located in their neighbourhoods, but these render low-quality services. Schools located in Santiago's deprived areas are among the worst performers in the city (MINEDUC, 2018). They inhabit dense areas (170.3 persons/ha on average), well above the average density of the city (98.5 inhabitants/ha), but these are mostly residential. Their travel times are among the highest in the city as they depend on the jobs located in the centre of the city and its financial expansion to the east (Tokman, 2006). They have few chances to know and have contact with other segments of the society, as their neighbourhoods are socially homogenous and the well-off live far (Ortíz and Escolano, 2013). Many can even desire to return to the precariousness of informal settlements as, there, they felt more protected and less ashamed of being poor (Márquez, 2004; Brain *et al.*, 2010).

Those living in the deprived periphery suffer the consequences of policies that put little attention to the creation of a proper social ground for the new communities. Social fragmentation is high, cohesion and social capital tend to be low and networks small, homogenous and compact (Hidalgo *et al.*, 2017; Link *et al.*, 2017; Mora *et al.*, 2018). Residents have limited access to the opportunities, deepening the distrust towards the state and the institutions and intensifying the feelings of being abandoned and having fewer chances than others to progress (Sabatini and Wormald, 2013). Sharing similarities with the new forms of deprivation described by a number of authors in Latin America (Saraví, 2004; Kaztman, 2007) and other places (Wacquant, 2003; Le Breton, 2005), the lack of opportunities and the social isolation have led to a high incidence of school dropout, teenage pregnancy and drug consumption, have allowed the emergence of different forms of urban violence and

3 Name given to the new poverty by Chilean literature. It references to the people who have houses (the roof) but suffer several issues like drug trafficking, prostitution, urban violence, among others.

have weakened the public realm (Rodríguez and Sugranyes 2004; Rodríguez *et al.*, 2014).

Furthermore, these groups rely on walking to fulfil their needs. Almost half of the journeys completed by those living in the deprived periphery is done on foot (48%), higher than the average of the city of 34.5%. Less than a quarter of the trips is completed in public transport (23.5%), lower than the average of the city of 29%, and just 16.6% of the total are done in private transport, below the average of Santiago of 28% (SECTRA, 2012). However, as the few works conducted in Santiago's deprived areas illustrate (Landon, 2013; Figueroa and Forray, 2015), walking happens framed by the drawbacks described above and their reflections on the public realm. In unfavourable conditions, fragmented territories and high perceptions of insecurity, and through networks of deteriorated public spaces that require complex strategies to be crossed.

1. 3. Research questions and objectives

As described in previous sections, the research about the impacts of the built environment on walking has been abundant. However, it has tended to simplify walking to its metrics, separate the built environment from other social processes and, by doing so, has left out of the scope those groups to which walking is one of the few feasible alternatives to travel and fulfil needs. This thesis seeks to collaborate to redress these gaps.

This thesis addresses the question of how and why the built environment influences the practice of walking in deprived neighbourhoods. It does this by following three sub-questions:

(1) How are inequalities and disadvantages reproduced in the spaces of the deprived neighbourhoods?

(2) What are the aspects of the built environment that affect the experience of those who walk in deprived areas?

(3) How does an improved built environment influence the experience of walking?

This research aims to achieve a better understanding of the relationship between walking and the built environment in contexts of disadvantage. To address that, this research investigates the deprived areas of Santiago de Chile, a highly segregated Latin American metropolis, according to the following six objectives:

(1) Develop an integrative understanding of the relationship between walking and the built environment.

(2) Characterise the territorial and spatial expressions of inequality and disadvantage in the context of Santiago de Chile.

(3) Characterise the conditions which the practice of walking happens in deprived areas of Santiago de Chile.

(4) Identify and characterise the features of the built environment that affect walking in deprived areas of Santiago de Chile.

(5) Identify the impacts of improved built environments on the experience of those who walk in deprived areas of Santiago de Chile.

(6) Identify aspects that prevent or facilitate the improvement of the built environment of deprived areas of Santiago de Chile.

1. 4. Methodology

To address these questions and objectives, this research follows an inductive and abductive approach. As such, the research was data-driven, sought to interpret the observed phenomena and started with relatively simple premises that were constantly refined with the inclusion of new literature and data onto the research (Petty *et al.*, 2012; Brinkmann *et al.*, 2014). The research was sequential and was constituted by two stages. The exploratory stage addressed objectives 1, 2, 3 and 4 and encompassed the exploration of the literature on the relevant matters, the analysis of the patterns of exclusion, disadvantage and inequality of Santiago and the observation on-site of walking and the built environment of deprived neighbourhoods. This stage involved (i) literature review, (ii) quantitative mapping, (iii) walking interviews, (iv) non-participant observation and (v) mapping. The last three methods were conducted in deprived neighbourhoods of Santiago de Chile. As for the second stage (Scenario survey), it addressed objectives 5 and 6 and comprised the testing of the findings obtained in the previous stage and the further exploration of the factors that deter or ease walking and impede or facilitate the improvement of the built environment. This stage involved (i) semi-structured interviews with individuals living in deprived neighbourhoods of Santiago and (ii) semi-structured interviews with policymakers and officials. Figure 1 summarises the methodological design of the thesis. As this thesis was developed in an alternative format (by publications), the figure also shows the relationship between the aims, the methods employed and the five articles that this thesis comprises.

The qualitative approach of this thesis somehow challenges the quantitative methods that dominate the literature about walking and the built environment. As the literature about mobile methods acknowledges (Kusenbach, 2003; Jones *et al.*, 2008; Carpiano, 2009; Harada and Waitt, 2013), walking interviews permit the observation of the practice in the place where it happens, beyond its metrics and

within its cultural context. The act of walking itself elicits experiences in the places where these happened and allows the direct observation of demeanours, attitudes, interactions and other actions could be edited out by participants in other forms of collecting data (e.g. surveys, travel diaries or sedentary interviews). Despite that, as any means of collecting primary data, walking interviews are an artificial setting which conversation largely depends on participants' willingness to share their beliefs and experiences.

The inquisitive nature of qualitative methods also permits the co-exploration of individuals' lay knowledge (Horsburgh, 2003) and groups that receive little attention in the academia (Berends and Johnston, 2005). In particular, qualitative methods open opportunities to reflect on aspects of the built environment that are absent in the analyses due to the difficulty to measure their statistical relevance. These include composite features (e.g. facades), so-called "subjective" qualities (e.g. harmony, order or beauty) and contextual issues that affect people's understandings of the built environment (e.g. density in highly suburbanised cities versus density in a compact city). The exploration of these aspects, however, could limit the comparison of findings with the available literature because many are absent, minimised or barely explored in the traditional analyses about the built environment.

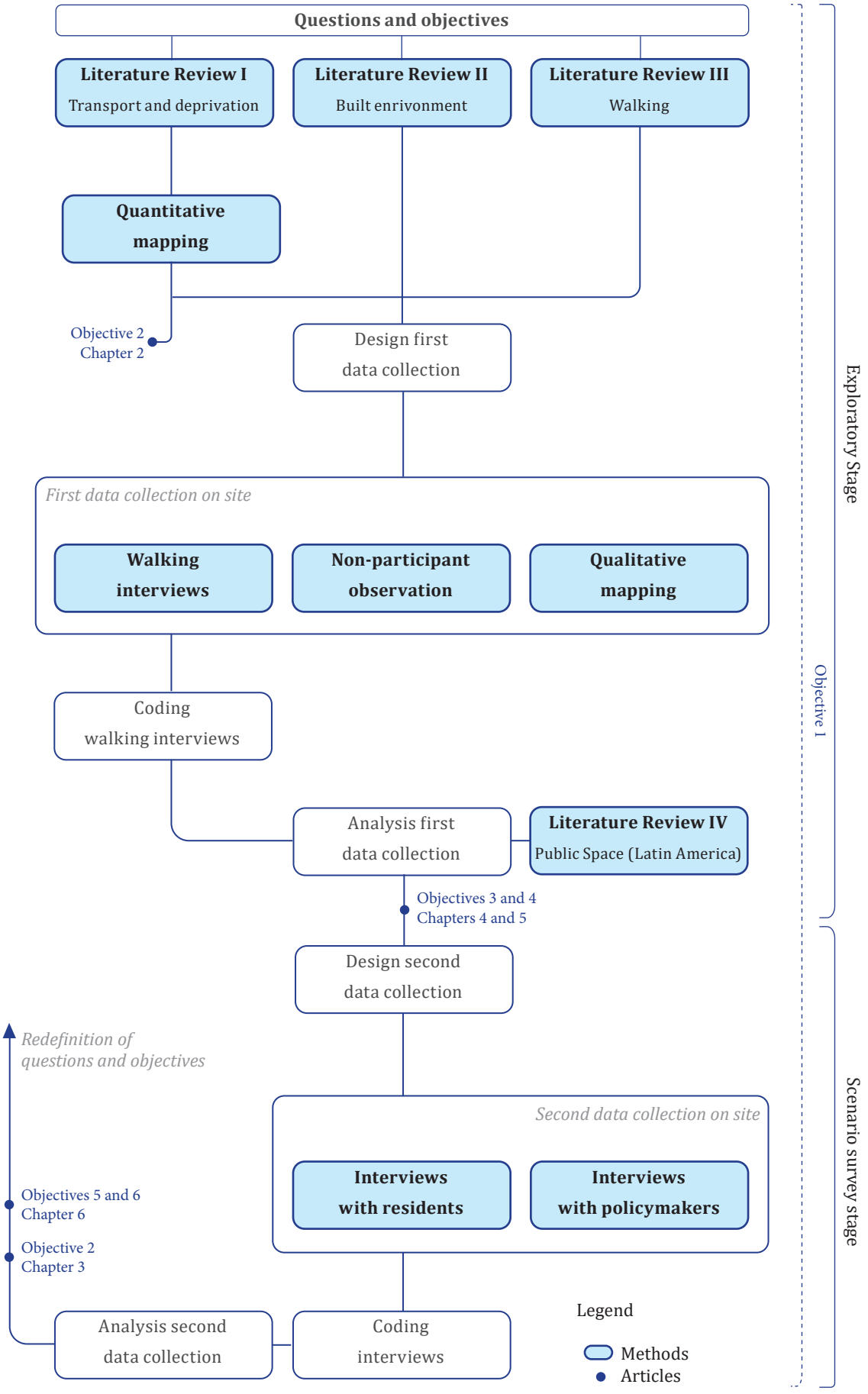
The combined analysis of interviews, non-participant observation and mapping gives chances to observe the intricate relationship between the built environment, the social structures and the public realm; explore less-direct effects of the built environment on walking and include approaches (Jacobs, 1961; Gehl, 1987; Whyte, 1988) that, despite of having shaped the development of the urban spaces in the last decades, have remained absent in transport studies. Moreover, qualitative methods open space to reflect on Latin American metropolises which, as was explored in the previous sections, are constituted by urban spaces that differ in several aspects of the places that have received attention in the literature (e.g. North America, Europe and Australia).

1. 4. 1. Exploratory Stage

To address the territorial expressions of deprivation (objective 2), this stage commenced with the exploration of the literature on deprivation and related matters and the analysis of the existing data of Santiago de Chile (Figure 1). Informed by the approaches detected in the literature and adapting methods of analysis to a city (Santiago) that differs in many aspects from the settings where studies are normally conducted (e.g. car-dependent societies, weak public transport), the exploration led to the design of quantitative exercises in which territorial patterns (e.g. density, land use) and travel time costs were mapped and calculated by intersecting available data (i.e. travel data, characteristics of public transport services and location of the

Figure 1. Methodological design of the thesis.

Source: author's own.



most deprived areas) and understood as expressions of the inequalities created and deepened by the flipsides of housing and transport policies. Further details of this quantitative exploration are given in Chapter 2.

Informed by the review of the literature about walking, the built environment and the relationship between both (Figure 1), walking interviews, non-participant observation and mapping techniques were designed to address the expressions of deprivation in the immediate space (objective 2), examine the practice of walking (objective 3) and identify relevant aspects of the built environment (objective 4). In walking interviews, participants living in deprived areas were invited to walk in the neighbourhoods where they live and have a guided conversation about the aspects of the built environment that are relevant to them, the activities they carry out or observe in the public realm and the skills, tactics and strategies they use when going on foot. In a relatively free scheme, participants defined the route to follow and had the freedom to stop, pause or interrupt the walking interview if something made them feel uncomfortable.

After walking, participants were asked to reflect on pictures illustrating unfamiliar places and converse about the built environment they observe, the activities they expect to happen and their willingness to walk. As participants were recruited in three neighbourhoods, the photographs illustrated two of the cases and a fourth place unfamiliar to all. To avoid colour biases (red is linked to social housing in the Chilean context), the photographs were printed in greyscale and, to enrich the conversation, intentionally portrayed contrasting situations like a pile of rubbish or a deteriorated sidewalk next to a well-kept square. The conversations were recorded and significant behaviours and interactions that occurred during the walking interviews were written down in field notes. Furthermore, the topic guide employed in the walking interviews was semi-structured and designed with a constructivist approach, meaning that the reality and knowledge are co-constructed between participants and researchers (Mason, 2002; Geels, 2010). Based on the literature that inquires on the practice of walking, in particular the works of McFarlane (2011), Ingold (2011), Hodgson (2012) that characterise walking as a skilled practice that evolves over time, the topic guide was arranged in two sections addressing walking in familiar environments (eight topics, *see* Table 1) and walking in unfamiliar places (three topics, *see* Table 1). Appendix 1 contains the guide used in the walking interviews.

Non-participant observation and mapping were conducted in the public spaces of the studied neighbourhoods to complement the data collected with the walking interviews and observe without the interference of the researcher behaviours and relevant environmental features. In the case of non-participant observation, behaviours and environmental features were written down in field notes, whereas

Table 1. Structure of the topic guide (walking interviews).

Source: author's own.

Section		Topic	Description
Section 1 Walking in familiar places	**Sub-section 1.1** Opening topics	The trajectory of the neighbourhood	Description of the current conditions of the neighbourhood. Social and physical changes observed by the participant in his/her neighbourhood.
		Apprehensions when walking	Precautions that the participant takes before, when or after walking.
	Sub-section 1.2 The environment	Public activities	Activities observed by the participant in the public space of his/her neighbourhood.
			Activities carried out by the participant in the public space of his/her neighbourhood.
		The environment	Aspects of the built environment to which the participant puts attention when walking (i.e. physical structures).
			Aspects of the social sphere to which the participant puts attention when walking (e.g. presences).
	Sub-section 1.3 The practice	Reading the environment	People expected to be encountered in places with different features.
		Encountering others	Actions carried out by the participant when encountering individuals along the routes.
		Navigating	Aspects of the environment that collaborate in the definition of the routes.
Section 2 Walking in unfamiliar places[1]		The environment	Aspects of the built environment to which the participant would put attention when walking through places like those depicted in the pictures (i.e. physical structures).
			Aspects of the social sphere to which the participant would put attention when walking through places like those depicted in the pictures (e.g. presences).
		Public activities	Activities that the participant expects to find in places like those depicted in the pictures.
		Willingness to walk	The participant's willingness to walk through places like those depicted in the pictures.

[1] This section included pictures illustrating unfamiliar places.

in mapping, these were registered in sketches and photographs and converted into digital maps using orthophotographs and computer-aided design and drafting software.

Recruitment and cases

Three local gatekeepers[4] provided contacts of potential participants and thirty-two individuals agreed to participate[5]. They ranged between 18 and 65 years old, were 11 males and 21 females and resided in three neighbourhoods that were built in different phases of Chilean social housing history (Table 6). Two of these (Cases B-1 and C) are currently classified as 'Áreas Prioritarias' (Priority Areas in English) due to low levels of investment, high levels of domestic violence, drug addiction, among

4 Gatekeepers were not present during the interviews.

5 The number of interviews was defined according to empirical saturation (Mason, 2002) that started to appear around the eighth interview in each case and twenty-fourth interview overall.

other indicators of social vulnerability (MINVU, 2012). The third neighbourhood (Case A) was in a similar category until the program of urban regeneration 'Quiero mi Barrio' (I Love my Neighbourhood in English) finished its implementation in 2012 (MINVU, n.d.). In detail:

> **Case A (1967) - Welfare State/Democracy.** The community was required to be organised ex-ante to be able to participate in the construction of the neighbourhood. Inhabitants, received an empty plot, connected to basic services, self-constructing houses and public spaces over time with the intermittent assistance or guidance of the State. Residents came from irregular settlements located nearby the location of the current neighbourhood (MINVU, 2004; Hidalgo, 2005). Twelve participants resided in this neighbourhood (*see* Chapter 3).
>
> **Case B-1 (1982) - Laissez-faire subsidiary approach/Dictatorship.** In a mechanism of public tenders which awarded private projects with the lowest costs and the highest benefits, this neighbourhood was built on the outskirts (i.e. cheapest available land). Families received a finished unit and the public space had paved roads and sidewalks. Residents came from different parts of the city (often central areas) and were required to be a recipient of social housing subsidies (MINVU, 2004). Nine participants resided in this neighbourhood (*see* Chapter 3).
>
> **Case C (1998) - Subsidiary approach/Democracy.** Like the previous case, residents came from different parts of the city, mostly from the houses of close relatives, were required to have a valid subsidy and received a small finished unit (MINVU, 2004). Eleven participants resided in this neighbourhood (*see* Chapter 3).

The three neighbourhoods have geographical proximity (less than three kilometres between the two most distant cases) and have common trajectories due to the political repression that took place during the dictatorship. As the formation of new irregular settlements was declared illegal, those who were unable to access a long-term solution found shelter in the houses of relatives in older neighbourhoods ("allegados" in Chilean jargon). It was common among participants to have lived in an old neighbourhood, reside now, or have relatives, in newer housing estates and be familiar with the paths followed by other neighbourhoods.

Collection of data

Walking interviews were piloted with six individuals, adjusting the questions according to the outcomes to make them clearer or add points that may be significant. In the section involving unfamiliar scenarios in photographs, and despite each

scenario was presented independently with its own set of questions, the first image tended to affect the perception of the other two. Participants often corrected the opinion of the first place if the other two were considered better. Conversely, if the first image was considered a good place, the perception of the other two worsened considerably. Participants tended to focus on details of the photographs, like tiny but broken fences, rubbish in the streets, the age and attitudes of the people present—and tended to situate themselves in the places, in diverse situations (e.g. walking alone) and hours (e.g. walking in night hours) without asking.

Analysis

Interviews were transcribed by the researcher and were imported into the software of qualitative analysis *NVivo* (version 11). Using features of the software, descriptive labels, or codes, were assigned to meaningful excerpts. These varied from short phrases to complex interactions between the interviewer and the participant and, depending on their context, could be labelled more than once. Seeking to identify patterns, narratives and beliefs (Fossey *et al.*, 2002), codes/labels emerged from the data. Seeking to identify ideas, relationships and omissions within the narratives developed by the participants, codes were developed by decontextualizing excerpts from its original context and re-contextualising them with other excerpts that have similar structures of meaning; using field notes taken during the data collection, enriching them with the triangulated analysis of transcripts, notes from non-participant observation and mapping, refining them in an iterative process of contrast and revision of the collected data, and grouping them into major categories in tree-like structures (Gough and Scott, 2000; Starks and Brown, 2007; Holton, 2007; Bengtsson, 2016). This iterative process of analysis was registered in handwritten memos.

According to the objectives 2, 3 and 4, all the excerpts that contained references to features of the built environment, activities that occur in the public realm and skills, tactics and strategies employed to able to walk were codified. The resulting codes were refined and grouped into broader categories according to their inner structures of meaning. Codified excerpts about the built environment contained agency, time-related qualities and were spatially situated, resulting in four main categories and fourteen codes (Table 2). Of the four categories, three (deterioration of the public space, territorial delimitation and the borders of the public space) emerged from the data and were refined with the literature that describes the built environment in interaction with the social sphere. In particular, those works that suggest that the built environment influences the experience of walking (Bostock, 2001; Stefansdottir *et al.*, 2018), perceptions of safety (Koskela and Pain, 2000) and the public life and the patterns of the public space (Jacobs, 1961; Gehl, 1987; Whyte, 1988). The fourth

category (urban form) was refined with the traditional literature about walking and the built environment (Sealens and Handy, 2008; Ewing and Cervero, 2010; McCormack and Shiell, 2011; Wang and Yang, 2019). Excerpts referencing activities had agency and nature; resulting in three main categories and nineteen codes (Table 3). Excerpts referencing skills and tactics had a clear purpose and involved learning processes. As there is a clear body of literature (Timpf, 2004; Hodgson, 2011; 2012; Hund and Gill, 2014), the coding of skills and tactics was based on these authors, this resulting in six categories and fifteen codes (Table 4).

The analysis also revealed the existence of meta-narratives, or beliefs that have an explanation in the broader social context and act as "unquestionable truths" (*see* Bruce *et al.*, 2016), which played a key role in framing the built environment and walking. Three meta-narratives were identified, these are (i) the omnipresence of drugs and crime, (ii) the invisibility of the State and (iii) the role of the community as the only responsible actor for the public realm. Results of the analysis of walking interviews, non-participant observation and mapping can be found in chapters 2, 3 and 4.

1. 4. 2. Scenario survey stage

Following the analysis of the data of the first data collection, a second stage was designed to address objectives 5 and 6. As such, this stage sought to characterise the impacts of improved built environments on people's experience of walking and identify the issues which can prevent or facilitate the upgrading of deprived environments. Also following a constructivist paradigm (Mason, 2002; Geels, 2010), two semi-structured interviews were designed to converse separately with residents of deprived neighbourhoods and policymakers and officials working in the public sector; in the central, metropolitan and local levels.

The interviews with residents of deprived neighbourhoods consisted in sequence of activities in which participants were invited to place silhouettes of nineteen public activities on four fictional scenarios and have a guided conversation about their willingness to walk in each one. The interviews started with the presentation of four scenarios to the participants and an initial conversation about their opinions and willingness to walk in each one. Following this, participants were invited to place the silhouettes of the activities on the scenarios, having the possibility of placing a given activity in the four scenarios, in some of them or in none. In parallel, they were asked about why they placed (or not) the activities where they did. After placing all the activities, participants were asked again about their willingness to walk in the scenarios. Lastly, the worst scenario was taken (by this means, the scenario in which participants showed more resistance to walk) and the conversation moved to the

Table 2. Codes and categories identified (built environment).

Source: author's own.

Features of the built environment				
Category	Description	Features (descriptive code)	Location	Causal agent
Deterioration of the public space	Cumulative and slow process of decay	1. Level of maintenance of the public space 2. Accumulation of rubbish and debris 3. Deterioration of urban furniture and lights	Public space	Local community
Territorial delimitation	Gradual process of transformation	4. Territorial markers 5. Vandalism/destruction of the public property	Public space	Outsiders/ wrongdoers
		6. Construction of fences and barriers in the public space		Residents/ community
		7. Construction of public facilities	Public land	State
Borders of the public space	Gradual process of consolidation	8. Permeability of fences and facades 9. Sense of order in facades 10. Presence of shops	Private space	Residents
Urban form	Layout of the neighbourhoods	11. Building type		-
		12. Inner connectivity		-
		13. Outer connectivity		-
		14. Land use		-

Table 3. Codes and categories identified (activities).

Source: author's own.

Activities		
Category	Activities (descriptive code)	Agent
Recreational activities	1. Having spontaneous conversations 2. Enjoying the open air[1] 3. Strolling 4. Gossiping	Residents
	5. Playing games in the street	Children
	6. Playing sports	Teenagers
Protection of the public space Contestation of illicit activities	7. Cleaning up the public space[2] 8. Expelling wrongdoers 9. Watching the public space[3] 10. Walking accompanied (for safety)	Residents
Illicit activities	11. Trafficking drugs	Drug dealers
	12. Looking out the public space for dealers[4] 13. Damaging the public property (vandalism)	Sentries[4]
	14. Consuming drugs and alcohol 15. Mugging 16. Practicing prostitution 17. Fighting in the streets 18. Assaulting pedestrians	Drug addicts
	19. Throwing rubbish and debris	Residents

[1] Bring chairs and sit outside the house, on the sidewalks, during the afternoon.
[2] Cleaning up the public space is seen as a form to contest the deterioration caused by drug traffickers.
[3] Showing up in the public space if something unusual is heard or observed.
[4] "Sentries" or "soldiers" who protect the public space for drug dealers.

exploration of the reasons that impede the improvement of a place like that scenario and the actors that should be involved in its upgrading.

Inspired by quantitative methods applied in Santiago de Chile (stated preference surveys *see* Iglesias *et al.*, 2013; Torres *et al.*, 2013), the four scenarios showed sequential improvements of the 'less-walkable' place detected in the walking interviews, that is, a narrow unpaved space, surrounded by block apartments (*see* Chapter 6 for details). It exhibits a high level of deterioration, damaged public property and numerous signs of vandalism. In addition, self-construction is highly visible. This place (Baseline Scenario) was digitalised using computer-aided design and drafting software and graphics editors and represented in greyscale to avoid the colour biases mentioned earlier, with midday light (all participants walk during daylight hours) and sunny weather (the predominant weather of Santiago).

Informed by the findings of the first stage, the image of the Baseline Scenario was digitally improved, decreasing the level of deterioration, erasing territorial demarcations and irregular extensions from the buildings, and adding a street and sidewalks in Scenario 1. Adding maintained green areas, urban furniture and pedestrian lights in Scenario 2 and shops and regular enlargements in Scenario 3. As darkness tends to be associated with a high perception of insecurity and can monopolise conversations, trees were represented as young specimens and public lights were depicted by highly visible light poles. (*see* Appendix 4) Using digital tools as well, the nineteen activities detected in the analysis of the first stage were digitalised and represented in black silhouettes of equal size, with a descriptive phrase/word and a colour in the top to ease the identification of them by the researcher (*see* Chapter 6 and Appendix 4).

As for policymakers, they were invited to have a guided conversation about the factors that facilitate or hinder the improvement of deprived environments and the role of walking in public policies. Like walking interviews, the topic guide was designed under a constructivist approach and organised in two parts. The first part was a brief presentation of the results of the first data collection and the second part was the interview itself (Table 5). Due to the highly specific expertise of each policymaker, the interviews focused on the role given to walking (transport-related institutions) or the factors that ease or hinder the improvement of deprived environments (housing-related institutions), but rarely on both.

Interviews with policymakers and residents were recorded and the work with fictional scenarios was registered in photographs. Appendixes 2 and 3 are the topics guides used in the interviews and Appendix 5 contains examples of the photographs taken after completing the work with fictional scenarios.

Table 4. Codes and categories identified (skills).

Source: author's own.

Skills			
Category	Skills (descriptive code)	Description	Source
The body	1. Facework	Facework involved in interacting with others in the public realm	As defined by Hodgson (2011; 2012)
	2. Communication	Communication of entitlements along the path (e.g. visual triangulation)	
	3. Walking among others	Synchronisation of the body to walk among others	
	4. Interaction with traffic	Sharing of the available space with cars, bicycles and other vehicles	
Familiarity	5. Being visible	Being seen to construct familiarity with those present in the places	Based on Hodgson (2011; 2012) and refined with the collected data
	6. Being invisible	Not being seen to not be predictable to the eyes of those who could cause harm	Detected in the data.
Awareness	7. Observation of patterns	Observation of the patterns of the places to adjust behaviours	Based on Hodgson (2011; 2012) and refined with the collected data
	10. Spotting others	Spotting others in the public realm to find safety and anticipate risks	
	8. Reading of the environment	Reading of the environment to infer risks from its features	
	9. Modification of rhythms	Modification of the rhythms of walking to increase the awareness of the surroundings (e.g. pace)	Detected in the data.
Navigation	11. Global landmarking	Navigation following salient elements of the city	As defined by Rüetschi and Timpf (2004) and Hund and Gill (2014)
	12. Local landmarking	Navigation following salient features of the neighbourhoods	
	13. Directional navigation	Navigation following the urban grid and geographical features (e.g. mountains)	
Time	14. Synchronisation of patterns of time	Synchronization of walking within the rhythms of everyday life and the patterns of the city	As defined by Hodgson (2011; 2012)
Collective knowledge	15. Collective memory	Reproduction of knowledge in the social networks	As defined by Hodgson (2011; 2012)

Table 5. Structure of the topic guide (policymakers).

Source: author's own.

Section	Description
Section 1 First data collection	Brief presentation of the results of the first data collection.
Section 2 Diagnosis of deprived areas.	The current diagnosis of deprived areas. Experiences of the institution in deprived areas.. Description of existing programs and policies.
Section 3 The role of pedestrians.	The role and value given to pedestrians in the public policies. The role given to those who walk in deprived areas.
Section 4 Issues and obstacles to improve the built environment	Significant experiences in deprived areas (positive and negative experiences). Aspects that facilite or hinder the improvement of deprived areas.

Recruitment

In this stage, nineteen out of thirty-two of those who were part of the first data collection agreed to contribute again. Due to the good relationship established with these participants, they were asked for contacts of other individuals that could be interested in contributing. As a result of this, nine persons were added to the research, all of them highly collaborative. Of the participants that were not re-recruited, the majority belonged to the Case B-1 where the fragmented and frightened community limited the possibilities to reach potential participants. To fill the gap, a neighbourhood that was built in the same period was included (Case B-2). Table 6 displays details of forty-one participants that were involved in this stage[6].

As the structure of the Chilean public sector can be cryptic for an outsider, the recruitment of policymakers was done by using the "snowball effect" in which those who provided contacts were among the acquaintances of the researcher (Geddes *et al.*, 2018). The recruitment started with five known scholars of a local institution (Pontifical Catholic University of Chile) who did not participate in the research but provided the contacts of eight policymakers of whom six accepted to be interviewed. At the end of each interview, these six participants were asked about other policymakers or officials who could be relevant and could contribute. The new potential participants were contacted via email/phone calls, repeating the process of asking for new potential participants at the end of each new interview. With this snowball effect, thirty-two policymakers were contacted and twenty-four took part in the research[7]. Of these twenty-four participants, twelve were employed in national departments (e.g. ministries), six in the metropolitan institutions (e.g. regional departments) and six in divisions of the local governments (e.g. municipalities). Many worked in programs and areas of the public sector with low visibility, recently created or under reform.

Collection of data

Semi-structured interviews were piloted with four individuals living in Case A; focusing on the work with fictional scenarios. Re-recruited participants tended to understand rapidly the questions and tasks. They tended to connect new ideas with those developed in the first data collection and develop complex narratives such as sequences of activities (e.g. drug trafficking inevitably leads to drug consumption and other illegal activities) or changing environmental conditions depending on the neighbourhoods that could surround the fictional scenario (e.g. next to a wealthy area or a deprived area). Due to the impossibility to pilot the interviews

6 Saturation appeared around the 8th interview by neighbourhood and 24th overall.

7 Saturation appeared around the 18th interview in the case of policy makers.

with policymakers, the topic guide was refined by the research team and adjusted after the first four interviews. During the interviews, policymakers clearly stated the difference between their opinion and the official discourse of the institutions. Despite this was not explicitly requested.

Analysis

The analysis of these two sets of interviews were transcribed and analysed with the assistance of the software *NVivo* (version 11) following the procedures explored before with the walking interviews. The work with fictional scenarios was systematised in Excel; aggregating the activities placed on the different scenarios to visualise patterns. Examples of the systematisation of the data can be found in Appendix 6.

The coding of the interviews was developed as a means to understand these patterns and ended with three relevant categories: (i) correlations between features of the built environment and activities, (ii) level of familiarity with the scenarios and (iii) willingness to walk. The second part of the interviews, that is, the factors that ease or hinder the improvement of the built environment, ended with just one category (the capital of the local community). This due to powerful meta-narratives that appeared in the walking interviews and again in this set of interviews (the omnipresence of drugs and crime, the invisibility of the State, the role of the community as the responsible actor for the public realm). Details of this analysis can be found in Chapter 6.

The analysis of the interviews with policymakers led to the identification of three categories that affect the improvement of the built environment. These were linked with the policymakers' definition of a "dominant system" (e.g. neoliberal State, subsidiary State), being the aspects that deter improvements those that reproduce existing tendencies (i.e. traditional mechanisms) and the factors that ease improvements those that erode traditional mechanisms by cumulative pressure (i.e. bottom-up communication) or violently break it for periods of time (i.e. emergency and catastrophe). Codes and categories related with walking tended to be simpler as walking was often considered an emergent issue in the public agenda with unclear ramifications (Table 7).

Protocols and ethics

The study was reviewed by the Ethical Committee of the University of Leeds. As confidentially and anonymity could not be assured in walking interviews, consents and information sheets contained special passages to clarify this point for those who

were willing to participate in the research. To protect personal data, the recordings and the transcripts were pseudo-anonymised using only general identifiers in articles and reports (i.e. gender, age and familial relationship only if needed to contextualise). Despite these protocols, policymakers and officials still may be identifiable due to the public nature of the position that they hold. This condition was stated in the introduction of the interviews and the informed consents. To preserve meanings, the transcripts were kept in Spanish (the original language) during the analysis—and to exemplify the phenomena, some excerpts were translated into functional English in publications, presentations and reports and other resulting products of this research.

1. 5. Thesis Roadmap

After this introduction that addresses the theoretical objective of this thesis (objective 1), Chapter 2 (published as Figueroa *et al.*, 2018 in the Journal of Transport Geography) partially addresses objective 2 by analysing the territorial expressions of inequality in Santiago de Chile. This chapter reports findings of the exploratory stage of the thesis, its quantitative part.

Chapter 3 (submitted) also explores objective 2 by analysing the expressions of disadvantage and inequality at an immediate level (the public space). This chapter reports findings obtained from both stages, that is, walking interviews, non-participant observation, mapping and semi-structured interviews involving fictional scenarios.

As the built environment and walking were explored in interaction, Chapter 4 (forthcoming a) and Chapter 5 (published as Figueroa *et al.*, 2019 in Travel behaviour and Society) address objectives 3 and 4. Both chapters report findings of the exploratory stage. In particular, findings obtained from the analysis of the walking interviews, non-participant observation and mapping.

Chapter 6 (forthcoming b) addresses objectives 5 and 6 by exploring the changes in individuals experience and willingness to walk in improved built environments and the factors that ease or prevent the improvement of the built environment. This chapter reports findings of the experimental stage of the thesis, in particular, the semi-structured interviews that involved fictional scenarios and the semi-structure interviews with policymakers.

Table 6. Participants (walking and semi-structured interviews).

Source: author's own.

		Cases				Total
		Case A	Case B-1	Case B-2	Case C	
Participants first data collection (walking interviews)						
Gender	Male	6	3	-	2	11
	Female	6	6	-	9	21
Age	18-30 years old	4	3	-	2	9
	31-50	4	4	-	5	13
	51-65	4	2	-	4	10
Participants second data collection (semi-structured interviews)						
Gender (re-recruited participants)	Male	5 (3)	2 (2)	6	4 (1)	18
	Female	7 (5)	3 (2)	7	7 (6)	23
Age (re-recruited participants)	18-30 years old	4 (2)	1 (1)	4	3 (2)	12
	31-50	5 (3)	3 (2)	4	6 (4)	18
	51-65	3 (3)	1 (1)	5	2 (1)	11

Table 7. Codes and categories (policymakers and officials).

Source: author's own.

Aspects that hinder or ease the improvement of deprived areas		
Category	Aspect (descriptive code)	Description
The dominant system	1. Subsidiary State	Subsidies as the main mechanism to reach those in need
	2. Shrinking neoliberal State	Lack of tools to intervene directly in deprived territories
Consequences of the dominant system	3. Distrust and apathy	All described as consequences of previous housing policies.
	4. Loss of entitlements	
	5. Segregation and social isolation	
	6. Resistance to the social integration	
Bottom-up communication	7. High social capital	Social capital of the local communities
	8. Local leaderships	Leadership of the local government
Catastrophe and emergencies	9. Catastrophe and emergency	Creation of stable programs and policies from emergencies

References

Aalbers, M. 2003. September. The double function of the gate. Social inclusion and exclusion in gated communities and security zones. In conference *Gated Communities: Building Social Division or Safer Communities*.

Adkins, A., Makarewicz, C., Scanze, M., Ingram, M. and Luhr, G. 2017. Contextualizing walkability: do relationships between built environments and walking vary by socioeconomic context?. *Journal of the American Planning Association*, 83(3), pp.296-314.

Akyelken, N. 2013. Development and gendered mobilities: Narratives from the women of Mardin, Turkey. *Mobilities*, 8(3), pp.424-439.

Alcaíno, P. and Gutiérrez, P. 2005. *Santas o Mundanas: Paradojas y coerciones en el consumo de las mujeres*. Fundación Instituto de la Mujer.

Aldunate, A., Morales, E. and Rojas, S. 1987. Evaluación social de las erradicaciones: resultados de una encuesta. *Material de Discusión Programa FLACSO*, (96), pp. 1-54

Andreatta, V. 2005. Favela-Bairro, un nuevo paradigma de urbanización para asentamientos informales. *Cuadernos Internacionales de Tecnología para el Desarrollo Humano*, 2005, núm. 3.

Andrews, G., Hall, E., Evans, B. and Colls, R. 2012. Moving beyond walkability: On the potential of health geography. *Social Science & Medicine*, 75(11), pp.1925-1932.

Appleyard, D. 1980. Livable streets: protected neighborhoods? *The ANNALS of the American Academy of Political and Social Science*, 451(1), pp.106-117.

Appleyard, D, Gerson, M. and Lintell, M. 1981. *Livable streets, protected neighborhoods*. California: University of California Press.

Atkinson, A. 1998. Social exclusion, poverty and unemployment. *Exclusion, employment and opportunity*, 4.

Avila, M., Martínez-Ferrer, B., Vera Jiménez, J., Bahena Rivera, A. and Musitu, G. 2015. Victimización, miedo al delito y cambios en las rutinas cotidianas en un contexto de alta criminalidad, en función del género. *Revista Española de Investigación Criminológica: REIC*, (13), pp.4-22.

Ball, M. 1986. The built environment and the urban question. *Environment and planning D: Society and Space*, 4(4), pp.447-464.

Banerjee, U. and Hine, J. 2014. Identifying the underlying constructs linking urban form and travel behaviour using a grounded theory approach. *International Journal of Environmental Science and Technology*, 11(8), pp.2217-2232.

Bauman, Z. 2000. *Liquid Modernity*. Cambridge: Polity Press.

Benediktsson, M. 2018. Where Inequality Takes Place: A Programmatic Argument for Urban Sociology. *City & Community*, 17(2), pp.394-417.

Bengtsson, M. 2016. How to plan and perform a qualitative study using content analysis. *NursingPlus Open*, 2, pp.8-14.

Berends, L. and Johnston, J. 2005. Using multiple coders to enhance qualitative analysis: The case of interviews with consumers of drug treatment. *Addiction Research & Theory*, 13(4), pp.373-381.

Berney, R. 2011. Pedagogical urbanism: Creating citizen space in Bogotá, Colombia. *Planning Theory*, 10(1), pp.16-34.

Blandy, S. 2007. Gated communities in England as a response to crime and disorder: context, effectiveness and implications. *People, Place and Policy Online*, 1(2), pp.47-54.

Borsdorf, A., Hidalgo, R. and Sánchez, R. 2007. A new model of urban development in Latin America: The gated communities and fenced cities in the metropolitan areas of Santiago de Chile and Valparaíso. *Cities*, 24(5), pp.365-378.

Bostock, L. 2001. Pathways of disadvantage? Walking as a mode of transport among low-income mothers. *Health & social care in the community*, 9(1), pp.11-18.

Brain, I., Prieto, J.and Sabatini, F. 2010. Vivir en Campamentos:¿ Camino hacia la vivienda formal o estrategia de localización para enfrentar la vulnerabilidad?. *EURE*, 36(109), pp.111-141.

Brand, P. 2013. Governing inequality in the South through the Barcelona model:"social urbanism" in Medellín, Colombia. *Interrogating urban crisis: governance, contestation, critique*, pp.9-11.

Brinkmann, S., St. Pierre, E. and Jackson, A. 2014. Doing Without Data. *Qualitative Inquiry*, 20(6), pp.720–725.

Bruce, A., Beuthin, R., Sheilds, L., Molzahn, A. and Schick-Makaroff, K., 2016. Narrative research evolving: Evolving through narrative research. *International Journal of Qualitative Methods*, 15(1), pp.1-6.

Burbano, A. 2014. La investigación sobre el espacio público en Colombia: su importancia para la gestión urbana. *Territorios*, (31), pp.185-205.

Caldeira, T. 2017. Peripheral urbanization: Autoconstruction, transversal logics, and politics in cities of the global south. *Environment and Planning D: Society and Space*, 35(1), pp.3-20.

Calderon, C. 2008. *Learning from Slum Upgrading and Participation: A case study of participatory slum upgrading in the emergence of new governance in the city of Medellín–Colombia*. Stockholm: Kungliga Tekniska Högskolan.

Calthorpe, P. 1993. *The next American metropolis: Ecology, community, and the American dream*. New York: Princeton architectural press.

Carpiano, R. 2009. Come take a walk with me: The "Go-Along" interview as a novel method for studying the implications of place for health and well-being. *Health & place*, 15(1), pp.263-272.

Cass, N., Shove, E. and Urry, J. 2005. Social exclusion, mobility and access. *The sociological review*, 53(3), pp. 539-555.

Ceder, A., Net, Y. and Coriat, C. 2009. Measuring public transport connectivity performance applied in Auckland, New Zealand. *Transportation Research Record: Journal of the Transportation Research Board*, (2111), pp.139-147.

Cervero, R. and Kockelman, K. 1997. Travel demand and the 3Ds: Density, diversity, and design. *Transportation Research Part D: Transport and Environment*, 2(3), pp.199-219.

Chateau, J., Morales, E., Pozo, H. and Sánchez, D. 1987. *Espacio y poder. Los pobladores*. Santiago, Chile: FLACSO.

Childs, M. 2010. Creating Vibrant Public Spaces: Streetscape Design in Commercial and Historic Districts. *Journal of Urban Design*, 15(2), pp.287–289.

Christian, H., Bull, F, Middleton, N., Knuiman, M., Divitini, M., Hooper, P., Amarasinghe, A. and Giles-Corti, B. 2011. How important is the land use mix measure in understanding walking behaviour? Results from the RESIDE study. *International Journal of Behavioral Nutrition and Physical Activity*, 8(1), p.55.

Cleland, V., Timperio, A. and Crawford, D. 2008. Are perceptions of the physical and social environment associated with mothers' walking for leisure and for transport? A longitudinal study. *Preventive Medicine*, 47(2), pp.188-193.

Coy, M. 2006. Gated communities and urban fragmentation in Latin America: the Brazilian experience. *GeoJournal*, 66(1-2), pp.121-132.

Currie, G. 2004. Gap analysis of public transport needs: measuring spatial distribution of public transport needs and identifying gaps in the quality of public transport provision. *Transportation Research Record: Journal of the Transportation Research Board*, (1895), pp.137-146.

Currie, G. 2010. Quantifying spatial gaps in public transport supply based on social needs. *Journal of Transport Geography*, 18(1), pp.31-41.

Dammert, L. and Malone, M. 2003. Fear of crime or fear of life? Public insecurities in Chile. *Bulletin of Latin American Research*, 22(1), pp.79-101.

Dammert, L. 2004. ¿Ciudad sin ciudadanos? Fragmentación, segregación y temor en Santiago. *EURE,* 30(91), pp.87-96.

Dávila, A. 2018. *El mall: políticas de espacio y clase social en los centros comerciales latinoamericanos*. Bogotá: Ediciones Uniandes-Universidad de los Andes.

Delbosc, A. and Currie, G. 2011. The spatial context of transport disadvantage, social exclusion and well-being. *Journal of Transport Geography*, 19(6), pp. 1130-1137.

Demerath, L. and Levinger, D. 2003. The social qualities of being on foot: A theoretical analysis of pedestrian activity, community, and culture. *City & Community,* 2(3), pp.217-237.

Ducci, M. 1997. Chile: el lado obscuro de una política de vivienda exitosa. *EURE*, 23(69), pp. 99-115.

Edensor, T. 2000. Walking in the British countryside: reflexivity, embodied practices and ways to escape. *Body & Society*, 6(3-4), pp.81-106.

Evans, J. and Jones, P. 2011. The walking interview: Methodology, mobility and place. *Applied Geography*, 31(2), pp.849-858.

Ewing, R. and Cervero, R. 2001. Travel and the built environment: a synthesis. *Transportation research record*, 1780(1), pp.87-114.

Ewing, R. and Cervero, R. 2010. Travel and the built environment: A meta-analysis. *Journal of the American planning associatio*n, 76(3), pp.265-294.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2018. Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile. *Journal of Transport Geography,* 67, pp.102-109.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2019. Walking through deprived neighbourhoods: meanings and constructions behind the attributes of the built environment. *Travel Behaviour and Society*, 16, pp.171-181.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (forthcoming a). Walking the line: negotiating the environment of Santiago de Chile's deprived neighbourhoods.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (forthcoming b). Pedestrianizing deprived neighbourhoods: exploring the limits of the built environment as a means to ease walking.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (submitted). The narratives of disadvantage: understanding the public space in deprived neighbourhoods of Santiago de Chile.

Figueroa, C. and Forray, R. 2015. Movilidad femenina: los reveses de la utopía socio-espacial en las poblaciones de Santiago de Chile. *Revista de Estudios Sociales*, (54), pp.52-67.

Fossey, E., Harvey, C., McDermott, F. and Davidson, L. 2002. Understanding and evaluating qualitative research. *Australian and New Zealand journal of psychiatry*, 36(6), pp.717-732.

Frank, L., Sallis, J., Saelens, B., Leary, L., Cain, K., Conway, T. and Hess, P. 2010. The development of a walkability index: application to the Neighborhood. *Quality of Life Study. British journal of sports medicine*, 44(13), pp.924-933.

Gwartney, J., Lawson, R., Hall, J. and Murphy, R. 2018. E*conomic Freedom of the World: 2018 Annual Report*. Fraser Institute.

Gallimore, J., Brown, B. and Werner, C. 2011. Walking routes to school in new urban and suburban neighborhoods: An environmental walkability analysis of blocks and routes. *Journal of environmental psychology,* 31(2), pp.184-191.

Geddes, A., Parker, C. and Scott, S. 2018. When the snowball fails to roll and the use of 'horizontal'networking in qualitative social research. *International Journal of Social Research Methodology*, 21(3), pp.347-358.

Geels, F. 2010. Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research policy*, 39(4), pp.495-510.

Gehl, J. 1987. *Life between Buildings: Using Public Space*. New York; Wokingham: Van Nostrand Reinhold.

Gieryn, T. 2000. A space for place in sociology. *Annual review of sociology*, 26(1), pp.463-496.

Glebbeek, M. and Koonings, K. 2016. Between Morro and Asfalto. Violence, insecurity and socio-spatial segregation in Latin American cities. *Habitat international*, 54, pp.3-9.

Gómez, J. and de Aguiar, R. 2016. El imaginario urbano del miedo en Latinoamérica: evidencias de estudios en Salvador de Bahía, Brasil, y Monterrey, México. *Revista Temas Sociológicos*, (19), pp.41-69.

Gough, S. and Scott, W. 2000. Exploring the purposes of qualitative data coding in educational enquiry: Insights from recent research. *Educational Studies*, 26(3), pp.339-354.

Grant, J. and Mittelsteadt, L. 2004. Types of gated communities. *Environment and planning B: Planning and Design*, 31(6), pp.913-930.

Greene, M., Mora, R., Figueroa, C., Waintrub, N. and Ortúzar, J. 2017. Towards a sustainable city: Applying urban renewal incentives according to the social and urban characteristics of the area. *Habitat international*, 68, pp.15-23.

Hanson, S., Guell, C. and Jones, A. 2016. Walking groups in socioeconomically deprived communities: A qualitative study using photo elicitation. *Health & place*, 39, pp.26-33.

Harada, T. and Waitt, G. 2013. Researching Transport Choices: The Possibilities of 'Mobile Methodologies' to Study Life-on-the-Move. *Geographical Research*, 51(2), pp.145-152.

Harris, J. 2016. Utilizing the walking interview to explore campus climate for students of color. *Journal of Student Affairs Research and Practice*, 53(4), pp.365-377.

Harrison, F. and Swain, B. 2003. Guía de diseño del espacio público. Santiago, Chile: LOM.

Helliwell, J., Layard, R. and Sachs, J. 2019. *World Happiness Report.*

Hernandez-Garcia, J. 2013. Slum tourism, city branding and social urbanism: the case of Medellin, Colombia. *Journal of Place Management and Development*, 6(1), pp.43-51.

Hidalgo, R., Zunino, H. and Álvarez, L. 2007. El emplazamiento periférico de la vivienda social en el área metropolitana de Santiago de Chile: consecuencias socio espaciales y sugerencias para modificar los criterios actuales de localización. *Scripta Nova*, 11(245), p.27.

Hidalgo R., Urbina, P., Alvarado, V. and Paulsen, A. 2017. Desplazados y ¿olvidados?: contradicciones respecto de la satisfacción residencial en Bajos de Mena, Puente Alto, Santiago de Chile. *Revista Invi*, 32(89), pp.85-110.

Hidalgo, R. 2005. La vivienda social en Chile y la construcción del espacio urbano en el Santiago del siglo XX. *EURE*, 31(93), pp.108-112.

Hodgson, F. 2011. Structures of encounterability: space, place, paths and identities. In: Grieco, M. and Urry, J. (eds) M*obilities: new perspectives on transport and society*. Surrey: Ashgate Publishing Ltd, pp.59-86.

Hodgson, F. 2012. Everyday connectivity: Equity, technologies, competencies and walking. *Journal of Transport Geography*, 21, pp. 17-23.

Holton, J. 2007. The coding process and its challenges. In: Bryant, A. and Charmaz, K. (Eds). *The SAGE handbook of grounded theory*. Wiltshire: SAGE publication Ltd., pp.265-89.

Horsburgh, D. 2003. Evaluation of qualitative research. *Journal of Clinical Nursing*, 12(2), pp.307–312.

Horton, J., Christensen, P., Kraftl, P. and Hadfield-Hill, S. 2014. 'Walking… just walking': how children and young people's everyday pedestrian practices matter. *Social & Cultural Geography*, 15(1), pp.94-115.

Hug, L., Sharrow, D., Zhong, K. and You, D. 2018. *Levels & Trends in Child Mortality. Report 2018*. New York: United Nations Children's Fund.

Hund, A. and Gill, D. 2014. What constitutes effective wayfinding directions: The interactive role of descriptive cues and memory demands. Journal of *Environmental Psychology*, 38, pp. 217-224.

Iglesias, P., Greene, M. and Ortúzar, J. 2013. On the perception of safety in low income neighbourhoods: using digital images in a stated choice experiment. In: Hess, S. and Daly, A. (Eds.). *Choice Modelling: The State of the Art and the State of Practic*. Gloss: Emerald Group Publishing Limited, pp.193-210.

Ingold, T. 2011. *Being alive: Essays on movement, knowledge and description*. London: Routledge.

Ingold, T. and Vergunst, J. 2008. *Ways of walking: Ethnography and practice on foot*. Aldershot: Ashgate.

Institute for Economics & Peace. 2019. *Global Peace Index 2019: Measuring Peace in a Complex World*. Sydney: Institute for Economics & Peace.

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

Jacobs, A. 1995. *Great streets*. Cambridge: MIT Press.

Janoschka, M. 2002. El nuevo modelo de la ciudad latinoamericana: fragmentación y privatización. *EURE*, 28(85), pp. 11-20.

Jaramillo, C., Lizárraga, C. and Grindlay, A. 2012. Spatial disparity in transport social needs and public transport provision in Santiago de Cali (Colombia). *Journal of Transport Geography*, 24, pp. 340-357.

Jensen, O. 2009. Flows of meaning, cultures of movements–urban mobility as meaningful everyday life practice. *Mobilities*, 4(1), 139-158.

Jones, P., Bunce, G., Evans, J., Gibbs, H. and Hein, J. 2008. Exploring Space and Place With Walking Interviews. *Journal of research practice*, 4(2), p.D2.

Kamphuis, C., Mackenbach, J., Giskes, K., Huisman, M., Brug, J. and Van Lenthe, F. 2010. Why do poor people perceive poor neighbourhoods? The role of objective neighbourhood features and psychosocial factors. *Health & place*, 16(4), pp.744-754.

Kaplan, S., Popoks, D., Prato, C. and Ceder, A. 2014. Using connectivity for measuring equity in transit provision. *Journal of Transport Geography*, 37, pp.82-92.

Katz, P., Scully, V. and Bressi, T. 1994. *The new urbanism: Toward an architecture of community*. New York: McGraw-Hill.

Kaztman, R. 2007. La calidad de las relaciones sociales en las grandes ciudades de América Latina: viejos y nuevos determinantes. *Pensamiento iberoamericano*, (1), pp.177-205.

Kelling, G. and Coles, C. 1997. *Fixing broken windows: Restoring order and reducing crime in our communities.* New York: Simon and Schuster.

Kenyon, S., Lyons, G. and Rafferty, J. 2002. Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography*, 10(3), pp. 207-219.

Kessler, G. and Focas, B. 2014. ¿Responsables del temor?: Medios y sentimiento de inseguridad en América Latina. *Nueva Sociedad*, (249), pp. 137-48.

Koskela, H. and Pain, R. 2000. Revisiting fear and place: women's fear of attack and the built environment. *Geoforum*, 31(2), pp.269-280.

Kusenbach, M. 2003. Street phenomenology: The go-along as ethnographic research tool. *Ethnography*, 4(3), pp.455-485.

Labra, M. 2002. La reinvención neoliberal de la inequidad en Chile: el caso de la salud. *Cadernos de saúde pública*, 18, pp.1041-1052.

Lamíquiz, P. and López-Domínguez, J. 2015. Effects of built environment on walking at the neighbourhood scale. A new role for street networks by modelling their configurational accessibility?. *Transportation Research Part A: Policy and Practice*, 74, pp.148-163.

Landon, P. 2013. Movilidad cotidiana e infraestructura vial: nuevos desafíos urbanos para la inclusión social en la ciudad. El caso de la Autopista Acceso a Santiago. *Revista de trabajo social*, (84), pp.31-45.

Le Breton, E. 2005. *Bouger pour s'en sortir: mobilité quotidienne et intégration sociale*. Paris: Armand Colin, pp. 245.

Lee, I. and Buchner, D. 2008. The importance of walking to public health. Medicine & *Science in Sports & Exercise*, 40(7), pp.S512-S518.

Levitas, R., Pantazis, C., Fahmy, E., Gordon, D., Lloyd, E. and Patsios, D. 2007. *The multi-dimensional analysis of social exclusion*. University of Bristol: Bristol Institute for Public Affairs.

Lindelöw, D., Svensson, Å., Sternudd, C. and Johansson, M. 2014. What limits the pedestrian? Exploring perceptions of walking in the built environment and in the context of every-day life. *Journal of Transport & Health*, 1(4), pp.223-231.

Link, F., Mora, R., Greene, M. and Figueroa, C. 2017. Patrones de sociabilidad en barrios vulnerables: dos casos en Santiago, Chile. *Revista Bitácora Urbano Territorial*, 27(3), pp.9-18.

Lorimer, H. 2011. Walking: new forms and spaces for studies of pedestrianism. In: Cresswell, T. and Merriman, P. (eds.) *Geographies of mobilities: Practices, spaces, subjects*. London: Routledge, pp. 31-46.

Lucas, K., Mattioli, G., Verlinghieri, E. and Guzmán, A. 2016. Transport poverty and its adverse social consequences. *Proceedings of the Institute of Civil Engineers*. pp. 1-13

Lynch, K. 1960. *The image of the city*. Cambridge: MIT press.

Márquez, F. 2004. Márgenes y ceremonial: los pobladores y las políticas de vivienda social en Chile. *Política*, (43), pp.185-203.

Mason, J. 2002. *Qualitative Researching*. Second ed. London: Sage.

Matos, F. 2008. Walking and rhythmicity: Sensing urban space. *Journal of Urban Design*, 13(1), pp.125-139.

McCormack, G.and Shiell, A. 2011. In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *International journal of behavioral nutrition and physical activity*, 8(1), p.125.

McFarlane, C. 2011. *Learning the city: knowledge and translocal assemblage*. Chichester: John Wiley & Sons.

Middleton, J. 2009. 'Stepping in time': walking, time, and space in the city. *Environment and Planning A*, 41(8), pp.1943-1961.

Middleton, J. 2018. The socialities of everyday urban walking and the 'right to the city'. *Urban studies*, 55(2), pp.296-315.

Miller, J. 2014. Affect, consumption, and identity at a Buenos Aires shopping mall. *Environment and Planning A*, 46(1), pp.46-61.

MINEDUC, 2018. *Mapa puntaje promedio del establecimiento en las tres últimas pruebas SIMCE*. [Online] [accessed 10 June 2019]. Available at: http://www.mime.mineduc.cl/mime-web/mvc/mime/mapa

MINVU. 2004. *Un siglo de políticas de vivienda y barrio*. Santiago, Chile: MINVU.

MINVU. 2012. *Instructivo para identificación y definición de Zonas prioritarias de interés público*. Santiago, Chile: MINVU.

MINVU. no date. *Memorias de la 6 de Mayo*. Santiago, Chile: Secretaría Ejecutiva de Desarrollo de Barrios.

Mora, R., Greene, M. and Reyes, A. 2018. Uso y percepción del espacio público en dos barrios vulnerables: Un análisis comparativo de dos barrios. *AUS*, (24), pp.53-60.

Morales, E. and Rojas, S. 1987. *Sectores populares y municipio*. Santiago, Chile: FLACSO.

Næss, P. 2015. Built environment, causality and travel. *Transport reviews*, 35(3), pp.275-291.

Næss, P. 2016. Built environment, causality and urban planning. *Planning Theory & Practice*, 17(1), pp.52-71.

Newman, O. 1972. *Defensible Space: Crime Prevention through Urban Design*. New York: Macmillan.

Oliva, M. 2008. Política educativa y profundización de la desigualdad en Chile. *Estudios pedagógicos (Valdivia)*, 34(2), pp.207-226.

Ogilvie, D., Foster, C., Rothnie, H., Cavill, N., Hamilton, V., Fitzsimons, C. and Mutrie, N. 2007. Interventions to promote walking: systematic review. *BMJ*, 334(7605), p.1204.

Ordóñez-Barba, G., Alegría-Olazábal, T., Mcintosh, C. and Zenteno-Quintero, R. 2013. Alcances e impactos del Programa Hábitat en comunidades pobres urbanas de México. *Papeles de población*, 19(77), pp.231-267.

Ortega, T. 2014. Criminalización y concentración de la pobreza urbana en barrios segregados: síntomas de guetización en La Pintana, Santiago de Chile. *EURE*, 40(120), pp.241-263.

Ortiz, J. and Escolano, S. 2013. Movilidad residencial del sector de renta alta del Gran Santiago (Chile): hacia el aumento de la complejidad de los patrones socioespaciales de segregación. E*URE*, 39(118), pp.77-96.

Pérez-Valecillos, T. and Castellano-Caldera, C. 2013. Creación del espacio público en asentamientos informales: Nuevos desafíos urbanos. *Revista Bitácora Urbano Territorial*, 23(2), pp.95-104.

Petty, N., Thomson, O. and Stew, G. 2012. Ready for a paradigm shift? Part 1: Introducing the philosophy of qualitative research. *Manual therapy*, 17(4), pp.267-274.

Pooley, C., Horton, D., Scheldeman, G., Mullen, C., Jones, T. and Tight, M. 2014. 'You feel unusual walking': the invisible presence of walking in four English cities. *Journal of Transport & Health*, 1(4), pp.260-266.

Preston, J. 2009. Epilogue: Transport policy and social exclusion-Some reflections. *Transport policy*, 16(3), pp. 140-142.

Quesada, F. 2006. Imaginarios urbanos, espacio público y ciudad en América Latina. *Pensar Iberoamérica: revista de cultura* 3.

Rapoport, A. 1990. *The meaning of the built environment: A nonverbal communication approach*. University of Arizona Press.

Restrepo, E. and Moreno, Á. 2007. Bogotá: ¿más crimen?, ¿más miedo? *Desarrollo y Sociedad*, (59), pp.165-214.

Richardson, L. and Le Grand, J. 2002. Outsider and insider expertise: the response of residents of deprived neighbourhoods to an academic definition of social exclusion. *Social Policy & Administration*, 36(5), pp. 496-515.

Ricketts, J., Evans, J. and Jones, P. 2008. Mobile methodologies: Theory, technology and practice. *Geography Compass*, 2(5), pp.1266-1285.

Rodríguez, A. and Sugranyes, A. 2004. El problema de vivienda de los" con techo". *EURE*, 30(91), pp.53-65.

Rodriguez, A., Rodriguez, P., Saborido, M., Segovia, O. and Mires, L. 2014. Visible and invisible violence and inequality in neoliberal Santiago. *Environment and Urbanization*, 26(2), pp.359-372.

Roe, J. and Aspinall, P. 2011. The restorative benefits of walking in urban and rural settings in adults with good and poor mental health. *Health & place*, 17(1), pp.103-113.

Rüetschi, U. and Timpf, S. 2004. Modelling wayfinding in public transport: Network space and scene space. In: Freksa, C., Knauff, M., Krieg-Brückner, B., Nebel, B. and Barkowsky, T. ed(s). *Spatial Cognition IV. Reasoning, Action, Interaction*. Berlin: Springer-Verlag Berlin Heidelberg, pp. 24-41.

Sabatini, F. and Wormald, G. 2013. Segregación de la vivienda social: reducción de oportunidades, pérdida de cohesión. In: Sabatini, F., Wormald, G. and Rasse, A. (eds.), *Segregación de la vivienda social: ocho conjuntos en Santiago, Concepción y Talca, Santiago*. Santiago, Chile: Colección Estudios Urbanos UC, pp.15-31.

Sabatini, F. 2000. Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial. *EURE*, 26(77), pp. 49-80.

Saraví, G. 2004. Segregación urbana y espacio público: los jóvenes en enclaves de pobreza estructural. *Revista de la CEPAL.*

Schlack, E, Hidalgo, N., Villarroel, K., Arce, M. and Fariña, C. 2018. Tres tipos de comercio. Tres maneras de influenciar la esfera pública de los barrios. *Revista INVI*, 33(92), pp.89-122.

Schwab, K. 2018. *The Global Competitiveness Report 2018*. Switzerland: World Economic Forum.

Schwanen, T., Kwan, M. and Ren, F. 2008. How fixed is fixed? Gendered rigidity of space–time constraints and geographies of everyday activities. *Geoforum*, 39(6), pp.2109-2121.

Schwanen, T., Lucas, K., Akyelken, N., Solsona, D., Carrasco, J. and Neutens, T. 2015. Rethinking the links between social exclusion and transport disadvantage through the lens of social capital. *Transportation Research Part A: Policy and Practice*, 74, pp.123-135.

Saelens, B. and Handy, S. 2008. Built environment correlates of walking: a review. *Medicine and science in sports and exercise*, 40(7 Suppl), p.S550.

SECTRA. 2012. Informe ejecutivo. Encuesta Origen Destino de viajes. Santiago, Chile: SECTRA.

Segura, R. 2009. Paisajes del miedo en la ciudad. Miedo y ciudadanía en el espacio urbano de la ciudad de la Plata. *CUADERNO URBANO. Espacio, cultura, sociedad*, 8(8), pp.59-76.

Sehatzadeh, B., Noland, R. and Weiner, M. 2011. Walking frequency, cars, dogs, and the built environment. *Transportation Research Part A: Policy and Practice*, 45(8), pp.741-754.

Sennett, R. 2009. *The Crafstman*. London: Penguin.

Sharmeen, F. and Timmermans, H. 2014. Walking down the habitual lane: analyzing path dependence effects of mode choice for social trips. *Journal of Transport Geography*, 39, pp.222-227.

Sheller, M. and Urry, J. 2003. Mobile Transformations of 'Public' and 'Private' Life. *Theory, Culture & Society*. 20(3), pp. 107-125.

Shen, Y., Chai, Y. and Kwan, M. 2015. Space–time fixity and flexibility of daily activities and the built environment: A case study of different types of communities in Beijing suburbs. *Journal of Transport Geography*, 47, pp.90-99.

Spinney, J., Aldred, R. And Brown, K. 2015. Geographies of citizenship and everyday (im)mobility. *Geoforum*, 64, pp.325–332.

Stanley, J. and Lucas, K. 2008. Social exclusion: What can public transport offer? *Research in Transportation Economics*. 22(1), pp. 36-40.

Stanley, J. and Vella-Brodrick, D. 2009. The usefulness of social exclusion to inform social policy in transport. *Transport Policy*, 16(3), pp. 90-96.

Stanley, J., Hensher, D., Stanley, J. and Vella-Brodrick, D. 2011. Mobility, social exclusion and well-being: Exploring the links. *Transportation research part A: policy and practice*, 45(8), pp. 789-801.

Starks, H. and Brown, S. 2007. Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative health research*, 17(10), pp.1372-1380.

Stefansdottir, H., Næss, P. and Ihlebæk, C. 2019. Built environment, non-motorized travel and overall physical activity. *Travel Behaviour and Society*, 16, pp.201-213.

Stillerman, J. and Salcedo, R. 2012. Transposing the urban to the mall: routes, relationships, and resistance in two Santiago, Chile, shopping centers. *Journal of Contemporary Ethnography*, 41(3), pp.309-336.

Tapia, R. 2011. Vivienda social en Santiago de Chile: análisis de su comportamiento locacional, periodo 1980-2002. *Revista Invi*, 26(73), pp.105-131.

Techo-Chile. 2016. *Catastro de Campamentos 2016*. Santiago, Chile: Centro de investigación social Techo-Chile.

The Fund for Peace. 2019. *Fragile States Index: Annual Report 2019*. Washington: The Fund for Peace.

Tokman, A. 2006. El MINVU, la política habitacional y la expansión excesiva de Santiago. In: Galetovic, A. (editor). *Santiago. Donde estamos y hacia dónde vamos*. Santiago, pp.489-520.

Torres, I., Greene, M. and Ortúzar, J. 2013. Valuation of housing and neighbourhood attributes for city centre location: A case study in Santiago. *Habitat International*, 39, pp.62-74.

Transparency International. 2019. *Corruption Perceptions Index 2018*. Berlin: Transparency International.

Tubb, D. 2013. Narratives of citizenship in Medellín, Colombia. *Citizenship Studies*, 17(5), pp.627-640.

UNDP. 2018. *Human Development Index (HDI)*. [Online] [accessed 10 June 2019]. Available at: http://hdr.undp.org/en/content/human-development-index-hdi

UNICEF and WHO. 2019. *Progress on household drinking water, sanitation and hygiene 2000-2017. Special focus on inequalities*. New York: UNICEF and WHO.

Valdebenito, R. 2006. «Nosotros y los Otros»: segregación urbana y significados de la inseguridad en Santiago de Chile. *Lugares e imaginarios en la metrópolis*, 22, p.107.

Valenzuela, J., Labarrera, P. and Rodríguez, P. 2008. Educación en Chile: entre la continuidad y las rupturas. Principales hitos de las políticas educativas. *Revista Iberoamericana de la Educación*, (48), 129-145

Van den Berg, P., Kemperman, A., de Kleijn, B. and Borgers, A. 2016. Ageing and loneliness: the role of mobility and the built environment. *Travel Behaviour and Society*, 5, pp.48-55.

Vasconcellos, E. 2010. *Análisis de la movilidad urbana. Espacio, medio ambiente y equidad*. Bogota: CAF.

Wacquant, L. 2003. *Parias urbanos. Marginalidad en la ciudad a comienzos del milenio*. Buenos Aires: Manantial.

Wang, H. and Yang, Y. 2019. Neighbourhood walkability: A review and bibliometric analysis. *Cities*, 93, pp.43-61.

Warren, S. 2017. Pluralising the walking interview: Researching (im)mobilities with Muslim women. *Social & Cultural Geography*, 18(6), pp.786-807.

WHO. 2017. *Global Health Observatory data repository.* [Online] [accessed 30 April 2018]. Available at: http://www.who.int/gho/en/

Whyte, W. 1988. *City: Rediscovering the Center.* New York: Anchor books.

World Bank. 2019a. *Intentional homicides (per 100,000 people).* [Online] [accessed 10 June 2019]. Available at: https://data.worldbank.org/indicator/VC.IHR.PSRC.P5

World Bank. 2019b. *World Development Indicators database. Country: Chile.* [Online] [accessed 10 June 2019]. Available at: https://data.worldbank.org/country/chile?view=chart

Zukin, S. 1995. *The cultures of cities.* Oxford: Blackwell.

Zukin, S. 1998. Urban lifestyles: diversity and standardisation in spaces of consumption. *Urban studies*, 35(5-6), pp.825-839.

Chapter 2

Creating inequality in accessibility:
the relationships between public transport and social housing policy in deprived areas of Santiago de Chile

This chapter has been published in the Journal of Transport Geography as:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2018. Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile. *Journal of Transport Geography*, 67, pp.102-109.

Abstract

This paper identifies the very limited connectivity provided by the current public transport system to the most deprived groups of Santiago de Chile, and explores the territorial aspects of transport and social housing policies that have contributed to the creation of unequal public transport schemes. To achieve those aims, we present a review of public policies in Chile and the results of an original quantitative analysis that measures the travel times required to access the opportunities and activities located in the city. The results show that housing policies put people at a disadvantage by increasing the distance between them and the opportunities of the city. Three decades after the implementation of housing policies, transport still fails to mitigate these distances and instead of alleviating the patterns of segregation, it may have reinforced them. The travel times required increase towards the periphery (even though densities do not decrease) and are higher than the averages of the city in social housing estates.

Highlights

» Provides a quantitative analysis of the relationship between housing and transport policies.

» Measures access travel times for Santiago de Chile as a whole, and compares these with travel times to deprived settlements.

» Finds access travel times are higher than the averages in social housing estates built by public policies.

» Finds evidence that housing and transport policy have led to transport disadvantage, social exclusion and transport poverty.

Keywords: time, public transport, housing policy, deprivation.

2. 1. Introduction

Inequalities in the ability to access available material and social resources can produce further inequalities, affecting living standards and personal expectations and can cause (or worsen) conditions of deprivation (Kaufmann *et al.*, 2004; Ascher, 2007; Urry & Sheller, 2003). At city-level, the availability of public transport is often identified as a measure that can reduce those disparities. It can improve the access to the opportunities offered by a specific territory and, therefore, it can diminish the disadvantages of the most fragile segments of the society (Preston, 2009).

In Latin America, and led by the pioneer experiences in Curitiba in Brazil or Bogota in Colombia, public transport became a central subject of the discussion due to several plans that intended to modernise the obsolete systems of the main urban areas of the region. Santiago de Chile followed the same path with the modernisation of the public transport system in 2007 (Transantiago); however, a complex implementation triggered a profound urban crisis that questioned the role of public transport in a highly unequal city (Forray *et al.*, 2013).

Further, Santiago is commonly portrayed as a segregated territory because different socio-economic groups are highly isolated from each other (Sabatini *et al.*, 2001). Although the reasons behind the phenomenon are diverse, numerous studies argue that one of the key factors was the aggressive social housing policies that displaced the most deprived groups of the society to marginal locations of the city (Ducci, 1997; Rodríguez & Sugranyes, 2005).

While housing policy and public transport have both been implicated in reducing accessibility and inclusion for those in deprived areas, studies to date have treated housing policy and transport separately and there has not been investigation of the impacts of relations between housing policy and transport in Santiago de Chile. This article examines those by (i) measuring the travel time costs of the connectivity offered by the current public transport system to the groups displaced by housing policies, and (ii) recognising the territorial aspects of transport and housing policies that may have contributed to the creation of unequal schemes.

To this end we present a review of public policies in Chile and the results of a quantitative analysis that measures the times required to access the activities located in the city. Excluding this introduction, the article is structured in six sections: (i) a review of the relationship between transport and deprivation, (ii) the methodology and the materials used, (iii) a review of transport and housing policies in Chile, (iv) the results of the quantitative analysis, (v) the discussion, and (vi) the main conclusions.

2. 2. Transport and inequalities

A vast body of literature covers the effects of having (or not) access to transport and mobility. According to Stanley *et al.* (2011) and Delbosc and Currie (2011), transport affects aspects of psychological wellbeing (i.e. the sense of feeling competent, autonomous and connected) by enabling people to choose among options and master resources. To Preston (2016) transport can alter the quality of life, by this means, the level of satisfaction with one's life in accordance with local culture and personal experiences, goals, expectations, standards and concerns (Kamp *et al.*, 2003; Skevington *et al.*, 2004).

Transport disadvantages can be also translated into social exclusion, which refers to a lack/denial of resources that affects ability to participate in the normal activities of the society. The resources exist yet they are not available to all (Atkinson, 1998; Church *et al.*, 2000; SEU, 2003; Kenyon *et al.*, 2003; Cass *et al.*, 2005; Levitas, 2007). Social exclusion is an extensively studied topic often defined as dynamic, varying over time and space, relative, people can be excluded from the society or just aspects of it, and with agency, being provoked directly or indirectly by external factors (Richardson & Le Grand, 2002; Preston, 2009; Lucas *et al.*, 2016).

By conceptualising the effects of transport on people, Lucas *et al.* (2016) define transport poverty as a multi-criteria condition suffered by anyone affected by at least one of the following four issues: transport affordability (economic costs), mobility poverty (lack of options to perform trips), accessibility poverty (access to the opportunities in acceptable times) and exposure to externalities such as the indirect effects of pollution on people. However, transport needs vary person to person, and this complexity prevents the development of canons to measure transport poverty. In a similar approach, other scholars highlight the complexity to draw causalities; transport can be either the cause or an issue that can strengthen inadequate living conditions (Preston, 2009; Jones and Lucas, 2012).

From the perspective of the instruments and policies, and under a principle of equal concern, Mullen *et al.* (2014) argue that the distribution of benefits and risks of transport among people should secure equal opportunities to sustain adequate lives. This means that any instrument should recognise the advantages, or disadvantages, enjoyed, or suffered, by the groups of the society and act differentially according to them.

The measurement of the disadvantages is often addressed with quantitative approaches (Hernández & Witter, 2011). In the case of public transport, previous studies have focused mostly on the potential use of the available network by contrasting the features of the public transport services (frequencies, bus stops and capacities) with demographic parameters (Currie, 2004; 2010; Jaramillo *et al.*, 2012).

Studies that compare public transport with the distribution of activities across the cities are less common and have been applied to optimise the usage of public transport or to identify income-related inequalities in aggregated levels (Ceder *et al.*, 2009; Kaplan *et al.*, 2014).

Finally, by linking transport features with demographics, several studies have demonstrated an unequal transport supply in Latin American cities that tends to favour the most affluent groups of the societies (Jaramillo *et al.*, 2012; Farbiarz, 2013; Capelli, 2015; Figueroa & Guzmán; 2016). The discussion is situated under the understanding that many cities of the region are well-covered by public transport, with healthy modal shares (low usage of private transport), but fragmented due to social, economic and ethnic issues (Cebollada, 2006, Gutiérrez & Rearte, 2006, Avellaneda, 2009, Ramírez, 2009, Dangond *et al.*, 2011; Blanco *et al.*, 2014).

2. 3. Methodology

The method is composed of two parts. The first part is a literature and documentary review of Chilean transport policies with an emphasis in those developed since 1980 as they delineated the approaches of current programs. The transport policy review is complemented with a secondary review of housing policies and maps that highlight the territorial features of the housing estates built from 1982 onwards. As there is not an updated database that compiles all social housing estates, the maps were created with several figures present in Ducci and González (2006) and MINVU (2014) and later corroborated with orthophotographs (SECTRA, 2012b).

The second part is a quantitative analysis in two sections: a general description of the city (residential density, concentration of activities and distance from the city centre) and the potential opportunities to reach activities available in the city in a certain period of time (connectivity). The opportunities to reach activities are measured through a composite index that calculates the percentage of the total supply of each activity accessible by public transport from a specific point of the city by a unit of time.

The index is divided into four aspects (employment, education, shopping, health) seeking to understand the opportunities to access the different available resources. As the city does not have a reliable database of activities (or land use), attracted trips by area are considered a 'proxy' of the activities. Therefore, the public transport connectivity index $PT\text{-}Con_{ick}$ in the area i is the sum of all the trips (T) by activity (c) attracted by all the areas j connected with the area i in equal or less than k minutes, weighted by the total number of trips by purpose produced by the city (T_c). Then,

$$\text{PT–Con}_{ick} = \frac{1}{T_c}\sum_{j=1}^{n} T_{jck} \cdot \delta_{ijk}$$

$$\delta_{ijk} \begin{bmatrix} 1 & if\ t_{ijh} < k \\ 0 & any\ other\ case \end{bmatrix}$$

With n equal to the number of areas in the city, and δ_{ijk} equal to 1 if the time of the public transport route h (t_{ijh}) between areas i and j is equal or less than k minutes. The time t_{ijh} was obtained as,

$$t_{ijh} = \min_{H}\left(\sum_{r=1}^{R} \alpha_{rh} + \beta_{rh}\right)$$

Where variable h represent the fastest public transport route (selected by GIS, in its Network Analysis component) of buses and subway lines that connect areas i and j of all the possible H routes. The variable R represents the whole public transport services needed to use the route h, while variable β_{rh} is the travel time of that service, and α_{rh} is the average waiting time of the public transport service r needed to use the route h, obtained as half of the waiting time for all the services as,

$$\alpha_{rh} = \frac{1}{2} \cdot \frac{1}{\sum_{l=1}^{L} f_l}$$

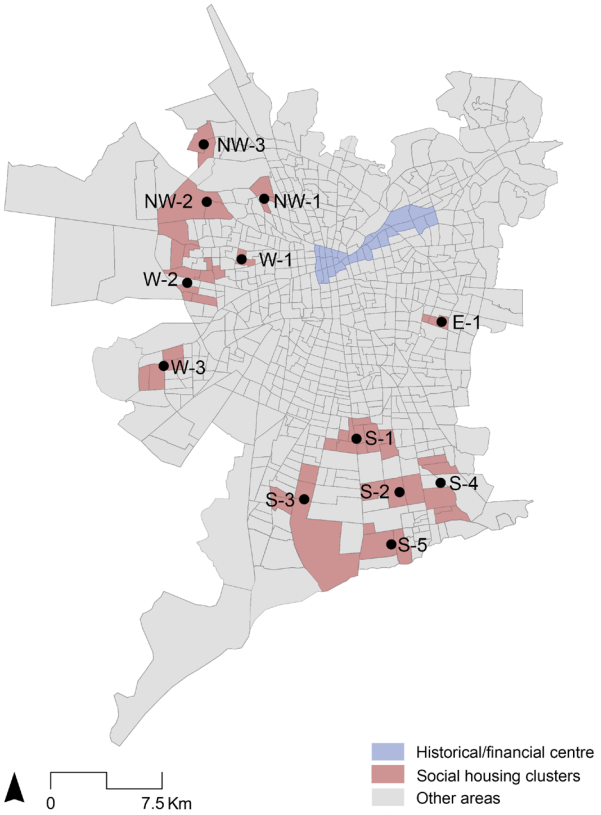
With f_l equal to the frequency of the public transport service (bus and subway lines) l that serves route h. To calculate the index, the distribution of the activities and the densities, this paper uses the information of the latest origin-destination survey of Santiago (2012) and considers 737 origin-destination areas (which are mostly urban and part of the greater Santiago), 551 bus services that operate regularly in working days and the five subway lines (108 stations) that currently operates in the city (SECTRA, 2012a; DTPM, 2014)[1].

From the 737 origin-destination areas, 27 are part of the historical centre and its financial expansion, 40 were classified as 'mostly covered by housing states' as they contain 80% of the housing estates built from 1982 and grouped in 12 clusters (Figure 1). To facilitate the lecture of the data, the clusters were identified with numbers and an abbreviation of their geographical location as Figure 1 displays (N north, S south, SE southeast, etc.). All the information was processed in Geographical Information System (GIS).

1 Nos-Express, an urban train service, was not included in the analysis as it was still under construction by 2012.

Figure 1. Historical centre and financial expansion and location of social housing clusters.

Source: personal elaboration based on SECTRA (2012a).



2. 4. Transport and housing in Santiago de Chile

With 6.5 million people, Santiago de Chile is currently covered by Transantiago; a public transport system that, launched in 2007, intended to improve the living standards of the inhabitants of the city. This modernisation project is the result of a longer process that, aiming to reduce the expenditures of the State, dissolved the last State-owned transport company in 1981, deregulated transport markets and concluded with the worst urban service of the city according to the public opinion in 2002 (MTT, 1981; Paredes, 1992; Díaz *et al.*, 2004).

By 2002, *Micros Amarillas* (the informal name given due to the yellow colour of the buses) had concentrated 80% of the bus services only in six avenues. Its numbers showed high vacancies in low demanded hours, high accident rates (for travellers and pedestrians) and was portrayed as the responsible of more than a fifth part of the air pollution of the city. Furthermore, the deregulation led into a fragmented operation, which peaked in 1991 with ~6,500 small companies operating 13,353 buses and routes providing a 'door to door' service by reaching almost every neighbourhood of the city (Paredes, 1992; Opazo *et al.*, 1993; Sanhueza & Castro, 1999; Díaz *et al.*, 2004). Micros Amarillas was considered a low-quality system; not enough for a prosperous country like Chile (Maillet, 2007).

Transantiago sought to counteract the flaws of *Micros Amarillas* by concentrating the business in a reduced number of operators, rationalising the services and eliminating bus vacancy, integrating the fare between buses and subway lines, and lowering the air pollution with new buses with higher standards. Also, as the previous system functioned without subsidies, the new optimised and rationalised version would continue under the same scheme. To support the system, the subway network grew from 32 kilometres in 2000, to 76.6 kilometres in 2007, several streets were transformed into preferential corridors for buses (46 km built or under construction by 2007), and 37 'transfer stations' (groups of bus stops in the public space) and three 'intermodal stations' (buildings with retail areas, services and other amenities) were located at strategic points of the city. Nonetheless, several political issues lead to an incomplete implementation in 2007 and one of the most severe urban crisis in the history of Santiago (Comisión Investigadora Especial, 2007).

The sources available indicate there is not consensus on what was the main reason behind the failure of the system.[2] However Transantiago unquestionably drew a new territory and transformed the scheme of movement in the city. In the previous system, bus services connected the periphery with the most demanded areas (e.g. city centre, industrial areas, etc.) allowing to travel long distances just taking one service; the 'door to door service' mentioned earlier. Whereas Transantiago provided a trunk-feeder structure in which feeder services would run through the different neighbourhoods while trunks routes and subway lines, with higher capacities and an integrated fare, would receive the feeders in the main avenues. Trunks and subway lines were expected to transport passengers from the residential areas to the 'most-demanded' places of the city (Comisión Investigadora Especial, 2007).

The new structure sought to rationalise the system and create attractive concessions for private investors, similar to those successfully applied in highways and other infrastructures (Echenique, 2006). To do so, the city was divided into nine feeder areas (with equivalent travel demands) and later assigned to an equal number of operators that would run bus services without competition. The historical centre, which grouped most of the central functions, would serve as a tenth area and the core of the system. This core would receive the five business units created to organise the trunks that connect the nine feeder areas (Forray *et al.*, 2013).

Nevertheless, this territorial arrangement left better connected those groups who lived in the feeder areas with more facilities, and left the rest in disadvantage. For instance, being disconnected from hospitals and schools was a common issue for the

2 The existing studies point to a systemic collapse due to the lack of technologies to regulate buses, lack of appropriate preferential streets and transfer facilities, inadequate contracts with operators, deficiencies in the information given to passengers, among several others (Comisión Investigadora Especial, 2007; Forray *et al.*, 2013).

people who resided in the frontiers of the feeder areas (Cortés & Figueroa, 2013). Additionally, the former historic centre grew to the east with offices and other central activities. This new financial district moved the demands of travel, favoured the accessibility of the feeder area that surrounds it and made more difficult the access for those who lived in other sectors of the city (Tokman, 2006).

Although through the years, numerous modifications and new services[3] added flexibility to the trunk-feeder scheme, it persisted in the original routes (a high percentage of the current services) and the exclusivity of some areas/avenues of the city, thus, keeping a differential connectivity in a city depicted as highly unequal (Sabatini *et al.*, 2001). In fact, in parallel to the liberalisation of transport, social housing (one of most relevant urban policies in Chile) was also transformed with the introduction of a new mechanism that delegated the construction of houses to private businesses.

In this new mechanism, the State defined an annual stock of houses and, through tenders, private businesses made bids to build part of the new stock. People living under risky conditions (e.g. mean insecure tenancies; risk of being homeless; financial problems) chose among the privately built stock with a unique subsidy for the family and their personal savings (Hidalgo, 1997; Sabatini, 2000). However, as the State awarded contracts to builders who offers the lowest prices despite construction costs not varying dramatically, private agents sought to reduce their costs by purchasing peripheral land and developing economies of scale in large settlements. The stock built under these conditions 'cleaned' central areas and created distant, dense and socially homogenous estates as several studies noticed (Ducci, 1997; Márquez, 2005).

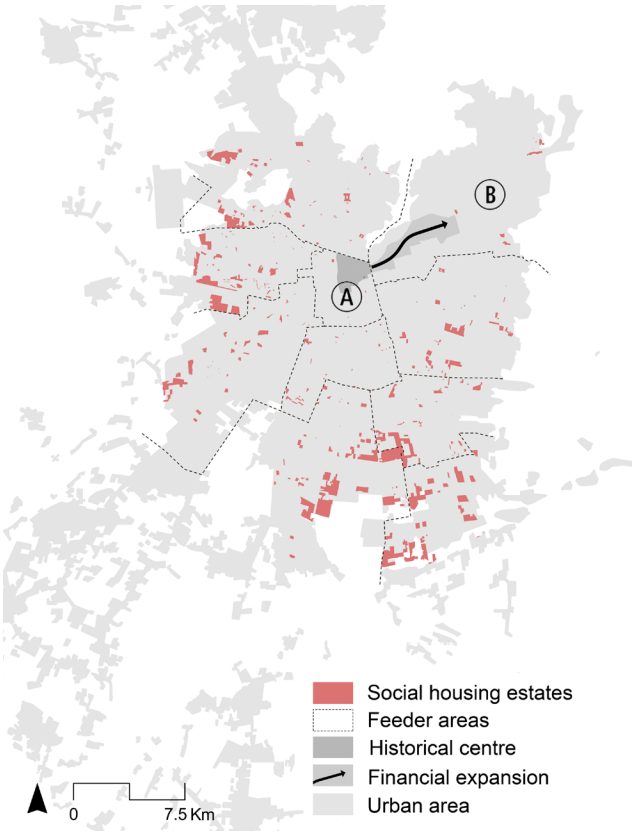
Facilities such as education and health were also separated from housing policies, leaving services in both sectors in private hands or in weak local governments. The introduction of private provision of public services traditionally owned and run by the State multiplied the number of services on offer, but at the same time, introduced differences in the quality. Consequently, while schools or healthcare may be physically proximate to residential areas, that proximity became meaningless where the quality offered is low, thus, emphasising the patterns of segregation created by housing policies (Valenzuela *et al.*, 2008; Morales & Rojas, 1987).

The settlements built under this model shaped a new poverty (*those with roofs* or *inner peripheries*), constituted by those who have their housing needs solved, but suffer from the lack of access to the opportunities of the city (Rodríguez & Sugranyes,

3 Often those modifications contradicted the original aims of Transantiago. An eventual subsidy to the operators became permanent to avoid the increase of the fares (US$1500 million in 2013, *see* Astudillo and Mery, 2015). Services and frequencies were multiplied, provoking congestion, and new infrastructures represent a threat to local communities which present opposition to the construction of preferential streets (at least 9 projects were stopped due to local opposition, *see* Figueroa, 2013).

Figure 2. Location of social housing estates and the territorial arrangement of Transantiago.

Source: personal elaboration based on Ducci and González (2006) and MINVU (2014) and corroborated with orthophotographs.



2005). This new phenomenon is not restricted to the lack of economic resources; it is a broader issue of segregation, exclusion, inequality and other aggravating factors normally ignored in traditional definitions of poverty (Cammack, 2004; Kambur, 2012).

Figure 2 shows all the housing estates built between 1982 and 2012; they cover 31.52 km^2 and are located mostly in the western and southern areas of the city. The same figure also displays the territorial arrangement of Transantiago (dotted lines), the historic centre (dark grey) and its financial expansion (in light grey). Both housing and transport layers show an unequal scheme in which the best supplied areas in the historical centre (letter A in Figure 2) and the east (letter B in figure 2) are also the only ones without relevant social housing estates.

2. 5. Accessing activities in Santiago

In general, social housing estates tend to expose higher densities than the average of the city. Meanwhile, Santiago has an average residential density of 98.5 inhabitants/ha., social housing estates have 170.3 persons/ha. (73% over the mean of Santiago). Among the 25 denser areas of Santiago, 11 are part of the social housing clusters

mentioned earlier. The highest density values exceed 250 persons/ha. and are concentrated mostly in the western and southern periphery. Density tends to increase with distance and reaches its highest numbers (120 persons/ha) between 9 and 10 km. from the historical centre of Santiago.

The activities in Santiago are highly concentrated in specific areas. Just the city centre and its financial expansion to the east (27 out of 737 areas, highlighted in grey in Figure 1) concentrate 27% of the functions related to employment. The same area also groups a high percentage of activities in other aspects like health care (24%) and education (10%) and shopping (9%). Outside this highly-provided sector, employment, education and health care are spread in a homogeneous pattern in which rarely appears an area with more than 0.5% of any category. Shopping tends to be less concentrated due to the existence of several shopping malls in the periphery and traditional markets in the south of the historical centre.

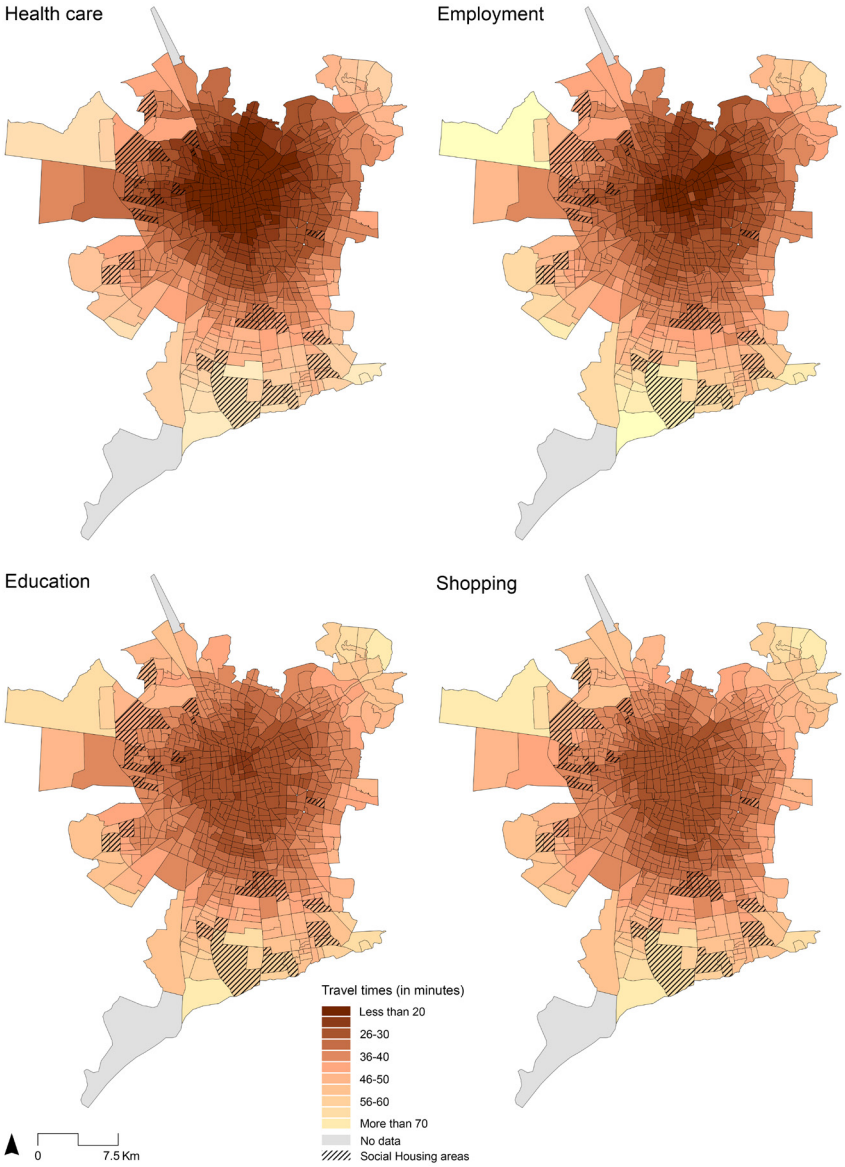
Regarding the times of access by activity from any area of the city, the connectivity to sources of employment provided by the public transport system displays average times of 24, 36 and 48 minutes to reach the 25, 50 and 75% of the supply of employment sources. The lowest requirements of time are in the central and eastern areas where the access time to the half of the supply of the city is less than 20 minutes. In contrast, the time required to access a similar supply is over one hour in the areas located in the southern periphery, even though some of those areas are highly dense and populated. In shopping activities, the average times to access the 25, 50 and 75% of the supply are 26, 38 and 50 minutes respectively (Figure 3).

In education, the averages times to reach the 25, 50 and 75% are 26, 38 and 50 minutes respectively. The lowest values are in the city centre and to the south of it, with values below 24 minutes to reach half of the supply. Finally, in health care 24, 32 and 44 minutes are needed to access the 25, 50 and 75% of the supply. Health care is the most concentrated activity of the city, which means in this case, that having access to a few areas represent high perceptual changes. In fact, the 100% of the supply is reached in an average of 70 minutes, less than the 78 minutes needed to access a similar percentage in education and shopping and less than the 82 minutes required to access the all the sources of employment.

By comparing the areas composed mostly by social housing estates with the rest of the city, the times required to access to different activities are slightly higher with differences between 2 and 10 minutes (Table 1). In general, the areas located closer to the city centre tend to display values similar or lower to the means of the city (less than 10 minutes); meanwhile the other areas show times that can double the averages (Table 1).

Figure 3. Times required to access to the 50% of the supply in each activity.

Source: authors' own.



In each activity, the difference in time with averages of the city tend to be larger in employment and health care; both more concentrated in the city centre and specific points of the city. In the case of health care, the connection opportunities of two areas (NW-1, W-1) allow reaching a high percentage of the supply in times below the averages of the city. The same two areas also show times below the averages in education and shopping. Meanwhile, the same two areas and the area named E-1 also have values below the averages in employment. In opposition, the areas S-3 and S-4 double the average times of the city by accessing to a quarter of the supply of health care. The same areas also need 20 minutes more than the average to reach the half and three quarters of the supply in the same item. The two areas also are over the averages of the city in the other activities, but the difference of time is less significant.

Table 1. Time required to access to the activities in the city and the social housing areas. In grey, below the city averages, in red, over the averages.

Source: authors' own.

	Density (persons/ ha)	Distance (from city centre)	Time required to access (in minutes)											
			Health care			Employment			Education			Shopping		
			25%	50%	75%	25%	50%	75%	25%	50%	75%	25%	50%	75%
City average	95,8	-	22	32	44	24	36	48	26	38	50	26	38	50
Social housing areas average	170,3	13,18	30	42	54	32	44	54	30	44	56	30	40	56
Social housing areas														
E-1	111,1	8,65	26	32	38	24	32	42	28	36	48	26	36	48
NW-1	151,8	6,50	20	28	44	24	32	44	24	38	50	26	40	52
NW-2	117,9	10,04	30	36	52	32	40	52	30	42	60	32	46	60
NW-3	148,8	12,39	38	42	52	40	46	56	40	50	66	42	52	66
S-1	192,0	13,06	34	40	46	34	40	48	30	40	48	26	38	48
S-2	168,6	16,9	44	52	56	44	52	56	36	50	58	34	48	58
S-3	101,01	17,53	50	56	64	48	58	68	44	54	64	40	54	64
S-4	93,59	18,39	44	52	56	44	50	58	40	50	60	38	48	60
S-5	160,6	20,52	52	60	64	52	58	64	44	58	66	40	56	64
W-1	223,6	6,23	20	24	40	22	32	42	20	34	48	24	36	48
W-2	196,7	9,91	26	34	46	28	38	48	26	38	54	28	40	54
W-3	173,1	14,34	42	48	56	40	50	60	38	48	60	38	50	60

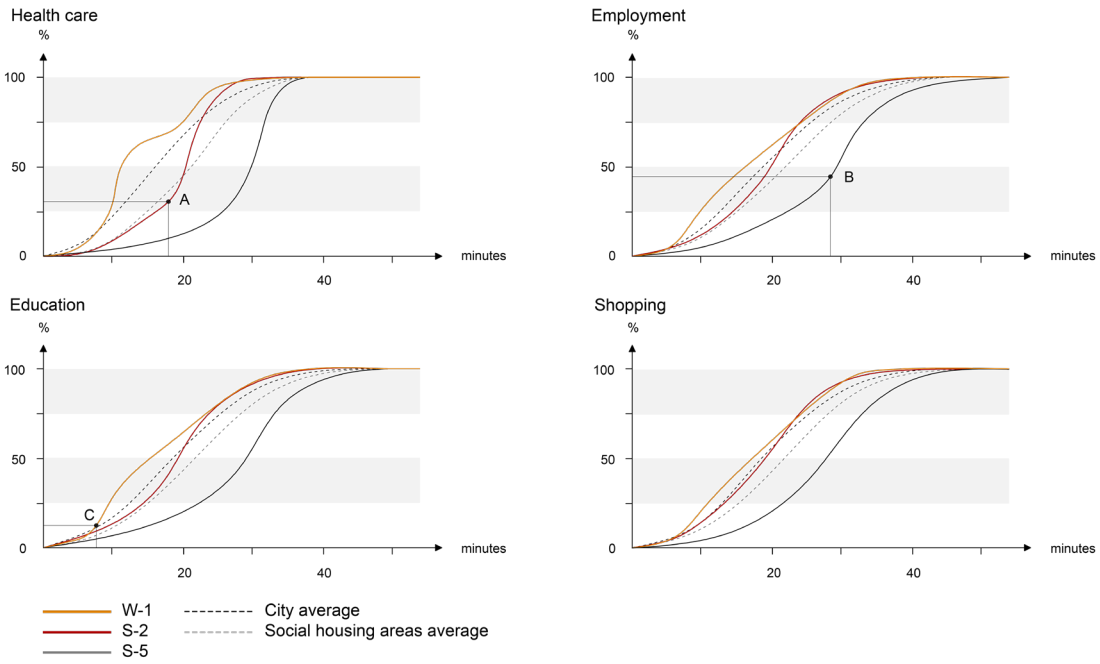
A closer examination of the data also reveals dissimilar panoramas. Figure 4 summarises the time of accessing the different activities of three selected areas and the averages of the city and all the areas composed mostly by housing estates. The curves of the area W-1 in all the activities show a rapid increase in the accessed supply due to geographical proximity to the city centre (point A in Figure 4). It is the closest area to the main centre, only 6.8 kilometres from it, and it is consistently better than the averages of the city. In this case, the increase of access is rapid and the area reaches more than 60% of the supplies in less than 20 minutes (Figure 4).

The curves of the area S-2, at 13 kilometres from the city centre, has a less pronounced access to the resources until it reaches approximately 20 minutes (point C in Figure 4). From this point, the effect of having subway stations nearby may have modified the curves, closing the gaps with the averages of the city and with the best performing area (W-1). The presence of a reliable transport infrastructure, like the subway, compensates the increase in the distance from the main sources of activities.

The last curve (S-5) represents a case in which there is neither physical proximity to the main centres nor infrastructures which can boost the access. The curve is below the averages of the city, having 20 or more minutes of difference with the city averages. The access to the main centrality is evident from 30 minutes (point B in Figure 4), where the slope of the curve increases, putting in evidence a high concentration of urban activities in the central area of Santiago. The area located

Figure 4. Curves of access of four selected areas and the averages of the city and social housing areas.

Source: authors' own.



more than 20 kilometres from the city centre is completely dependent on bus services, slower than subway lines.

2. 6. Discussion

Since the decade of 1980, social housing policies created large and dense estates in the periphery of Santiago, thus, resolving basic needs (housing, water, sanitation and electricity) but jeopardising the opportunities to progress due to the lack of services, a high level of deterioration in the new neighbourhoods, among others. In parallel, transport policies liberalised public transport and failed into modernising it with the implementation of Transantiago in 2007.

Considering the trajectories of transport and housing policies, the city today exhibits a pattern in which the highest connectivity values are concentrated in the historical centre and its expansion to the east. As the existing literature acknowledges (Ducci, 1997; Rodríguez & Sugranyes, 2005), this area was also 'cleaned' by the displacement of deprived groups and later, by different reasons, transformed in one of the feeder areas created for Transantiago. The coincidence of activities with the territorial organisation of Transantiago left over-connected the centre and the east, yet leaving in disadvantage the rest; including the displaced groups.

Although the times to access to the different activities tend to increase towards the periphery, the territorial pattern shows an unequal situation. The east and the central

area normally require less time than the rest of the city to access to most of the available resources; they can reach in less than 20 minutes to more than the half of the supply of the city. In contrast, the areas located in the southern periphery normally demand more travel time to surpass similar thresholds. By dividing connectivity into the different measured activities, the required times tend to increase to the periphery despite that increasing distances are not always synonymous of less populated areas. Healthcare and employment demand in average more time due to the high concentration of both in a few central areas of the city. Education and shopping, more evenly distributed in the territory, demand less time in average than employment and health care.

In comparison with the averages of the city, the areas composed mostly by social housing estates require more time to reach the different activities. Healthcare and employment present the more significant concerns given their high concentration of both in certain places of the city. The analysis by area also showed two types of territorial disadvantages: location and transport infrastructures. Location tends to be a key factor due to the structure of the city and its pattern of concentration of activities. Regarding transport infrastructures, other studies have found that Santiago is well covered by public transport, with a provision that does not substantially decrease in social housing estates or in peripheral areas (Figueroa & Guzmán, 2016). However, the service provided by buses may not be able to diminish the disadvantage and it is subway lines which may be reason for diminishing travel time for some areas of the city.

Even though with this method is not possible to confirm effects on quality of life and/or wellbeing (as defined by Preston, 2009; Stanley *et al.*, 2011 and Delbosc & Currie, 2011), the analysis of connectivity shows that certain exclusionary process may have been operating in Santiago. In comparison with the whole city, the most deprived groups require more time to access to the available resources, thus, showing signs of transport poverty in its accessibility component (as defined by Lucas *et al.*, 2015) and social exclusion (as defined by SEU, 2003). People who lived in areas composed mostly by social housing estates need more travel resources than the averages of the city.

Similarly, the mismatch between the territorial distribution of activities and connectivity shows that, under the principle of equal concern introduced by Mullen *et al.* (2014), transport policy did not fully compensate the recognised damage produced by housing policies. Since 1980, housing policies put people at a natural disadvantage by increasing the distance between them and the highly concentrated opportunities of the city; three decades later, transport did not have a compensatory effect and, instead of alleviating the patterns of segregation, it may have reinforced them.

2. 7. Conclusions

By hypothesising that inequalities must be understood under the context of the policies that may have provoked them; this article aimed to analyse the case of Santiago de Chile and, by doing this, contribute to the knowledge of transport disadvantage. The experience of Santiago shows policies that resolved basic needs but produced inequalities by increasing the distance between the services and the housing estates. Furthermore, the travel times to access to the city resources increase towards the periphery and are not compensated by the public transport services or the structure of the city. The settlements built under the paradigms of recent social housing policies require higher amount of time to access to the city, despite being dense, highly populated and the most fragile segments of the society.

Acknowledgments

This article was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the first author.

References

Ascher, F. 2007. Multimobility, Multispeed Cities: a challenge for architects, town planners and politicians. *ARQ*, (60), pp. 11-19

Astudillo, D. and Mery, V. 2015. 'Cámara aprueba aumentar subsidio al Transantiago y proyecto pasa al Senado', *La Tercera*, 23th July.

Atkinson, A .1998. Social Exclusion, Poverty and Unemployment. In: Atkinson, A. and Hills, J. ed(s). Exclusion, Employment and Opportunity. London: Centre for Analysis of Social Exclusion. pp. 1-20.

Avellaneda, P. 2009. La investigación cualitativa en el estudio de las relaciones entre movilidad cotidiana y pobreza en el contexto latinoamericano: un caso aplicado en la Lima metropolitana. *Documents d'anàlisi geogràfica*, (55), pp. 57-76.

Blanco, J., Bosoer, L. and Apaolaza, R. 2014. Gentrificación, movilidad y transporte: aproximaciones conceptuales y ejes de indagación. *Revista de Geografía Norte Grande*, (58), pp. 41-53.

Cammack, P. 2004. What the World Bank means by poverty reduction, and why it matters. *New Political Economy*, 9(2), pp. 189-211.

Capelli, L. 2015. *Analysing the relation between public transport provision and social exclusion in the Metropolitan area of Buenos Aires* (Master dissertation, University of Leeds).

Cass, N., Shove, E. and Urry, J. 2005. Social exclusion, mobility and access. T*he sociological review*, 53(3), pp. 539-555.

Cebollada, A. 2006. Aproximación a los procesos de exclusión social a partir de la relación entre el territorio y la movilidad cotidiana. *Documents d'anàlisi geogràfica*, (48), pp. 105-121.

Ceder, A., Net, Y. and Coriat, C. 2009. Measuring public transport connectivity performance applied in Auckland, New Zealand. Transportation *Research Record: Journal of the Transportation Research Board*, (2111), pp.139-147.

Church, A., Frost, M. and Sullivan, K. 2000. *Transport and social exclusion in London. Transport Policy*, 7(3), pp. 195-205.

Comisión Especial Investigadora. 2007. *Informe de la Comisión Especial Investigadora Encargada de Analizar los Errores en el Proceso de Diseño e Implementación del Plan Transantiago*. Valparaíso: Congreso de la República de Chile.

Cortés, A. and Figueroa, C. 2013. Fronteras de movilidad: oportunidades y obstáculos urbanos del sistema de transporte público de Santiago de Chile. *Estudios Socioterritoriales*, (13), pp. 125-147.

Currie, G. 2004. Gap analysis of public transport needs: measuring spatial distribution of public transport needs and identifying gaps in the quality of public transport provision. *Transportation Research Record: Journal of the Transportation Research Board*, (1895), pp.137-146.

Currie, G. 2010. Quantifying spatial gaps in public transport supply based on social needs. *Journal of Transport Geography*, 18(1), pp.31-41.

Dangond, C., Jolly, J., Monte-Oliva, A. and Rojas, F. 2011. Algunas reflexiones sobre la movilidad urbana en Colombia desde la perspectiva del desarrollo humano. *Papel Político*, 16(2), pp. 485-514.

Delbosc, A. and Currie, G. 2011. The spatial context of transport disadvantage, social exclusion and well-being. *Journal of Transport Geography*, 19(6), pp. 1130-1137.

Díaz, G., Gómez-Lobo, A. and Velasco, A. 2004. Micros en Santiago: de enemigo público a servicio público. *Centro de Estudios Públicos*, (357), pp. 5-48

DTPM. 2014. *Programa de Operación Segundo Semestre 2014*. [Online]. [10 October 2015]. Avalaible from: http://www.dtpm.cl/index.php/plan-operacional-historico2

Ducci, M. 1997. Chile: el lado obscuro de una política de vivienda exitosa. *EURE*, 23(69), pp. 99-115.

Ducci, M. and Gonzalez, M. 2006. Anatomía de la expansión de Santiago, 1991-2000. In Galetovic, A. (editor). *Santiago: dónde estamos y hacia dónde vamos*. Santiago: Centro de Estudios Públicos, pp. 125-146.

Echenique, M. 2006. Las vías expresas urbanas: ¿qué tan rentables son? In Galetovic, A. (editor). *Santiago: dónde estamos y hacia dónde vamos*. Santiago: Centro de Estudios Públicos, pp. 461-488.

Farbiarz, V. 2013. *Measuring the disparity in Bogota's Public Transport System* (Master dissertation, University of Leeds).

Figueroa, C. and Guzmán, A. 2016. 'Asimetrías y desigualdades en los sistemas de transporte público de Quito y Santiago de Chile' paper presented to *Congreso Internacional Contested Cities*, Madrid, July 2016.

Figueroa, C. 2013. Implementation of Bus Rapid Transit infrastructure: conflicts, meanings and contradictions in the defense of the streets of Santiago de Chile. *Flux*, (1), pp. 33-44.

Forray, R., Figueroa, C. and Rasse, A. 2013. Transantiago: ¿qué perseguía la decisión pública? In Borthagaray, A. and Orfeuil, J. ed(s). *La Fábrica del Movimiento. 15 casos de políticas públicas para la movilidad urbana*. Buenos Aires: Instituto para la Ciudad en Movimiento y Editorial Café de las Ciudades.

Gutiérrez, A. and Rearte, J. 2006. Segregación y accesibilidad a servicios públicos de transporte en la Ciudad de Buenos Aires. In Brasileiro, A. and Marques de Silva, P. (editors). *Panorama Nacional da pesquisa en Transportes*. Rio de Janeiro: ANPET, pp. 829-840.

Hernández, D. and Witter, R. 2011. Entre la ingeniería y la antropología: hacia un sistema de indicadores integrado sobre transporte público y movilidad. *Transporte y Territorio*, (4), p.29.

Hidalgo, R. 1997. La vivienda social en la ciudad de Santiago: Análisis de sus alcances territoriales en la perspectiva del desarrollo urbano, 1978-1995. *Revista de Geografía Norte Grande*, 24, pp. 31-38.

Jaramillo, C., Lizárraga, C. and Grindlay, A. 2012. Spatial disparity in transport social needs and public transport provision in Santiago de Cali (Colombia). *Journal of Transport Geography*, 24, pp. 340-357.

Jones, P. and Lucas, K. 2012. The social consequences of transport decision-making: clarifying concepts, synthesising knowledge and assessing implications. *Journal of Transport Geography*, 21, pp.4-16.

Kanbur, R. and Sumner, A. 2007. Social justice and Neoliberal discourse. *Journal of International Development*. 24(6), pp. 686–695.

Kaplan, S., Popoks, D., Prato, C. and Ceder, A. 2014. Using connectivity for measuring equity in transit provision. *Journal of Transport Geography*, 37, pp.82-92.

Kaufmann, V., Bergman, M. and Joye, D. 2004. Motility: Mobility as Capital. *International Journal of Urban and Regional Research*. 28(4), pp. 745-756.

Kenyon, S., Lyons, G., & Rafferty, J. 2002. Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography*, 10(3), pp. 207-219.

Levitas, R., Pantazis, C., Fahmy, E., Gordon, D., Lloyd, E. and Patsios, D. 2007. *The multi-dimensional analysis of social exclusion*. University of Bristol: Bristol Institute for Public Affairs.

Lucas, K., Mattioli, G., Verlinghieri, E. and Guzmán, A. 2016. Transport poverty and its adverse social consequences. *Proceedings of the Institute of Civil Engineers*, pp. 1-13

Maillet, A. 2007. Revolución en un campo el caso de la reforma el transporte público en Santiago. *Revista Central de Sociología* (2), 133-143.

Márquez, F. 2005. Desarrollo Social y Políticas espaciales. *Cuadernos de Trabajo*, (1), pp. 10-19.

MINVU. 2014. *Vivienda en copropiedad. Catastro nacional de condominios sociales*. Santiago: MINVU.

Morales, E. and Rojas, S. 1987. *Sectores populares y municipio*. Santiago, Chile: FLACSO.

MTT, 1981. *Dispone término de existencia legal de la Empresa de Transportes Colectivos del Estado*. Santiago: MTT.

Mullen, C., Tight, M., Whiteing, A. and Jopson, A. 2014. Knowing their place on the roads: What would equality mean for walking and cycling? *Transportation research part A: policy and practice*, 61, pp.238-248.

Opazo, J., Del Valle, A. and Figueroa, O. 1993. El descontrol del sistema de buses de Santiago: síntesis de un diagnóstico técnico-institucional. *EURE*, 19(56), pp. 79-91.

Paredes, R. 1992. Regulación del transporte colectivo en el Gran Santiago. *Estudios Públicos*, 46, pp. 249-265.

Preston, J. 2009. Epilogue: Transport policy and social exclusion - Some reflections. *Transport policy*, 16(3), pp. 140-142.

Ramírez, B. 2009. Alcances y dimensiones de la movilidad: aclarando conceptos. *Ciudades*, 82.

Richardson, L. and Le Grand, J. 2002. Outsider and insider expertise: the response of residents of deprived neighbourhoods to an academic definition of social exclusion. *Social Policy & Administration*, 36(5), pp. 496-515.

Rodríguez, A. and Sugranyes, A. 2005. *Los con techo. Un desafío para la política de vivienda social*. Santiago, Chile: Sur Ediciones.

Sabatini, F. 2000. Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial. *EURE*, 26(77), pp. 49-80.

Sabatini, F., Cáceres, G. and Cerda, J. 2001. Segregación residencial en las principales ciudades chilenas: Tendencias de las tres últimas décadas y posibles cursos de acción. *EURE*, 27(82), pp.21-42.

Sanhueza, R. and Castro, R. 1999. Conduciendo el Transporte Público: la licitación de recorridos en Santiago. *Perspectivas en Política, Economía y gestión*, 3(1), pp. 2017-230.

SECTRA. 2012a. *Sistema de Información de Transporte Accesible por Internet (SINTIA)*. [Online]. [March 2016] Available from: http://sintia.sectra.cl

SECTRA. 2012b. *Ortofotomosaico Gran Santiago año 2012.* [Online]. [March 2016] Available from: http://www.sectra.gob.cl/datos_informacion_espacial/metropolitana/santiago01.htm

SEU. 2003. *Making the Connections: Transport and Social Exclusion*. [Online]. London: SEU. [10 January 2016]. Available from: http://www.ilo.org/emppolicy/pubs/WCMS_ASIST_ 8210/lang--en/index.htm

Skevington, S., Sartorius, N. and Amir, M. 2004. Developing methods for assessing quality of life in different cultural settings. *Social psychiatry and psychiatric epidemiology*, 39(1), pp. 1-8.

Stanley, J. and Vella-Brodrick, D. 2009. The usefulness of social exclusion to inform social policy in transport. *Transport Policy*, 16(3), pp. 90-96.

Tokman, A. 2006. El MINVU, la política habitacional y la expansión excesiva de Santiago. In Galetovic, A. (editor). *Santiago. Donde estamos y hacia dónde vamos*. Santiago, pp.489-520.

Sheller, M. and Urry, J. 2003. Mobile Transformations of 'Public' and 'Private' Life. Theory, *Culture & Society*. 20(3), pp. 107-125.

Valenzuela, J., Labarrera, P. and Rodríguez, P. 2008. Educación en Chile: entre la continuidad y las rupturas. Principales hitos de las políticas educativas. *Revista Iberoamericana de la Educación*, (48), 129-145

Chapter 3

The narratives of disadvantage:
understanding the public space in deprived neighbourhoods of Santiago de Chile

The work in Chapter 3 of the thesis is a submitted manuscript as follows:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (submitted). The narratives of disadvantage: understanding the public space in deprived neighbourhoods of Santiago de Chile. *Journal of Urban Design.*

Abstract

This article aims to explore how people living in deprived areas of Santiago de Chile experience and understand the public space. It is argued that the flip sides of successful public policies and a cyclical process in which the State appears and retreats itself from the public sphere have influenced individuals' experiences and perceptions of the public space. Analysing qualitative data, it is argued that the public space mirror disadvantages, has no clear agency, is occupied with fear and is believed to be unsuitable to interact.

Keywords: public space, deprived neighbourhoods, Latin America, social space.

3. 1. Introduction

The multifaceted nature of the public space has been the object of profound scrutiny. From many points of view, the public space has been described as a disputed sphere. It has been seen by some as a crucial realm for the acquisition of rights, the creation of meaning in the everyday life and the collective construction of norms and tacit agreements (*see* Zukin, 1995; Bauman, 2000). Also as an active background for complex learning processes (*see* McFarlane, 2011), social interactions (*see* Jacobs, 1961; Gehl, 1987; Whyte, 1988; Jacobs, 1995) and place of several dynamics of control, exclusion and power (*see* Carmona, 2010; Neal, 2010; Schmitt and Németh, 2010; De Backer *et al.*, 2019).

In the Latin American case, the discussion about public space has been situated in the convoluted processes of urbanisation, the inequalities and the fragmented landscapes that characterise the metropolises of the region. A number of authors have reported the consequences on the public space of narratives of fear rooted on a deep social polarisation (Segovia and Oviedo, 2001; Ávila *et al.*, 2015). In changing urban landscapes, other authors have questioned the 'public character' of spaces which, produced by private agents, are flourishing throughout the cities (Janoschka, 2002; Borsdorf *et al.*, 2007; Stillerman and Salcedo, 2012). Meanwhile, as a result of world-recognised interventions and actions to reclaim the public space in neglected neighbourhoods; several studies have inquired about the identification of the impacts of these innovations on the construction of citizenship and social capital (Andreatta, 2005; Calderón, 2008; Berney, 2011; Pérez-Valecillos and Castellano-Caldera, 2013; Ordóñez-Barba *et al.*, 2013; Burbano, 2014). Nevertheless, few works have focused on how those who inhabit in the fringes of Latin American metropolises experience and understand the public space (Saraví, 2006; Sabatini and Wormald, 2013; Ortega, 2014; Figueroa *et al.*, 2019).

By studying the public space in deprived neighbourhoods of Santiago de Chile, this article aims to contribute to redress that gap. It investigates how those who live in deprived neighbourhoods experience and understand the public space produced under the umbrella of Chilean housing policies. To do so, this article reports the findings of a sequential qualitative research which comprised mapping, non-participant observation and walking interviews in a first stage and semi-structured interviews in a second phase. In both, participants were residents of deprived neighbourhoods of Santiago de Chile. Those produced by housing policies that were extremely successful in eradicating informal settlements yet collaborated in the creation of new forms of deprivation that deepened social, spatial and territorial divides (Ducci, 1997; Rodríguez and Sugranyes, 2004; Rodríguez *et al.*, 2014).

After this introduction, the article is organised into five sections. In Section 3.2, the public space is contextualised within the complex phenomena that afflict Latin American cities. Section 3.3 covers the role of the public space in Chilean public policies. In Section 3.4, the methods briefly outlined before are described in depth. Section 3.5 contains the main results organised in four subsections which report the sense of material progress (Section 3.5.1), the role assigned to the State and the local community (Section 3.5.2), the patterns of activities (Section 3.5.3) and the normalisation of hostile public spaces (Section 3.5.4). The last section, Section 3.6, contains the main conclusions.

3. 2. Latin American public space

Socio-political analyses frequently represent Latin American public spaces as a sphere of contestation (*see* e.g. Carmona, 2010; Neal, 2010). It is argued that globalisation and the competition for global capitals have put public spaces risk due to the success of privately-owned and highly controlled spaces (Donovan, 2008; Ramírez, 2015; Hernández-Bonilla, 2015).

Outside historic quarters or business districts, it has been argued that shopping malls and other privately-owned spaces for consumption have, in some sense, somehow redressed a public space perceived as deficient. Located in central areas, connected to public transport and, therefore, accessible to many; spaces for consumption thrive in many Latin American cities. Those spaces replicate functions and activities that, in homogeneous territories, are available mostly in city centres and provide symbolic, scenic and highly controlled spaces in contexts where a good public space can be a privilege (Stillerman and Salcedo, 2012; Miller, 2014; Dávila, 2016; Schlack *et al.*, 2017). As Dávila (2016) argues, spaces for consumption become places to safely meet and interact with others; playing a key role in the construction of collective identities and contrasting with the public space outside, unattractive and risky.

The high perception of insecurity is often described as an acute Latin American phenomenon, almost inherent in cities of the region, and a powerful force in popular imaginaries. It has shaped agendas, contributed in the fragmentation of urban territories and helped in the success of privately-owned spaces; either in the form of spaces for consumption, like those described above, or in the form of gated communities (Janoschka, 2002; Borsdorf *et al.*, 2007; Glebbeek and Koonings, 2016). In the everyday life, it has been pointed out that this high perception of insecurity reinforces the dichotomy between the private and the public space. Houses and neighbourhoods are systematically fortified in a context where the public space is synonymous of risk. In a perverse circle of fear, and echoing Jacobs' (1961) ideas, natural surveillance decreases, fears and strangeness strengthen, and social structures weaken (Segovia and Oviedo, 2001; Ávila *et al.*, 2015).

Scholars claim that this high perception of insecurity is an outcome of the complex socio-political landscape of Latin American cities (Quesada, 2006; Restrepo and Moreno, 2007; Kessler and Focás, 2014). A result of the withdrawal of the State from the public realm (or its invisibility), the emergence of other structures in replacement (e.g. organised crime), the distrust towards the institutions (e.g. law enforcement) and several uncertainties that, as Dammert and Malone (2003) point out, become tangible through perception of insecurity (e.g. precarious job markets). In addition, Segura (2009) and Gómez and de Aguiar (2015) indicate that perception of insecurity is reinforced by the social polarisation and the visible patterns of spatial segregation of Latin American societies. This leads to acute perceptions of insecurity even in relatively safe countries or in places where citizens seem to trust the institutions. As these authors conclude, perception of insecurity in Latin America is related to fear of crime, but also to the diversity and the mixture with those who seem different.

Latin American cities have frontiers dividing those who are integrated into the society from those who are not. In clear patterns of segregation, those who are vulnerable live in areas that are symbolically and physically separated from those who have more resources (see Sabatini, 2006; Glebbeek and Koonings, 2016). Contrasting with the contested and changing nature attributed to the public space in areas where the capital thrives, the available literature characterises the public space in deprived areas as an 'asset' on which survival bonds are built and, due to that, a means to intervene long-neglected areas.

Numerous works have reported the key role played by the public space in the upgrade of irregular areas of Medellin, Bogota, Rio de Janeiro, Mexico City and other Latin American metropolises. Several authors describe its relevance in the public agenda as the public space has been outlined as an element to bring the State and the "values of the city" to destitute areas, construct new narratives of citizenship, introduce those in marginal positions into the formal society and give space for the creation of social capital (Andreatta, 2005; Calderón, 2008; Berney, 2011; Pérez-Valecillos and Castellano-Caldera, 2013; Ordóñez-Barba *et al.*, 2013; Burbano, 2014). Reporting outcomes, other studies have found a substantial reduction of violence, an alleviated sense of being isolated, a strengthened sense of belonging in places where the public space was upgraded (Cerdá *et al.*, 2011; Vilar and Cartes, 2016) or flipsides like touristification and city branding, new forms of exclusion (Brand, 2013; Hernandez-Garcia, 2013; Tubb, 2013). However, as much of the research has focused on the construction of citizenship, or its flipsides, little attention has been given to how individuals perceive and inhabit these improved public spaces. Even less attention has been given to those who live in non-intervened areas, in places still in process of consolidation or in neighbourhoods that suffer from new forms of deprivation linked to a weakening of the public realm (Kaztman, 2007; Leguizamón, 2008). The public space in these areas is often described as either a 'symptom' or

a ‘consequence’ of these new forms of deprivation but rarely has been explored in depth.

Figueroa *et al.* (2019) highlight the meaningful nature of the physical structures of the public space in deprived neighbourhoods. These authors provide evidence of the physical structures of the public space eliciting emotions and indicating relative safety. Studying the youth, Saraví (2004) and Ortega (2014) point out that the limited access to the opportunities and the challenges to achieve adequate life standards foment prejudicial actions (e.g. school dropout) and activities (e.g. drugs, gangs) among those who are in fragile positions. Those activities gain visibility and become dominant in a public space abandoned by those who pursue traditional paths of social mobility (e.g. education). They build ties outside the neighbourhood, leave the local space, make use of external amenities that provide safety and render better services and profile as wrongdoers those who have act or look different. Usually young individuals like the literature of acknowledges for other places (Malone, 2001; Valentine, 2008). Neglected by part of the local community and taken by the other, the public space falls into spirals of deterioration, reproduces destructive patterns, is unable to allow ‘healthy’ social interactions, thus weakening social structures, deepening internal divisions and strengthening, in the words of Sabatini and Wormald (2013), ‘micro-xenophobia’.

3. 3. The production of public space in Chile

The Chilean experience is often recognised as particularly successful in the Latin American context. Learnings from a long trajectory of attempts to provide shelter to those in need have almost eradicated extreme forms of deprivation in the country and provided relatively consolidated public spaces with paved roads, sidewalks and green areas.[1] In achieving this, Chilean policies varied, beginning with approaches centred on self-construction and collective progress and then moving to subsidy-driven approaches which delegated the production of houses—and city—to private agents (MINVU, 2004; Hidalgo, 2005).

Influenced by the Alliance for Progress (O’Brien, 1969), Newman’s (1972) ideas of territorial appropriation, and Turner’s (1976) understandings of self-help, in policies created before 1973 the construction of neighbourhoods was a process of collaboration between the organised community and the State. The public space was a means to back this collaboration, create capital, support further progress and introduce those arriving into the urban society (De Ramón, 1990; Raposo, 2001). Contrasting with the irregular geometry of informal settlements, the public space was arranged in an orthogonal geometry. It was designed to have degrees of

1 In Chilean legislation, the public space is responsibility of the State (MINVU, 1975; MINVU, 1992).

intimacy, from central public spaces, structured around large facilities, to narrow streets, dedicated to those living nearby—and it was hierarchical, with primary streets dividing the neighbourhoods into smaller areas and secondary streets converging in facilities in the centre of these smaller units. Inheriting the axioms of the Modern Movement, streets were designed wide to separate and give space for cars and pedestrians and other public spaces were large to accommodate future facilities, parks and squares. In neighbourhoods built before 1973 the public space is abundant; it can reach more than 40% of the total area (Palmer and Vergara, 1990).

The coup d'état and subsequent dictatorship (1973-1990) interrupted the process of consolidation of many neighbourhoods. Streets were left unpaved and service supply networks incomplete until programs of 'cleansing' implemented in the decade of 1980 (Hidalgo, 2005). Meanwhile, many large public spaces remained abandoned until recently. Despite that, recent studies evaluating the outcomes of programs of urban regeneration have shown that these pre-dictatorship neighbourhoods are perceived by residents as better than those built later. Inhabitants positively evaluate their neighbourhoods and public spaces, trust more in their communities and are willing to remain in the future (Mora *et al.*, 2018). The opposite perception exists for those neighbourhoods built during and after the dictatorship. Low social cohesion, negative perception of communities and neighbourhoods and a high willingness to move if an opportunity appears (Hidalgo *et al.*, 2017; Mora *et al.*, 2018).

Chilean policies shifted after the coup d'état, reflecting the withdrawal of the State of many aspects of city planning. In a laissez-faire and market-oriented approach, key urban markets such as urban land were deregulated, the provision of services was opened to private investment, the construction of social housing was outsourced to private agents, subsidies became the main mechanism to reach those in need, among many other changes (Sabatini, 2000; Labra, 2002; Oliva, 2008; Valenzuela *et al.*, 2008; Greene *et al.*, 2018). With lax norms, the space reserved for future facilities was reduced, if considered, in the new housing estates. Streets were narrowed and arranged into simplified layouts, often "fishbone" or "comb" schemes where multiple narrow streets (or cul-de-sacs) converge into a single street. Meanwhile, green areas were many times placed in residual places where houses were technically unfeasible. Although these residual green spaces along with some aspects of the urban form which were proven to be detrimental (e.g. small plots) were prohibited for new developments since the return of the democracy in 1990, other aspects have remained intact due the quantitative success (MINVU, 1975; MINVU, 1992).

Metrics[2] improved rapidly due to these policies but at the cost of creating new forms of deprivation. Those who inhabit in neighbourhoods built after 1973 endure poor

2 The population living in irregular settlements dropped to less than 2% of the total of the country (Techo-Chile, 2016). Drinkable water, sanitation and electricity became universal services (WHO, 2017).

living conditions. They bear with deteriorated environments, fragile communities and different forms of violence (Ducci 1997; Rodríguez and Sugranyes, 2004; Rodríguez *et al.*, 2014). They live far from those areas that concentrate most of the services of the metropolises, travel long distances to reach jobs and suffer from the damaging effects of stigmas that couple disadvantage with crime (e.g. 'potential criminals') and unwillingness to progress (e.g. 'poor by option' or 'clients of the State') (Figueroa *et al.*, 2018; Sabatini and Wormald, 2013). They require complex strategies in order to be able to fulfil everyday needs (Landon, 2013); hold little power to negotiate with the public sector or private agents (Sagaris and Landon, 2017); have small and homogenous social networks (Link *et al.*, 2017)—and can even desire to return to the precariousness of informal settlements as, there, they felt more protected and less ashamed of being poor (Márquez, 2004; Brain *et al.*, 2010).

In a 'qualitative turn', the public space regained relevance in the public agenda of the last decade, intended to be a means to counteract these new forms of deprivation. Recovering pre-dictatorship approaches and the experiences of other Latin American cities like those mentioned in the previous section, several programs of urban regeneration have addressed social and physical deterioration through the intervention of the public space ('Quiero mi Barrio' *see* MINVU, 2018) or have considered it as a key element to reorganise particularly critical territories ('Planes Integrales' *see* Intendencia Metropolitana, 2017). Despite that and the well-documented second-generation poverty, there is little understanding of how people perceive and experience the public space.

3. 4. Methods and materials

To redress that gap, this article illustrates the findings of a sequential study which investigated walking and its relationship with the social (i.e. patterns of activities) and physical (i.e. built environment) aspects of the public space. In the first stage, mapping, non-participative observation and thirty-two walking interviews were conducted in three deprived neighbourhoods of Santiago which between them covered the range of Chilean social housing policies. In non-participative observation and mapping, the physical features and the patterns of activities of the public space were registered. Meanwhile in walking interviews, individuals were invited to walk in the places where they live, explore their experiences in the public space and have a conversation about the matters which are relevant to them. As the literature on mobile methods acknowledges (Kusenbach, 2003; Jones *et al.*, 2008; Harada and Waitt, 2012), these interviews aimed to observe experiences on-site, elicit stories when crossing significant places and observe social interactions that could be considered unimportant or unintentionally dismissed by participants in sedentary interviews (e.g. gestures, spontaneous encounters).

Interactions and other relevant observations that happened during walking interviews were written down on field notes and participants had the freedom to decide the route to walk. The conversation was recorded and guided by a topic guide designed under a constructivist approach, that is, considering reality as co-constructed by participants and researchers (Geels, 2010; Mason, 2002). Records were later transcribed and imported into the qualitative data analysis software *NVivo* (version 11). Using features of the software, descriptive labels, or codes, were assigned to meaningful excerpts which varied from short phrases to complex interactions between the interviewer and the participant. Depending on their context, fragments of the transcripts were labelled more than once. Codes/labels were (i) developed using field notes took during the data collection, (ii) enriched with the triangulated analysis of transcripts, notes from non-participant observation and qualitative mapping, (iii) systematically refined in an iterative process of contrast and revision of the collected data, and (iv) grouped into major categories creating a tree-like structure. The analysis of data followed a discovery-oriented approach, seeking to identify patterns, narratives and beliefs in the data without a preconceived theory (Fossey *et al.*, 2002).

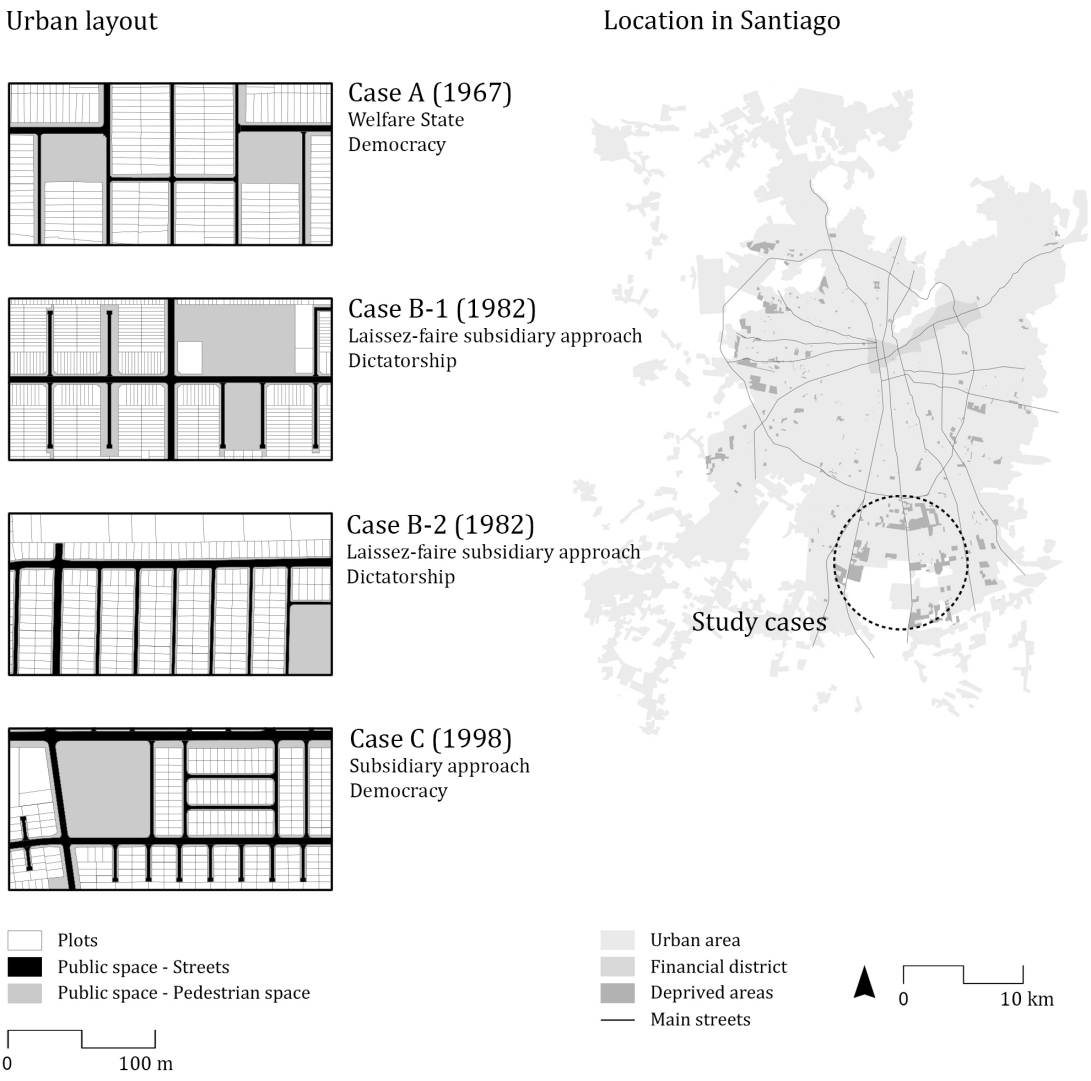
The findings of walking interviews, observation and mapping led to a second stage conducted ten months later. This stage included semi-structured interviews in which an image depicting the public space of a deprived neighbourhood (Baseline Scenario) and other three illustrating sequential improvements were presented to forty-one participants. Having the four scenarios available at all time, participants were asked to place black silhouettes on the images where they think occur, explain the reasons why they placed the silhouettes where they did and converse about their willingness to walk or perform other activities in places with equivalent features to those depicted. Silhouettes represented nineteen activities which were observed and detected in walking interviews (e.g. people chatting, consuming drugs, kids playing) and were given to participants one by one randomly. Like walking interviews, semi-structured interviews were recorded, then transcribed and analysed in NVivo following the procedures and approaches explained above.

Walking interviews and semi-structured interviews were conducted in Spanish and the analysis done in the same language to prevent data loss due translation. The research was reviewed by the relevant Faculty Research Ethics Committee of the University of Leeds and, as such, recordings and transcripts were pseudo-anonymised using only general identifiers (i.e. gender, age range, neighbourhood of residence and familial relationship only if needed to contextualise).

Fifty-four individuals agreed to participate in the research. Of these thirteen took part in the walking interviews, twenty-two in the semi-structured interviews and nineteen participated in both. Participants ranged between 18 and 65 years

Figure 1. Characteristics of the studied neighbourhoods.

Source: Source: authors' own.



old, were thirty-four female and twenty-two males and resided in four different neighbourhoods (Figure 1). Three neighbourhoods explored in the stage which involved walking interviews (Cases A, B-1 and C in Figure 1) and a fourth case added at the stage of the semi-structured interviews (Case B-2 in Figure 1). The new neighbourhood complemented Case B-1, as recruitment there resulted particularly difficult due to compact social networks that restricted the number of potential reachable participants.

As Figure 1 shows, three of the four neighbourhoods are currently classified as 'Áreas Prioritarias' (Priority Areas in English) due to low levels of investment, high levels of domestic violence, drug addiction, teenage pregnancy, school dropout, among other indicators of social vulnerability (MINVU, 2012). Case A was in an equivalent category until 2007 when the program of urban regeneration 'Quiero mi Barrio' (I Love my Neighbourhood in English) started its implementation (MINVU, n.d.). The neighbourhoods were built in different phases of Chilean social housing history;

following the approaches explained above and thus varying from cooperative policies between the State and the local community to privately driven experiences. In particular:

Case A (1967) - Welfare State/Democracy. This neighbourhood was conceived under the program 'Operación Sitio' (Plot Operation in English) which considered progress as a collective matter. The community was required to be organised ex-ante to be able to purchase land and sustain the construction of the neighbourhood. Inhabitants, received an empty plot, connected to basic services, self-constructing houses and public spaces over time with the intermittent assistance or guidance of the State. In this neighbourhood, plots are relatively large; the urban form is complex, and facilities are located in key points inside the neighbourhood (Figure 1). As the policy aimed to strengthen social networks and avoid the displacement of families, residents came from irregular settlements located nearby. Like other neighbourhoods built in pre-dictatorial times, the consolidation of this neighbourhood was stopped by the coup d'état and enjoyed little attention until recent programs of urban regeneration (MINVU, 2004; Hidalgo, 2005).

Case B-1 and Case B-2 (1982) - Laissez-faire subsidiary approach/ Dictatorship. These neighbourhoods were the result of the 'Programa de Vivienda Básica' (Basic Housing Program in English). In a mechanism of public tenders which awarded private projects with the lowest costs and the highest benefits, both neighbourhoods were built on the outskirts (i.e. cheapest available land), have small plots/houses and a simple street grid. Larger facilities were later built on the land around by a mixture of private, subsidised and public investments. Families received a finished unit and the public space had paved roads and sidewalks. Residents came from different parts of the city (often central areas) and were required to be a recipient of social housing subsidies (MINVU, 2004).

Case C (1998) - Subsidiary approach/Democracy. Like the previous cases, this neighbourhood was designed and constructed also under the Basic Housing Program, but during democracy. Plots and houses are larger yet structural issues like peripheral locations and lack of facilities remained (Figure 1). Residents came from different parts of the city, mostly from the houses of close relatives, were required to have a valid subsidy and received a small finished unit (MINVU, 2004).

The four neighbourhoods have geographical proximity (less than three kilometres between the two most distant cases) and have intertwined trajectories. As repression

impeded the formation of new irregular settlements during the dictatorship, those who were unable to obtain a long-term solution found shelter in the houses of relatives in older neighbourhoods ('allegados' in Chilean jargon). Due to this, it was common among participants to have lived in an old neighbourhood, reside now, or have relatives, in newer housing estates and be familiar with the paths followed by other neighbourhoods.

The following section contains those findings which are related to participants' perceptions of the public space. To exemplify phenomena, some excerpts of the interviews were translated into functional English in this article and accompanied by general descriptors (gender, age range and neighbourhood).

3. 5. The public space in deprived neighbourhoods

In general, participants are either aware of the disadvantages suffered or have normalised them as the costs of living in disadvantaged neighbourhoods. Those who are aware of the disadvantages point the actions and the indolence of the State as factors which have widened the distance between them and more affluent segments of the city. Meanwhile, the other group, often more isolated, considers normal aspects of their lives travel hours to reach central services, create complex strategies to walk early in the morning, catch crowded buses and stay at home from sunset to avoid the public space.

3. 5. 1. Material progress

Participants perceive material progress in their neighbourhoods. In the three neighbourhoods built during or after the dictatorship (cases B-1, B-2 and C), construction materials, enlarged houses, well-maintained facades and other elements in the private property represent that material progress. Improvements as such have bettered the quality of life provided by the original units (small for growing families)—and confine a public space that is acceptable but has varied little in comparison to what was originally given:

(1) 'The neighbourhood has not changed, not much. […] The only new thing is… that small square there [pointing the square]. That is the only new thing. In the rest, I have not seen changes.

Do you think the neighbourhood is stagnant? or in deterioration? (interviewer)

Yes, you know things deteriorate with the passing years; both people and things. One faster than the other, but yes, it [the neighbourhood] is deteriorating.' (middle-aged female, Case C)

Participants argue that they have seen few changes in the public space. Moreover, they believe that it is falling into a slow spiral of deterioration due to years of cumulative damage. Those living in the neighbourhood built in democracy (Case C) described the public space in deterioration as a consequence of individuals who have no common interest. Meanwhile, to those inhabiting the neighbourhoods built under the dictatorship (cases B-1 and B-2) the public space epitomises the absence of the institutions and their lack of interest for diminishing the relentless distance between them and the rest of the society. The public space of these neighbourhoods is seen as a reminder of a stagnant position in the society and can cause sadness and despair as reported by other authors (Figueroa *et al.*, 2019). Participants feel alone and afraid when occupying the public space, as they believe nobody would provide help or support if needed, and sad, as for them the deterioration reflects an environment that hinders progress.

In contrast, self-construction set a low baseline for those living in the oldest neighbourhood (Case A). Progress in this place is the result of a long trajectory of being isolated on the periphery and having no more than precarious shelters and muddy streets to having regular bus services, proper houses, paved sidewalks and roads, squares, parks, shops, schools and other amenities. Material progress is palpable for adults, many participated in early stages of the process of construction of the neighbourhood, and is still visible for the youth, as some public spaces are still in consolidation and houses are being replaced by better ones. Progress is seen as a collective achievement; of a community strong enough to let their members prosper and to accompany the intermittent interventions of the State:

(2) 'When we moved here it was a wasteland. They [the State] gave us four wooden stakes and that was your plot.

Then people started to build, the fences… building with the little or nothing [we had] because we came from a slum. They gave us the plot and then we "went up". We start with a shelter, a room of three per three [meters]. Those were the people who had [something]. [The rest started] only with a pair of blankets, nylon, cardboard, wood if it was available. That was our beginning here.

[Later] the "participatory sidewalks" [a governmental program] came; between the community and the government […] and the sidewalks were built.

[…] We didn't have resources then, but today the streets are paved; there are sidewalks to walk; there are… rainwater… systems to collect rainwater. There is better transport; more vehicles and more access. More communication with other neighbourhoods, with the local

government. There is more access to go everywhere.' (older male, Case A)

In this neighbourhood, self-construction and the long process of consolidation seems to have contributed to preserve ties of the former organised community. As multiple participants argue, regardless of the time passed, those ties linger in the form of spontaneous interactions in the public space and certain awareness of others' life stories. They know the stories of numerous families and individuals; project these on the features of the houses where they inhabit and, doing so, construct narratives of collective progress. Well-maintained houses are stories of success; of 'good' people who took advantage of the available opportunities and were able to improve their homes without fear. Participants believe that well-kept houses can be seen from the public space only if the local community is able to keep illicit activities like drug trafficking—at least—under control. On the contrary case, these houses should be hidden behind walls or impenetrable fences.

Visible and well-kept houses are, to some degree, depicted as signs of safety by participants residing in the four cases; yet in the oldest neighbourhood, these houses also bring a certain joy to the experience of being in the public space as they are visible signs of how much their neighbourhood has progressed over the years and how much they have collaborated, directly or indirectly, to achieve it.

3. 5. 2. The patterns of the public space

In the four neighbourhoods, participants perceive a certain level of social deterioration. Residents of two neighbourhoods built under and after the dictatorship (cases B-2 and C) describe an 'invasion of vices'. A sequential process in which they had a relatively pleasant life until other developments were built around and brought strangers, drug trafficking, consumption and its consequences (e.g. street fights, vandalism) to their public spaces [3].

Participants' narratives seem to echo the consequences of the process of territorial and social fragmentation induced by Chilean housing policies; the deficient mechanisms to consolidate local communities, construct between those arriving and those already settled or enrich social networks (Link *et al.*, 2017). With few chances to know others, many participants living in newer neighbourhoods trust only their immediate neighbours (e.g. living in the same street) or recognise few faces in the public realm (e.g. those who have similar routines). They are afraid of the public space; in their vicinities, occupied by 'outsiders', and in surrounding places, inhabited by 'strangers':

3 This perceived process of social deterioration tends to have a component of idealisation and myth.

(3) 'I don't like to talk [in the street]. I don't leave the house much and I don't have many friends either because I don't like it. I prefer to stay shut and safe in the house.' (older female, Case C)

Participants living in these two places (cases B-2 and C) expect to encounter a few people in the streets and squares and do not expect those who are there to linger long. According to them, the residential nature of their neighbourhoods and the absence of facilities should not attract people other than residents early in the morning and, particularly in spring and summer, late in the afternoon. At these times, they expect to see individuals going to, and returning from, jobs and children playing street games after school. Furthermore, these participants consider that a hard-working person should not have available time to 'waste' in a public space that, in addition, they often consider unattractive. Participants view with distrust people who do stay in the public space, apparently doing nothing, walk slower or stop in places where there is nothing attractive to see. Such people, who include teenagers, are profiled as 'wrongdoers'. This finding echoes previous work on fears and mistrust of people whose behaviour is held to fall outside social expectations (Malone, 2001; Saraví 2004; Valentine, 2008; Sabatini and Wormald, 2013; Ortega, 2014).

There is a contrasting experience in the oldest neighbourhood (Case A) and one of the cases built during the dictatorship (Case B-1). In the latter, the construction of a large square and a playground in former neglected land reshaped the social architecture of the neighbourhood. Participants explained that the square opened space for children who normally stayed inside the houses due to the perceived insecurity of the public space. There are adults present and they protect the children–and it should be noted that these adults themselves transgress societal norms by taking or even selling drugs, yet these adults are not seen as a threat or to be mistrusted because they are local. The square became a safe place and evolved into a tacit agreement in which drugs remain outside, or in a neighbouring public space, at least until dusk. This made more familiar the patterns of many feared individuals and created a window of relative safety in this neighbourhood:

(4) 'There is a lapse of time in which families come up, like between two until four… until five in the afternoon. They go to the square, the one that has a fountain and a playground. You can see families there, but after five you see no one. Only young people drinking beer and smoking weed.

[…] They [drug and alcohol consumers] give that space to the families, because they also have one. You see parents that you know consume drugs, but they are with their families […] The people [who want to drink or smoke during the afternoon] occupy the other place, the one that is taken [by wrongdoers].' (middle-aged female, Case B-1).

In Case A, participants expect to encounter strangers and observe diverse patterns in the public space through the day. For them, it is normal that facilities located within the neighbourhood, public transport and a relatively well-consolidated commercial street attract strangers to the public space in different moments of the day. They see teenagers from other places coming to play football during the afternoon, strangers in the commercial street stopping to buy goods or waiting for public transport services during the day. It is also common to see residents in the public space as richer social networks prompt them to engage in social interactions. In participants' words, waving or saying just 'hi' sometimes is not enough. Participants in this neighbourhood, agree with the idea that hard-working people should stay mostly at home and perceive social deterioration as was mentioned earlier, but these social networks and better-provided territory narrowed the 'unusual' just to late hours (e.g. after midnight) and to behaviours that put others at risk (e.g. aggressive drivers in streets where people commonly walk in the road).

3. 5. 3. The (invisible) State and the local community

Participants indicate that the care of the public space falls in the hands of the local community. Cleanness and maintenance are attributed to a coordinated effort of families who care for the public space in front of their houses. Meanwhile, the control of antisocial activities is assigned to neighbours who feel entitled to watch for the public space in passive (i.e. occupying the streets) and active forms (i.e. expelling wrongdoers, cleaning the street). Other aspects of the public space are described as consequences of both. Shops and permeable facades/fences can exist only in neighbourhoods where crime is not dominant—and people can enjoy the public space only if the environment is safe and clean.

In Chilean legislation, the State is the entity in charge of the public space; of its maintenance and cleanness (MINVU, 1975; MINVU, 1992). Despite that, it is on only in the neighbourhood built before the dictatorship (Case A) that participants assign some responsibility to the State in the long-term condition of the public space, and this is on the basis that it collaborated in the consolidation of many public spaces in the past. Participants living in neighbourhoods built during and after the dictatorship tended to omit its accountability on the public space unless asked directly. If it is mentioned, the State is considered a secondary actor which, at most, can provide some support to local demands (e.g. install waste containers in particularly unclean places). If it is asked, participants of these neighbourhoods depicted the State as an unreliable and invisible actor that cares little about the public space and, in general, what can happen to them:

(5) 'Mayors, representatives always go the poblaciones[4] to gather votes. They promise many things, but never fulfil them. They care for themselves, their families, not the people. Sometimes, they do something, a project to say like… "there, you have something" and that's it […]. Here, you can see, the square, everything is awful, ugly…

I believe [the authorities] think if "the dog lives in the dump, there it must stay."' (middle-aged male, Case B-2)

Participants' narratives distrust the State and its institutions. They experience in their everyday life the consequences of the withdrawal of the State from the public sphere and transfer many of its responsibilities to—often powerless—communities. In their rationale, if the public space is not in the proper conditions, that is neglected, deteriorated or vandalised, is only because the locals allowed it.

3. 5. 4. Learning a hostile public space

As it was mentioned earlier, participants expect little from their public spaces; they see more risks than benefits. Many have normalised the complexities of their public spaces as part of the costs of living in deprived neighbourhoods and inherent qualities of all the places they can afford. Coinciding with the findings of Hidalgo *et al.* (2017) that show evidence of a high willingness to move out in post-dictatorship neighbourhoods, a number of participants living in cases B-1, B-2 and C expressed their desire to leave if they have the opportunity to do so; yet they fear to end in a worse place and have to learn how to cope with new uncertainties.

In accordance with the Chilean literature that acknowledges the efforts required to inhabit deprived neighbourhoods (Landon, 2013; Figueroa and Forray, 2015); participants described the complex strategies and skills they have mastered to be able to occupy the public space. To be less visible (e.g. hide valuable objects, be closer to "good" strangers), to broaden visual angles (e.g. occupy roads), to avoid potential conflicts (e.g. detouring) and to make possible the lives of less-skilful individuals like children or elders (e.g. synchronise times with other members of the family). As the following participant explains, they have learnt to inhabit the public space with fear and anxiety:

(6) 'I came from a tranquil place. Then, when I moved here… this neighbourhood changed me. I had to learn how to take care of myself and my children that were young at that time. My husband was doing night shifts, so I was alone with the kids […] Then, I had to learn to be a coward [to be safe].' (middle-aged female, Case C)

4 Informal name given to working-class neighbourhoods. It can be either pejorative or linked to political resistance/repression during the dictatorship.

These learnings often constitute a broader framework from which participants understand the public space. As they experience fear regularly, numerous participants believe that violence and drugs are widespread issues in the Chilean society and, therefore, precautions should be taken in any place. In their view, the public space, no matter its conditions, will present risks. For participants who are tied to their territories and have few chances to know different realities, like stay-at-home mums, a better or safer space can exist only in highly controlled places. These are shopping malls, described as one of the most attractive places they regularly access, and gated communities, the type of neighbourhoods to which those who had success normally moved in. In these cases, participants believe that the only method to secure the public space is privatisation. The rest expect more diverse social interactions (e.g. children playing in the street, more people conversing) in better public spaces still doubting about the potential presence of threats, like drug trafficking, in unfamiliar forms. Participants learnt in their neighbourhoods that the public space is inherently risky, and, to different degrees, extrapolate that elsewhere.

3. 6. Conclusions

This article aimed to explore how people living in deprived areas of Santiago de Chile experience and understand the public space. Through the article, it has been argued that the flip sides of successful public policies and a cyclical process in which the State appears and retreats itself from the public sphere influence individuals' experiences and perceptions of the public space.

Participants tended to reflect material progress on the physical structures of the public space. The physical structures of the public space represented a 'benchmark' from which they positioned themselves in the context of the broader society, either stagnant or closing the gap with other areas of the city. As appeared consistently in the data, the oldest neighbourhood (Case A), produced under collaborative policies, showed profound differences with the other neighbourhoods produced later. Participants living there expressed some pride and joy which seems to be associated with the long trajectory of consolidation of the public space. For them, the public space is the vivid reflection of individuals that shared a purpose and, to some degree, still do. Participants living in newer neighbourhoods (cases B-1, B-2 and C) also perceived progress, but in the private property. They explained that they have progressed by their own efforts, but the prejudicial environment around drag them down and impedes them from progressing at the speed they should. The public space epitomised this prejudicial environment and was described as the everyday remainder of their stagnant situation.

Like other authors have described (Saraví, 2004; Ortega, 2014), participants' experiences tended to reflect the inner polarisation of their neighbourhoods. Across

neighbourhoods, they have clearly defined what is expected to happen in the public space and what is not being the 'unusual' often a synonym of risk. As cases A and B-1 showed, the definition of the 'unusual' is highly influenced by the opportunities available in the territories around. A richer urban structure, with facilities inside, narrowed the unusual in the oldest neighbourhood (Case A) to those present in the public space in the late hours of the night. In the other case (Case B-1), a new playground drew a new territorial arrangement and opened new spaces in a neighbourhood perceived as taken by drug dealers. With weaker urban structures, those living in the other two neighbourhoods were in general afraid of any stranger present in the public space. The unusual in these neighbourhoods was anyone present in the public space.

The analysis of the data showed that the unattractiveness of the public space was tied with a lack of agency. In post-dictatorship neighbourhoods, participants feel abandoned by the institutions and assign the care of the public space to the local community. As participants daily experience seem to be framed by fragmented and weak communities, the link seems to either reflect previous experiences in older neighbourhoods or be a reference to the actor that they think would do 'something' if the proper conditions were given. The State was characterised as unreliable and often pointed out as the actor that created many of the disadvantages they endure. Participants living in newer neighbourhoods tended to extrapolate their daily experiences and fears elsewhere. In the context of strong spatial segregation, the public spaces available for many participants are similar to those they observe daily in their neighbourhoods.

Particularly for more isolated participants, a better public space is possible only in gated communities or shopping malls. In this regard, the success of the production of 'public space' by private actors acknowledged by the literature (Stillerman and Salcedo, 2012; Miller, 2014; Dávila, 2016; Schlack *et al.*, 2017) seems to have influenced local narratives, deepened fears and contributed to the creation of beliefs in which healthy social interactions can happen only under heavy surveillance.

In this article, many of the theses about perception of insecurity in the public space were verified. Participants tended to be afraid of others (Segura, 2009; Gómez and de Aguiar, 2015), transform the lack of opportunities in fears (Dammert and Malone, 2003), profile teenagers (Malone, 2001; Valentine, 2008) and those who look different as wrongdoers (Sabatini and Wormald, 2013). However, as was explained above, these constructions seem to be highly influenced by the trajectory of the neighbourhoods and the structure of opportunities available around. After more than fifty years, and despite suffering from several disadvantages, the participatory project of Case A seems to provide a better environment to thrive than those places that, with 'better' urban standards, were produced later.

Acknowledgements

This article was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the first author.

References

Andreatta, Verena. 2005. "Favela-Bairro, un nuevo paradigma de urbanización para asentamientos informales." *Cuadernos Internacionales de Tecnología para el Desarrollo Humano*, 2005, no. 3.

Avila, María Elena, Belén Martínez-Ferrer, Jesús Alejandro Vera, Alejandro Bahena and Gonzalo Musitu. 2015. "Victimización, miedo al delito y cambios en las rutinas cotidianas en un contexto de alta criminalidad, en función del género." *Revista Española de Investigación Criminológica: REIC* 13: 4-22.

Bauman, Zygmunt. 2000. *Liquid Modernity*. Cambridge: Polity Press.

Berney, Rachel. 2011. "Pedagogical urbanism: Creating citizen space in Bogotá, Colombia." *Planning Theory* 10, no. 1: 16-34.

Borsdorf, Axel, Rodrigo Hidalgo and Rafael Sánchez. 2007. "A new model of urban development in Latin America: The gated communities and fenced cities in the metropolitan areas of Santiago de Chile and Valparaíso." *Cities* 24, no. 5: 365-378.

Brain, Isabel, José Prieto and Francisco Sabatini. 2010. "Vivir en Campamentos: ¿Camino hacia la vivienda formal o estrategia de localización para enfrentar la vulnerabilidad?." *EURE (Santiago)* 36, no. 109: 111-141.

Brand, Peter. 2013. "Governing inequality in the South through the Barcelona model:"social urbanism" in Medellín, Colombia." *Interrogating urban crisis: governance, contestation, critique*: 9-11.

Burbano, Andrea. 2014. "La investigación sobre el espacio público en Colombia: su importancia para la gestión urbana." *Territorios* 31: 185-205.

Calderon, Camilo. 2008. *Learning from Slum Upgrading and Participation: A case study of participatory slum upgrading in the emergence of new governance in the city of Medellín–Colombia*. Stockholm: Kungliga Tekniska Högskolan.

Carmona, Matthew. 2010. "Contemporary public space, part two: classification." *Journal of urban design* 15, no. 2: 157-173.

Cerdá, Magdalena, Jeffrey Morenoff, Ben Hansen, Kimberly Tessari Hicks, Luis Duque, Alexandra Restrepo and Ana Diez-Roux. 2012. "Reducing violence by transforming neighborhoods: a natural experiment in Medellín, Colombia." *American journal of epidemiology* 175, no. 10: 1045-1053.

Dammert, Lucia and Mary Malone. 2003. "Fear of crime or fear of life? Public insecurities in Chile." *Bulletin of Latin American Research* 22, no. 1: 79-101.

Dávila, Arlene. 2018. *El mall: políticas de espacio y clase social en los centros comerciales latinoamericanos*. Bogotá: Ediciones Uniandes-Universidad de los Andes.

De Backer, Mattias, Claske Dijkema and Kathrin Hörschelmann. 2019. "Preface: The Everyday Politics of Public Space." *Space and Culture*.

De Ramón, Armando. 1990. "La población informal. Poblamiento de la periferia de Santiago de Chile. 1920-1970." *EURE (Santiago)* 16, no. 50.

Donovan, Michael G. 2008. "Informal cities and the contestation of public space: The case of Bogotá's street vendors, 1988—2003." *Urban Studies* 45, no. 1: 29-51.

Ducci, María Elena. 1997. "Chile: el lado obscuro de una política de vivienda exitosa." *EURE (Santiago)* 23, no. 69.

Figueroa, Cristhian, Frances Hodgson, Caroline Mullen and Paul Timms. 2018. "Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile." *Journal of Transport Geography* 67: 102-109.

Figueroa Martínez, Cristhian, Frances Hodgson, Caroline Mullen and Paul Timms. 2019. "Walking through deprived neighbourhoods: Meanings and constructions behind the attributes of the built environment." *Travel Behaviour and Society* 16: 171-181.

Fossey, Ellie, Carol Harvey, Fiona McDermott and Larry Davidson. 2002. "Understanding and evaluating qualitative research." *Australian and New Zealand journal of psychiatry* 36, no. 6: 717-732.

Fundación Paz Ciudadana. 2017. *Proyecto Sistematización Experiencia Planes Integrales para Barrios de Alta Complejidad.* Santiago, Chile: Fundación Paz Ciudadana.

Geels, Frank. 2010. "Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective." *Research policy* 39, no. 4: 495-510.

Gehl, Jan. 1987. *Life between Buildings: Using Public Space*. Translated by Jo Koch. New York; Wokingham: Van Nostrand Reinhold.

Glebbeek, Marie-Louise and Kees Koonings. 2016. "Between Morro and Asfalto. Violence, insecurity and socio-spatial segregation in Latin American cities." *Habitat international* 54: 3-9.

Gómez, Javier and Rafael de Aguiar. 2015. "El imaginario urbano del miedo en Latinoamérica: evidencias de estudios en Salvador de Bahía, Brasil, y Monterrey, México." *Revista Temas Sociológicos* 19: 41-69.

Harada, Theresa and Gordon Waitt. 2013. "Researching Transport Choices: The Possibilities of 'Mobile Methodologies' to Study Life-on-the-Move." *Geographical Research* 51, no. 2: 145-152.

Hernández-Bonilla, Mauricio. 2013. "The significance and meanings of public space improvement in low-income neighbourhoods 'colonias populares' in Xalapa-Mexico." *Habitat International* 38: 34-46.

Hernandez-Garcia, Jaime. 2013. “Slum tourism, city branding and social urbanism: the case of Medellin, Colombia.” *Journal of Place Management and Development* 6, no. 1: 43-51.

Hidalgo Dattwyler, Rodrigo, Pablo Urbina Terán, Voltaire Alvarado Peterson and Abraham Paulsen Bilbao. 2017 “Desplazados y ¿olvidados?: contradicciones respecto de la satisfacción residencial en Bajos de Mena, Puente Alto, Santiago de Chile.” *Revista Invi* 32, no. 89: 85-110.

Hidalgo, Rodrigo. 2005. *La vivienda social en Chile y la construcción del espacio urbano en el Santiago del siglo XX*. Santiago, Chile: Instituto de Geografía, Pontificia Universidad Católica de Chile.

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

Jacobs, Allan. 1995. *Great streets*. Cambridge: MIT Press.

Janoschka, Michael. 2002. “El nuevo modelo de la ciudad latinoamericana: fragmentación y privatización.” *EURE (Santiago)* 28, no. 85: 11-20.

Jones, Phil, Griff Bunce, James Evans, Hannah Gibbs and Jane Ricketts Hein. 2008. “Exploring Space and Place with Walking Interviews.” *Journal of research practice* 4, no. 2: D2.

Kaztman, Rubén. 2007. “La calidad de las relaciones sociales en las grandes ciudades de América Latina: viejos y nuevos determinantes.” *Pensamiento iberoamericano* 1: 177-205.

Kessler, Gabriel and Brenda Focás. 2014. “¿Responsables Del Temor? Medios Y Sentimiento De Inseguridad En América Latina.” *Nueva Sociedad*, no. 249: 137-48.

Kusenbach, Margarethe. 2003. “Street phenomenology: The go-along as ethnographic research tool.” *Ethnography* 4, no. 3: 455-485.

Landon, Paulette. 2013. “Movilidad cotidiana e infraestructura vial: nuevos desafíos urbanos para la inclusión social en la ciudad. El caso de la Autopista Acceso a Santiago.” *Revista de trabajo social* 84: 31-45.

Leguizamón, Sonia. 2008. “La producción de la pobreza masiva y su persistencia en el pensamiento social latinoamericano.” Cimadamore Alberto, Cattani Antonio (editors). *La construcción de la pobreza y la desigualdad en América Latina*. Buenos Aires: CLACSO.

Link, Felipe, Rodrigo Mora, Margarita Greene and Cristhian Figueroa. 2017 “Patrones de sociabilidad en barrios vulnerables: dos casos en Santiago, Chile.” *Revista Bitácora Urbano Territorial* 27, no. 3: 9-18.

Malone, Karen. 2001. “Street life: youth, culture and competing uses of public space.” *Environment and urbanization* 14, no. 2: 157-168.

Márquez, Francisca. 2004. "Márgenes y ceremonial: los pobladores y las políticas de vivienda social en Chile." *Política* 43: 185-203.

Mason, Jennifer. 2002. *Qualitative Researching*. Second ed. London: Sage.

McFarlane, Colin. 2011. *Learning the city: knowledge and translocal assemblage*. Chichester: John Wiley & Sons.

Miller, Jacob C. 2014. "Affect, consumption, and identity at a Buenos Aires shopping mall." *Environment and Planning A* 46, no. 1: 46-61.

MINVU. 1975. *Ley General de Urbanismo y Construcciones. DFL 458*. Ministerio de la Vivienda y Urbanismo

MINVU. 1992. *Ordenanza General de Urbanismo y Construcciones. Decreto 47*. Ministerio de Vivienda y Urbanismo

MINVU. 2004. *Un siglo de políticas de vivienda y barrio*. Santiago, Chile: MINVU.

MINVU. 2012. *Instructivo para identificación y definición de Zonas prioritarias de interés público*. Santiago: MINVU.

MINVU. 2018. *Llamado concurso 2018. Orientaciones generales. Selección de nuevos barrios. Programa Recuperación de Barrios.* Santiago, Chile: MINVU.

MINVU. no date. Memorias de la 6 de Mayo. Santiago: Secretaría Ejecutiva de Desarrollo de Barrios.

Mora, Rodrigo, Margarita Greene and Alexis Reyes. 2018. "Uso y percepción del espacio público en dos barrios vulnerables: Un análisis comparativo de dos barrios." *AUS* 24: 53-60.

Neal, Zachary. 2010. "Seeking common ground: three perspectives on public space." *Proceedings of the Institution of Civil Engineers-Urban Design and Planning* 163, no. 2: 59-66.

Newman, Oscar. 1972. *Defensible Space: Crime Prevention through Urban Design*. New York: Macmillan.

O'Brien, Philip. 1969. "La Alianza para el Progreso y los préstamos por programa a Chile." *Estudios internacionales* 2, no. 4: 461-489.

Ordóñez-Barba, Gerardo, Tito Alegría-Olazábal, Craig Mcintosh and René Zenteno-Quintero. 2013. "Alcances e impactos del Programa Hábitat en comunidades pobres urbanas de México." *Papeles de población* 19, no. 77: 231-267.

Ortega, Tamara. 2014. "Criminalización y concentración de la pobreza urbana en barrios segregados: síntomas de guetización en La Pintana, Santiago de Chile." *EURE (Santiago)* 40, no. 120: 241-263.

Vergara, Francisco and Montserrat Palmer. 1990. *El Lote 9x18 en la encrucijada habitacional de hoy*. Santiago: Facultad de Arquitectura y Bellas Artes PUC.

Pérez-Valecillos, Tomás and César Enrique Castellano-Caldera. 2013. "Creación del espacio público en asentamientos informales: Nuevos desafíos urbanos." *Revista Bitácora Urbano Territorial* 23, no. 2: 95-104.

Quesada, Florencia. 2006. "Imaginarios urbanos, espacio público y ciudad en América Latina." *Pensar Iberoamérica: revista de cultura* 3.

Ramírez Kuri, Patricia. 2015. "Espacio público, ¿espacio de todos? Reflexiones desde la ciudad de México." *Revista mexicana de sociología* 77, no. 1: 07-36.

Raposo, Alfonso. 2001. *Espacio urbano e ideología. El paradigma de la Corporación de la vivienda en la arquitectura habitacional chilena. 1953-1976*. Santiago, Chile: Ediciones Universidad Central.

Restrepo, Elvira María and Moreno Álvaro José. 2007. "Bogotá: ¿más crimen?,¿ más miedo?." *Revista Desarrollo y Sociedad* 59: 165-214.

Rodríguez, Alfredo and Ana Sugranyes. 2004. "El problema de vivienda de los" con techo"." *EURE (Santiago)* 30, no. 91 (2004): 53-65.

Rodriguez, Alfredo, Paula Rodriguez, Marisol Saborido, Olga Segovia and Lylian Mires. 2014. "Visible and invisible violence and inequality in neoliberal Santiago." *Environment and Urbanization* 26, no. 2: 359-372.

Sabatini, Francisco and Guillermo Wormald. 2013. "Segregación de la vivienda social: reducción de oportunidades, pérdida de cohesión." Francisco Sabatini, Guillermo Wormald y Alejandra Rasse (coords.), *Segregación de la vivienda social: ocho conjuntos en Santiago, Concepción y Talca, Santiago*. Pontificia Universidad Católica de Chile: 15-31.

Sabatini, Francisco. 2006. T*he social spatial segregation in the cities of Latin America*. Inter-American Development Bank.

Sagaris, Lake and Paulette Landon. 2017. "Autopistas, ciudadanía y democratización: la Costanera Norte y el Acceso Sur, Santiago de Chile (1997-2007)." *EURE (Santiago)* 43, no. 128: 127-151.

Saraví, Gonzalo A. 2004. "Segregación urbana y espacio público: los jóvenes en enclaves de pobreza estructural." *Revista de la CEPAL.*

Schlack, Elke, Nancy Hidalgo, Karin Villarroel, María Arce and Carolina Fariña. 2018. "Tres tipos de comercio. Tres maneras de influenciar la esfera pública de los barrios." *Revista INVI* 33, no. 92: 89-122.

Schmidt, Stephan and Jeremy Németh. 2010. "Space, place and the city: Emerging research on public space design and planning." *Journal of Urban Design* 15, no. 4: 453-457.

Segovia, Olga and Enrique Oviedo. 2000. "Espacios públicos en la ciudad y el barrio." In Olga Segovia and Guillermo Dascal (editors). *Espacio público, participación y ciudadanía*. Santiago de Chile, Ediciones SUR: 51-69.

Segura, Ramiro. 2009. "Paisajes del miedo en la ciudad. Miedo y ciudadanía en el espacio urbano de la ciudad de la Plata." *CUADERNO URBANO. Espacio, cultura, sociedad* 8, no. 8: 59-76.

Stillerman, Joel and Rodrigo Salcedo. 2012. "Transposing the urban to the mall: routes, relationships, and resistance in two Santiago, Chile, shopping centers." *Journal of Contemporary Ethnography* 41, no. 3: 309-336.

Techo-Chile. 2016. *Catastro de Campamentos 2016*. Santiago, Chile: Centro de investigación social Techo-Chile.

Tubb, Daniel. 2013. "Narratives of citizenship in Medellín, Colombia." *Citizenship Studies* 17, no. 5: 627-640.

Turner, John. 1976. *Housing by People: Towards Autonomy in Building Environments.* London, United Kingdom: Marion Boyars.

UNICEF and WHO. 2019. *Progress on household drinking water, sanitation and hygiene 2000-2017. Special focus on inequalities.* New York: UNICEF and WHO.

Valentine, Gill. 2008. "Contested terrain: Teenagers in public space". In Oakes, Timothy and Patricia Price (editors). *The Cultural Geography Reader*. London: Routledge, pp. 395-402.

Vilar, Katila and Ivan Cartes. 2016. "Urban design and social capital in slums. Case study: Moravia's neighborhood, Medellin, 2004-2014." *Procedia-Social and Behavioral Sciences* 216: 56-67.

Whyte, William Hollingsworth. 1988. *City: Rediscovering the Center*. New York; London: Doubleday.

Zukin, Sharon. 1995. *The cultures of cities.* Oxford: Blackwell.

Chapter 4

Walking the line:
negotiating the environment of Santiago de Chile's deprived neighbourhoods

This chapter is a forthcoming article:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (forthcoming a). Walking the line: negotiating the environment of Santiago de Chile's deprived neighbourhoods.

Abstract

A vast body of literature has inquired on walking and those factors which can promote it. However, little attention has been given to those disadvantaged groups or places in which walking is the only available form of mobility and so key in the satisfaction of everyday needs. Reporting a study using mixed qualitative methods to explore walking in areas of Santiago de Chile affected by urban violence, social fragmentation and a high level of physical deterioration, this article reveals how the interactions between the built environment and various social processes affect pedestrians' experiences and make walking a complex chore. The results suggest that to be able to walk, individuals in deprived neighbourhoods have learnt to negotiate urban layouts that strengthen the strangeness, constructs of normality that augment fears and physical features that mirror multiple disadvantages affecting Santiago's deprived neighbourhoods.

Keywords: walking, deprived neighbourhoods, walking interviews, deterioration, territorialities, public space.

4. 1. Introduction

Given the potential benefits of walking as a sustainable travel mode, a prolific body of literature has sought to identify factors which could ease or encourage its practice (Ogilvie *et al.*, 2007; Andrews *et al.*, 2012). Among these factors, the built environment, or those human-made structures that confine the public realm, has enjoyed a prominent place in the academia and the urban agenda since numerous studies provided evidence of correlations between its features and people's travel behaviour in the decade of 1990 (Cervero and Kockelman, 1997; Ewing and Cervero, 2010).

Much of the research that followed these initial insights has focused on the further exploration of correlations between the built environment and walking, seeking to identify those environmental features that conduce to "more" walking (Sealens and Handy, 2008; Ewing and Cervero, 2010; Wang and Yang, 2019). However, as many authors have acknowledged in recent years (Banerjee and Hine, 2014; Næss, 2015; 2016; Stefansdottir *et al.*, 2019; Figueroa *et al.*, 2019), this has minimised other aspects of walking, its experience and quality, has separated the built environment from the social sphere, the local culture and other aspects that can collaborate in understanding its impacts—and has left out of the scope those places or segments of the society where there is little or no other available option. With some exceptions that have explored in depth the matter (Bostock, 2001; Benediktsson, 2018; Figueroa *et al.*, 2019), the literature often conclude that there is a low correlation between the built environment and walking as pedestrians suffering from disadvantages seem to travel on foot no matter the circumstances (*see* Adkins *et al.*, 2017).

To expand that minimal understanding, we explore how the built environment of Santiago's deprived neighbourhoods mirror disadvantages, creates hostile conditions for pedestrians and obliges them to develop complex patterns of actions to be able to walk. Our study uses qualitative analysis of thirty-two walking interviews, non-participant observation and mapping carried out in three neighbourhoods of Santiago de Chile. These are located in the periphery of the city, distant from job sources, and, to different degrees, are affected by urban violence, social fragmentation and physical deterioration. All symptoms of the emergent forms of deprivation that have been described for Chile and other Latin American countries (Saraví, 2004; Rodríguez and Sugranyes, 2004; Kaztman, 2007; Sabatini and Wormald, 2013; Rodríguez *et al.*, 2014).

Following this introduction, the article is organised into four sections. Section 4.2 explores the literature about walking and the built environment; emphasising how this body of research has tended to simplify walking, separate the built environment from other social processes and leave out the scope those who suffer

from disadvantages. In section 4.3, the methods and materials outlined above are described in depth. Section 4.4 reports the main results, in particular, the fragmented urban structure of the neighbourhoods and the reduction of walkable areas (section 4.4.1), the division of the local communities and the territorialisation of the patterns of those that cause fear (section 4.4.2) and the construction of meaning in the built environment to find safety and be able to walk (section 4.4.3). Section 4.5 includes the final remarks of the article.

4. 2. Walking and the built environment

In the definition of Matos (2008), walking is an innate, recurring, flexible, emotional and sensual behaviour. A skill learnt in a relational environment during childhood (Ingold, 2011); developed further within the structure of opportunities of the urban spaces that allow or deter its practice (McFarlane, 2011). As a highly social activity and situated interaction, walking has been often depicted as a crucial element to construct meaning in the everyday life, reproduce culture, knowledge and capital (Demerath and Levinger, 2003; Ingold and Vergunst, 2008; Jensen, 2009; Lorimer, 2011; Middleton, 2018) and, therefore, to access the public realm and strengthen citizenship (Bauman, 2000; Sheller and Urry, 2003; Matos, 2008; Spinney *et al.*, 2015).

The emergent empirical work on this matter has provided evidence on how habits and personal preferences, experiences, norms and codes of behaviour, local constructs and other aspects mentioned above frame walking and the forms in which individuals interact with the environments around (Edensor, 2000; Middleton, 2009; Horton *et al.*, 2014; Sharmeen and Timmermans, 2014). Pooley *et al.* (2014) suggest that several aspects of the sociocultural sphere (e.g. lifestyles, perceptions, expectations of normality) shape people's understanding of walking, restricting its practice if it is perceived as an 'unusual' or 'odd' activity. Hodgson (2011; 2012) illustrates the numerous capacities developed to be able to walk. Grounded in cumulative experiences, social networks and other collective processes, these capacities allow individuals to negotiate the uncertainties and patterns of the public realm and the rhythms of everyday life. Meanwhile, gendered mobilities have shown that the restrictions caused by gendered biases on women's opportunities (Alcaíno and Gutiérrez, 2009; Akyelken, 2013) can constrict their walkable areas (Figueroa and Forray, 2015) and force them to deal with environments that—often—intensify their disadvantages (Bostock, 2001).

A vast body of research has acknowledged that walking happens in interaction with the built environment (*see* Sealens and Handy, 2008; Ewing and Cervero, 2010; Wang and Yang, 2019). Due to the benefits of walking on people's health, quality of life and wellbeing (*see* Ogilvie *et al.*, 2007; Andrews *et al.*, 2012), that body of literature has sought to identify those environmental features that can encourage walking and has

identified correlations with a diversity of factors such as densities, street connectivity and land use, among many others (Cleland *et al.*, 2008; Frank *et al.*, 2010; Christian *et al.*, 2011). However, much of that research has focused on quantifiable aspects of walking and the built environment, either reducing walking to its metrics (e.g. length, time, frequency) or separating the built environment from its social qualities or other related processes. This, despite that the works that have investigated the intricate relationship between the built environment and the social sphere are not particularly new in other fields like design or architecture (Ball, 1986; Rapoport, 1990).

It has been argued that the built environment is often simplified in the studies that seek to identify its impacts on people's behaviour (Koskela and Pain, 2000; Banerjee and Hine, 2014; Næss, 2015; 2016; Stefansdottir *et al.*, 2019; Figueroa *et al.*, 2019). Conceptualising the relationship between the built environment and travel behaviour, Næss (2015; 2016) argues that the built environment is a multifaceted expression of the society that, as such, influences several aspects of people's behaviour. In combination with other causal powers like personal preferences, perceptions or local culture, the built environment can affect the people's aesthetic experience, convey messages on its features, provide situated opportunities to engage in activities and collaborate on the definition of what is perceived normal and what is not.

Analysing travel behaviour in Northern Ireland, Banerjee and Hine (2014) point out that the ethno-nationalist conflict, land use-policies and over-investment on roads favoured the production of urban forms (i.e. sprawl) and territorial patterns (i.e. dispersion of jobs, creation of satellite towns) that are conducive for cars and adverse for other means of transport. Studying walking and cycling in Norway, Stefansdottir *et al.* (2019) demonstrate that physical activity in these two forms is less related to the availability of certain amenities (e.g. green areas, secondary centres) and more linked with a combination of positive attitudes towards physical activity and territorial opportunities that favour the perception of walking being convenient. In both studie, the built environment influences behaviours in combination with other causal powers.

At the 'eye level', Koskela and Pain (2000) indicate that to anticipate the potential risks along the routes, individuals infer from the features of the built environment the social qualities of the places (e.g. presences, public activities). Investigating walking in deprived neighbourhoods in Santiago de Chile, Figueroa *et al.* (2019) show that the qualities of the public space and the surrounding community are reflected in the built environment to find safety, adjust attitudes and behaviours and, having no other feasible options to travel, be able to walk. Meanwhile, Bostock (2001) and Benediktsson (2018) suggest that the patterns of underinvestment from which deprived areas suffer can worsen pedestrian's experience by reproducing

inequalities on the physical structures (e.g. low availability of services) and by exposing individuals to disproportionate risks (e.g. inadequate infrastructures) and hostile environments (e.g. neglected places). In all these cases, the interaction between the built environment and the social sphere influences different aspects of walking and other behaviours.

Furthermore, the evidence about walking through deprived environments like those described by Bostock (2001), Benediktsson (2018) and Figueroa *et al.* (2019) is relatively scant. Reviewing the few works that somehow have addressed this by considering the socioeconomic context, Adkins *et al.* (2017) concludes that those who regularly walk not for choice but obliged by the circumstances tend to display a 'low correlation' with the built environment. Pedestrians in disadvantage seem to walk no matter the environmental circumstances.

4. 3. Method and materials

To redress that gap, we investigated walking in deprived neighbourhoods of Santiago de Chile. We explored three neighbourhoods which, despite having basic needs solved (i.e. drinkable water, sanitation, electricity) and facilities available (i.e. schools, healthcare centres, public transport), suffer from acute forms deprivation. These forms, which have been described in several other Latin American countries, are characterised by a high exposition to different forms of urban violence, a general deterioration of the public realm and a strong division between those who follow traditional paths of social mobility and those who are unable to do so (Saraví, 2004; Rodríguez and Sugranyes, 2004; Kaztman, 2007; Sabatini and Wormald, 2013; Rodríguez *et al.*, 2014).

Of the three neighbourhoods , the oldest case (Case A) started its construction in 1967 under incremental policies that privileged the provision of land. Residents received empty plots connected to basic services and self-constructed their houses in a long span of time. The public space was constituted mostly by bare surfaces and, along with several facilities that were empty land at the beginning, was slowly consolidated over the years with the intermittent assistance of the State (Hidalgo, 2005). Cases B and C were built in 1982 and 1998 respectively under policies that outsourced the construction of affordable housing to private actors. Framed by lax norms and driven by private interests, these policies increased the production of houses and contributed to the eradication of extreme forms of deprivation; yet permitted the construction of new neighbourhoods on cheap and peripheral land, the reduction of the size of the plots, houses and the area dedicated to public space, among several other outcomes that have been proved to be detrimental (Ducci, 1997; Sabatini, 2000; Rodríguez and Sugranyes, 2004; Link *et al.*, 2017). Residents of cases B and C received a small, but finished unit, and a public space relatively

well-consolidated. Roads and sidewalks were paved, green areas were finished, and facilities were built later in available land around the neighbourhoods.

In these three areas, thirty-two individuals were invited to walk in the neighbourhoods where they live (or where they were highly familiar) and have a guided conversation about (i) the aspects of the built environment which are relevant to them, (ii) the activities performed or observed in the public space and (iii) the skills, tactics and strategies employed to walk. After walking, and to converse about the experience of walking in unfamiliar places, three photographs depicting the two other cases and a fourth neighbourhood were shown to the participants. To avoid colour biases, the photographs were printed in greyscale and, to enrich the conversation, intentionally portrayed contrasting situations like a pile of rubbish next to a well-kept square. The topic guides employed to conduct the interviews were designed under a constructivist approach, meaning that the reality is co-constructed between participants and researchers (Mason, 2002; Geels, 2010).

As the literature about mobile methods highlights (Kusenbach, 2003; Jones *et al.*, 2008; Harada and Waitt, 2013), walking interviews sought to observe on-site attitudes, manners and interactions with the broader environment that could be dismissed in traditional sedentary interviews. The interviews also sought to observe the practice of walking which, due to its recurrent and habitual nature, can be accompanied by spontaneous and intuitive actions.

Significant behaviours and interactions were written down in field notes and were later used to enrich the analysis and refine categories. Participants defined the route to follow during the interviews and had the freedom to stop, pause or interrupt it if something made them feel uncomfortable. Participants were contacted through local gatekeepers, were eleven males and twenty-one females and ranged between 18 and 65 years old (Table 1). The number of interviews was determined by empirical saturation (Mason, 2002), which started to appear around the eighth interview for each case and the twenty-fourth overall.

To observe behaviours and interactions without the interference of the researcher, non-participant observation was also conducted in the public space of the neighbourhoods. To document the environments, the features of the neighbourhoods were registered in sketches and photographs and converted into digital maps using orthophotographs and computer-aided design and drafting software.

Interviews were recorded, transcribed and later imported into the software *NVivo* (version 11). Using the features of the software, codes (labels) were assigned to meaningful excerpts which varied from short phrases to complex interactions between the researcher and the participant. Excerpts could be labelled more than once depending on their content. Following a discovery-oriented analysis (Fossey

Table 1. Participants of the data collection.

Source: authors' own.

		Cases			Total
		Case A 1967	Case B-1 1982	Case C 1998	
Gender	Male	6	3	2	11
	Female	6	6	9	21
Age	18-30 years old	4	3	2	9
	31-50	4	4	5	13
	51-65	4	2	4	10

et al., 2002), codes and categories emerged from the data and were systematically refined with the inclusion of new transcripts into the software and the contrast with the data collected in field notes, sketches and photographs, non-participant observation and the literature available on the matters. This process ended with the identification of several relevant features of the built environment, activities and skills, tactics and strategies used to walk.

The study was reviewed by the Faculty Research Ethics Committee of the University of Leeds. Consents and information sheets contained special passages to clarify that confidentially and anonymity could not be assured during walking interviews. Recordings and transcripts were pseudo-anonymised using only general identifiers to protect personal data (i.e. gender, age range, case study). Transcripts were kept in Spanish (the original language) during the analysis to preserve meanings and prevent data loss during translation and particular excerpts were translated into functional English to exemplify phenomena in this article.

4. 4. Walking in Santiago's deprived neighbourhoods

In general, participants demonstrated a high level of internalisation of the drawbacks that affect their neighbourhoods. Favoured by a strong pattern of segregation where the rich live exclusively in the eastern part of Santiago and the poor in peripheral homogenous clusters built by different social housing policies, numerous participants are aware of the existence of widespread stigmas in which they are 'potential criminals', 'poors by option' or 'clients of the State' just because they reside in specific places of the city. This is accompanied by a strong sensation of having fewer opportunities than those living in more affluent areas, being purposely hidden in the periphery and systematically affected by numerous public policies.[1] Participants feel

1 Many participants mentioned being adversely affected by housing and transport policies, both highly visible in the context of Chile. On these issues, numerous studies have proven the negative impact of housing policies on the quality of life of the most deprived groups (Ducci, 1997; Sabatini, 2000; Rodríguez and Sugranyes, 2004). Few other works have shown the unequal accessibility of the current public transport system (Figueroa *et al.*, 2018).

'alone', abandoned by the institutions and immersed in fragile communities that are incapable to offer support.

Inside the neighbourhoods, participants seem to have assimilated the presence of drug trafficking and its effects on their communities. Situations uncommon a few years ago, now incorporated into participants' narratives include the presence of drug dealers, young individuals consuming substances and complex structures of protection of illegal activities. In the quotidian life, fireworks indicating the arrival and the quality of drugs, street fights (often with casualties) and the sound of bullets shot into the air to commemorate incidents are also fully integrated into local narratives and routines. Several participants narrated stories about being accidentally involved in gunfights, even in crowded places like street markets or squares, or known someone who had experienced a similar situation. Participants see more risks than benefits in the public space and, to be able to walk, they have adopted measures and have transmitted them to the younger generations and to those who arrived recently to the neighbourhoods:

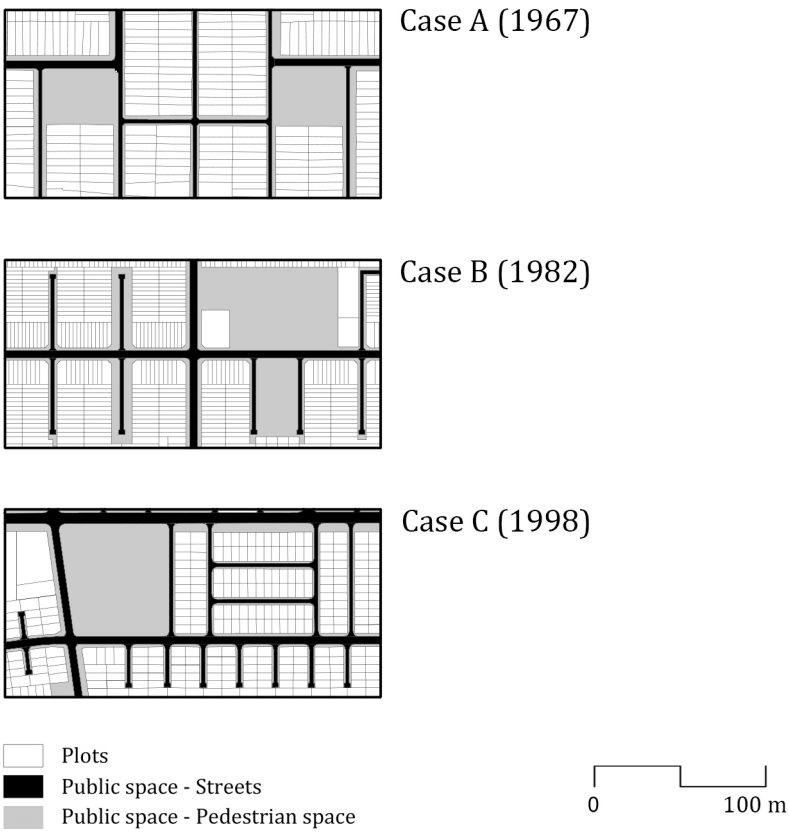
(1) '[Look everywhere] is a requirement [to walk] here, is an issue that I pass to my children. For instance, when my son leaves to school in the morning, he must watch in every direction, then, he must do this and that [referencing different techniques to examine the streets taught by her]. I have always told them [her sons]: when you walk… you have to look carefully who is walking around.' (middle-aged female, Case C)

4. 4. 1. Walking thought fragmented territories

Of the studied cases, two (cases B and C respectively in Figure 1) have a 'fishbone scheme' in which a few points give access to large portions of the neighbourhoods. Cul-de-sacs, long and narrow streets, squares with few entrances were part of strategies to maximise the profitable land and, therefore, are abundant in these two cases. Many of these narrow streets and cul-de-sacs are currently gated because of the efforts of organised neighbours, the belief that fences can create a controlled and safe environment, and due to urban layouts that facilitate this type of territorial delimitation (e.g. a few entrances to gate and little disruption on the transit of those who live outside). Streets that have remained open are equally described as territorial enclaves as, from the point of view of the participants, there is no reason to enter into a place like a cul-de-sac if not residing there. There is a strong dichotomy between enclaves and the public space outside in the neighbourhoods that display this fishbone layout. Participants tend to develop their lives and build familiarity inside the gates, evading the public space outside which have become more and more strange.

Figure 1. Urban layout of the cases of study.

Source: authors' own.



With the exception of Case A (Figure 1), public facilities, like schools or health centres, or street markets are normally sited on located around and rarely inside the neighbourhoods. Furthermore, despite the city being well-covered by public transport, the intricate urban layout of the neighbourhoods and the width of the streets impede the circulation of services inside; being these restricted to bordering streets and avenues. Participants argue that due to the lack of facilities and services they do not expect to find other pedestrians but residents during the moments in which there are valid reasons to be outside. In a context in which the public space is generally perceived as unattractive (Figueroa *et al.*, 2019), this means individuals commuting or completing other regular journeys (e.g. children going or leaving school) in the morning (~7:00 am to ~9:00 am) and late in the afternoon (~5:00 pm to ~8:00 pm). Outside these two moments, participants feel afraid of those who potentially could be encountered in the public space and less capable and entitled to walk. As many participants expressed during the walking interviews, they are afraid to walk outside the enclaves provoked by the urban form or even leave their houses:

(2) 'In general that [people conversing] can happen here, in the streets [referencing a cul-de-sac]. For the same reason, they were gated. To have, as mums, more security that nothing will happen to our children inside the gates' (middle-aged female, Case C)

Having ties tends to modify frontiers and decrease fears towards the outside; easing walking if the social network is rich and disperse and hindering it if the known persons are a few and live concentrated in a small area. Nonetheless, like other studies of socially fragile neighbourhoods have reported (Link *et al.*, 2017), extended and diverse networks are exceptional. Many participants trust only in the persons living in the adjacent plots or those residing inside the gates, thus leaving a few places where they do not feel as invaders (when walking through someone else's territory) or being invaded by others (when someone enters into my intimate territory).

This represents a challenge to those who are afraid of the outside or are perceived by others as unskilled individuals unable to manage the narrow line dividing the behaviours that can trigger an incident from those that can prevent it. In participants' view, know when and how modify the pace and the path, make eye contact or not with a stranger, seek for alternative routes, among other tactics, gestures and attitudes are key competencies not fully polished in children and adolescents, weakened in older persons or simply not enough in individuals with dependants (like toddlers) or those who had traumatic experiences (e.g. violent attacks). Facing this, some participants have restricted their journeys to what they consider absolutely necessary and have become less mobile. Meanwhile, other participants often require the assistance of close acquaintances to perform the trips like this excerpt of a mother shows:

(3) 'For instance, if he [her son] leaves at 8:00 pm [from the workplace], he arrives here at 9:30. At that time I come to meet him [at the bus stop]. Now, if he leaves at 4:00 pm and arrives here at 5:30, at that time I don't go either to meet him nor to accompany him [to the bus stop].

[…] He calls me from there [his workplace] «mom, I'm leaving». And then I have to calculate the hour when I have to be at the bus stop.' (older female, Case C)

The son of this participant goes across a walkable territory during daylight hours, but the night redraws the boundaries of that secure area, reducing its extent only to the street where he resides. Unable to walk alone during the night, the young male needs the assistance of her mother to complete the trip from/to his workplace. As he was recommended not to use the mobile on the bus neither at the bus stop due to a high perception of insecurity, the success of the accompanied trip lies with the mother. She calculates the travel times of her son to be at the bus stop at the right time without waiting and exposing herself in the public space more than needed.

The mother adjusts her routine to accompany her son, reflecting a common issue among the participants of this study: an individual forced to stay at home to make viable the lives of other members of his/her group. In a gendered role, these 'supporting individuals' are often mothers or young women who are a company

when walking, synchronise times to successfully encounter others and are always available for those with different needs (e.g. elders) or perceived as less skilled (e.g. children, adolescents). This means travel less, suppress those trips that are considered less crucial (e.g. visit acquaintances), be unemployed or sub-employed because of Santiago's urban structure that requires long trips to reach acceptable jobs. These individuals tend to be more isolated and experience more the acute fragmentation of the neighbourhoods where they live.

4. 4. 2. Walking among strangers and peers

Participants perceive social deterioration in the neighbourhoods where they live and walk. They describe a 'staged invasion' which, first, increased the number of strangers in the public realm, second, interrupted the familiarity constructed over the years with the faces of those who frequented the neighbourhoods as part of their routine, third, transformed the characteristics of known places and, lastly, pushed the locals away from the public space:

(4) 'Sometimes there are [strangers], they are not from here because we know most of the people. And when you see people who are not from here, always something happens, people are mugged. Even delivery trucks have been robbed… They are different… They look to the houses and one immediately notices… They walk… slowly… looking… [interview interrupted]' (older female, Case C)

The arrival of a stranger who was just standing in the square interrupted the walking interview. This participant started to feel uncomfortable and nervous with his presence and requested to walk closer to her home, in a gated street. Later, she explained that a dangerous individual behaves exactly like the stranger who arrived: they tend to stay in the public space, either looking for opportunities to commit robberies or protecting the territories of drug dealers.[2]

Participants tended to profile as potential wrongdoers those who do not fit in the expected behaviour of a residential neighbourhood which, as mentioned earlier, means individuals walking mostly in the morning and afternoon rush hours, at a constant pace and stopping only by justified reasons (e.g. talk with neighbours). Like other authors have documented (Saraví, 2004; Sabatini and Wormald, 2013), this profiling seems to reflect the inner fragmentation of the communities that inhabit deprived areas. The division between those who have followed the traditional paths of social mobility, have abandoned the local space, have cut ties with the local

2 This is complemented by cultural constructions that link certain expressions (e.g. idioms, informal tenses and pronunciation of certain letters), dress codes (e.g. loose clothes) and manners (e.g. over-gesturing) with criminal activity.

community and have constructed their everyday life outside their neighbourhoods of residence, and those who, suffering from the lack of opportunities, are stuck on the margins and have fallen into drugs or other illicit activities. In participants' narratives, the public space epitomises the 'culture', habits and conflicts of those who were left behind. Like the female quoted above (quotation 4), many participants fear those present in the public space because staying more than usual outside or appearing in uncommon hours indicate participation in illegal activities.

In what seems to be another effect of this inner division, a group of participants tend to profile those present in the public space as 'strangers' or 'outsiders' and, hence, part of the invasion of vices described earlier. This, however, contrasts with the opinion of other participants, particularly young individuals, who argue that the social deterioration they have observed started within the neighbourhoods. Aware of the paths followed by their coevals, younger participants indicated that those commonly profiled as wrongdoers are rarely outsiders, but locals that were incapable to access the few available opportunities, have engaged in drugs and have become a risk to themselves and to others:

(5) 'I think it [the neighbourhood] has become worse, it has worsened, but I would divide the people here because there are some young individuals who are fighting. They are acquiring knowledge, and, with that, they are fighting. They are following the rules… to… to compete with those that [already] know the rules.

And then the others, the opposite of that. They want the easy things and that lead them to the drugs. The same drug that is sold next to your house. Then, everything is consumed, their "soul" is gone.' (young male, Case A)

Participants avoid walking during those moments in which they expect to encounter strangers in the public space (i.e. before 7:00 am and after 10:00 pm) and increase precautions in other unusual hours like the afternoon (after 2:00 pm). Especially early in the morning, when walking is a requirement to reach facilities, bus stops, and in the night, for those who return from jobs distant jobs or work in night shifts, a number of participants rely on the company of others as explained earlier. In the absence of a third person, other participants have developed strategies to walk virtually accompanied by, for instance, dialling close relatives:

(6) 'When I'm leaving my workplace [in the night], I have to cross an empty place, surrounded by two, three houses and with few people [walking]. Then [I call my partner] and I tell him "I'm walking". I hide the mobile but turned on, so he's listening in case something [happens] until I reach the bus stop.' (young female, Case B)

Figure 2. Public spaces in deprived areas of Santiago.

Source: authors' own.

Furthermore, the territorialisation of the expected patterns of strangers and outsiders have led to the creation of detours to avoid places where these apparently gather or clash (i.e. frontiers between groups in conflict). Participants prefer to walk over alternative routes if that decreases the exposition to potential risks. Having no safe alternatives, a few participants take taxis or buses to cover walkable distances or change routes constantly to not reveal their routines and avoid premeditated ambushes. Meanwhile, other participants, mostly males, rely on their ability to identify 'peers' among those present in the public space. To find safety in complex territories and have camouflage in front of those that can cause harm, these participants explained that they adjust the pace, calculate walking distances, establish non-verbal communication and make eye contact with those considered peers.

4. 4. 3. Signifying the built environment to find safety

Observed on-site and depicted in the interviews, the public space of the studied neighbourhoods exhibits a high level of physical degradation. Participants describe this as the concluding—or late—stage of the deterioration of the social structures. It is explained as the result of receding communities, which have let their spaces to fall in deterioration, or antisocial groups, that have vandalised and demarcated the public property to decrease the attractiveness of the public space and create the proper conditions for drug consumption or trafficking. Places like those depicted in Figure 2 were often pointed out as risky public spaces where there is a high chance to encounter wrongdoers due to the high level of deterioration and neglect and the low permeability of the facades around.

The parallelisms between social and physical structures have been translated into an intricate system of cues and signs to infer risks. As reported by Figueroa *et al.* (2019), a high level of deterioration in the streets and the presence of over-fortified

houses are linked with unsafe places to walk. Due to the underinvestment in their neighbourhoods, participants consider the State an absent actor and couple the deterioration of the public space with weakened communities that are unable to keep their spaces in good conditions. Fortified houses represent fearful individuals that need to seek protection from a public space controlled by wrongdoers and drug trafficking. Like the cues to deduce the social qualities of the places described by Koskela and Pain (2000), vandalism and territorial demarcations are pointed out as signs of the occurrence of potentially harmful activities. In the participants' narratives, vandalism and demarcation are mostly present in places where conflicts occur often.

The existence of that repertoire of cues and signs give some certainty to pedestrians to identify potential risks in unfamiliar places or understand the dangers in their own neighbourhoods. However, it also compels pedestrians' actions:

(7) 'When you walk to San Francisco [a nearby avenue], the environment is tense. You feel the air… like heavy… odd. The fact that you have to cross that part [a housing estate of apartment blocks] puts you on alert to everything. Then, when you move away, you are more relaxed.' (young male, Case B)

Like this male who is more anxious and aware of the surroundings when walking through a deteriorated, vandalised and impermeable housing estate of apartment blocks similar to Figure 2 (right), participants reported that they constantly adapt their behaviour when approaching or crossing places that exhibit unfavourable physical features. To broaden visual angles, participants reported that, despite the risks of traffic, they walk on the roads and switch sidewalks anywhere. To have more time to manoeuvre if needed, they slow their pace down and circulate far from the fences. To avoid demarcated squares, participants skirt their centres and walk on bordering sidewalks. To be less visible, they walk faster and avoid eye contact. Moreover, the presence of individuals near or in hostile places or even distant silhouettes trigger equivalent actions as, due to this construction that link the social qualities of the places with their physical arrangement, there is a high chance that they are wrongdoers.

4. 5. Conclusions

This article aimed to explore how the interactions between the built environment and various social processes affect pedestrians' experiences and make walking a complex chore. Coinciding with the arguments developed by Næss (2015; 2016), the built environment was commonly tied to the social architecture of the neighbourhoods. A visible consequence of the various social processes that take

place in the neighbourhoods and a key part of the numerous narratives that frame the practice of walking.

In a macro level, an intricate urban layout seems to favour the territorial fragmentation of the neighbourhoods; intensify perceptions of being an invader and, in a context of weak communities and compact social networks, strengthen dichotomies. As many participants living in gated streets or in territorial enclaves stated in the interviews, walking 'outside' represents a risk per se. Furthermore, that intricate urban layout, the absence of public facilities inside the neighbourhoods and the general unattractiveness of everyday places collaborate in the delimitation of the moments of the day in which is considered 'normal' to be in the public space. From the participants' perspective, there is no reason to walk in a residential neighbourhood unless it is needed to go and return from jobs and schools early in the morning and late in the afternoon. Walking in different hours was considered unusual and was described as an inherently risky act as it increases the chances to face deviant individuals.

Reflecting on the division between those that engage in drugs and the rest described by Saraví (2001) and Sabatini and Wormald (2013), participants expressed fear towards what does not fit into the expected patterns. The emergence of the 'unusual' was described as a direct consequence of the social deterioration they have witnessed in their neighbourhoods and a clear sign of involvement in illicit activities. To decrease risks, pedestrians pointed out that they avoid places where individuals stay more than usual, appear in strange hours or are apparently doing nothing. Having no feasible detours available, other participants indicated that they are able to walk relying on their ability to rightly discriminate peers from wrongdoers. In all these cases, walking is delimited by a combination of environmental features (e.g. intricate layout, absence of facilities) and social processes (e.g. fragmentation of the local communities) that separated what is believed to be normal from what is considered deviant and dangerous.

In a micro level, the social deterioration that participants described tended to be mirrored in the built environment. Like the cues for risks outlined by Koskela and Pain (2000) and Figueroa *et al.* (2019), participants of this study infer from the built environment the social qualities of the places an adjust walking accordingly. A high level of deterioration in the public space and over-fortified houses bordering it were linked with weakened communities and places that are controlled by wrongdoers. Meanwhile, vandalism and territorial demarcations reflect territorial conflicts. The data showed that this signified built environment plays a key role in pedestrians' perceptions of the surroundings; increasing fears and prompting changes in pedestrians' patterns of action if the built environment indicates unfavourable or hostile conditions.

Somehow supporting the conclusions reached by Adkins *et al.* (2017), individuals living in Santiago's deprived neighbourhoods tend to walk no matter the environmental conditions. However, participants' accounts show that this often means that walking is the only feasible option to reach buses, facilities and jobs and the built environment is just one of the many difficulties they have learnt to negotiate to have a relatively functional life. To be able to walk, individuals in deprived neighbourhoods have learnt to negotiate urban layouts that strengthen the strangeness, constructs of normality that augment fears and physical features that mirror the social complexities of their neighbourhoods. In this study, coinciding the findings of Bostock (2001) and Benediktsson (2018), walking was largely represented as an unpleasant experience and the built environment as the tangible expression of the multiple disadvantages affecting Santiago's deprived neighbourhoods.

Lastly, the improvement of the built environment can ease walking. Measures to counteract deterioration, vandalism and territorial demarcation can alleviate fears and better the everyday experience. However, the effective protection and promotion of walking in deprived neighbourhoods require further efforts; multidimensional strategies to redraw territories, reconstruct social structures and redress the roots of the drawbacks that are epitomised in the built environment and embodied through walking.

Acknowledgements

This article was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the first author.

References

Adkins, A., Makarewicz, C., Scanze, M., Ingram, M. and Luhr, G. 2017. Contextualizing walkability: do relationships between built environments and walking vary by socioeconomic context? *Journal of the American Planning Association*, 83(3), pp.296-314.

Akyelken, N. 2013. Development and gendered mobilities: Narratives from the women of Mardin, Turkey. *Mobilities*, 8(3), pp.424-439.

Alcaíno, P. and Gutiérrez, P. 2005. *Santas o Mundanas: Paradojas y coerciones en el consumo de las mujeres*. Fundación Instituto de la Mujer.

Andrews, G., Hall, E., Evans, B. and Colls, R. 2012. Moving beyond walkability: On the potential of health geography. *Social Science & Medicine*, 75(11), pp.1925-1932.

Ball, M. 1986. The built environment and the urban question. *Environment and planning D: Society and Space*, 4(4), pp.447-464.

Banerjee, U. and Hine, J. 2014. Identifying the underlying constructs linking urban form and travel behaviour using a grounded theory approach. *International Journal of Environmental Science and Technology*, 11(8), pp.2217-2232.

Bauman, Z. 2000. *Liquid Modernity*. Cambridge: Polity Press.

Benediktsson, M. 2018. Where Inequality Takes Place: A Programmatic Argument for Urban Sociology. *City & Community*, 17(2), pp.394-417.

Bostock, L. 2001. Pathways of disadvantage? Walking as a mode of transport among low-income mothers. *Health & social care in the community*, 9(1), pp.11-18.

Cervero, R. and Kockelman, K. 1997. Travel demand and the 3Ds: Density, diversity, and design. *Transportation Research Part D: Transport and Environment*, 2(3), pp.199-219.

Christian, H., Bull, F., Middleton, N., Knuiman, M., Divitini, M., Hooper, P., Amarasinghe, A. and Giles-Corti, B. 2011. How important is the land use mix measure in understanding walking behaviour? Results from the RESIDE study. *International Journal of Behavioral Nutrition and Physical Activity*, 8(1), p.55.

Cleland, V., Timperio, A. and Crawford, D. 2008. Are perceptions of the physical and social environment associated with mothers' walking for leisure and for transport? A longitudinal study. *Preventive Medicine*, 47(2), pp.188-193.

Demerath, L. and Levinger, D. 2003. The social qualities of being on foot: A theoretical analysis of pedestrian activity, community, and culture. *City & Community*, 2(3), pp.217-237.

Ducci, M. 1997. Chile: el lado obscuro de una política de vivienda exitosa. *EURE*, 23(69), pp.99-115.

Edensor, T. 2000. Walking in the British countryside: reflexivity, embodied practices and ways to escape. *Body & Society*, 6(3-4), pp.81-106.

Ewing, R. and Cervero, R. 2010. Travel and the built environment: A meta-analysis. *Journal of the American planning association*, 76(3), pp.265-294.

Figueroa, C. and Forray, R. 2015. Movilidad femenina: los reveses de la utopía socio-espacial en las poblaciones de Santiago de Chile. *Revista de Estudios Sociales*, (54), pp.52-67.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2018. Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile. *Journal of Transport Geography*, 67, pp.102-109.

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2019. Walking through deprived neighbourhoods: Meanings and constructions behind the attributes of the built environment. *Travel Behaviour and Society*, 16, pp.171-181.

Fossey, E., Harvey, C., McDermott, F. and Davidson, L. 2002. Understanding and evaluating qualitative research. *Australian and New Zealand journal of psychiatry*, 36(6), pp.717-732.

Frank, L., Sallis, J., Saelens, B., Leary, L., Cain, K., Conway, T. and Hess, P. 2010. The development of a walkability index: application to the Neighborhood Quality of Life Study. *British journal of sports medicine*, 44(13), pp.924-933.

Geels, F. 2010. Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research policy*, 39(4), pp.495-510.

Harada, T. and Waitt, G. 2013. Researching Transport Choices: The Possibilities of 'Mobile Methodologies' to Study Life-on-the-Move. *Geographical Research*, 51(2), pp.145-152.

Hidalgo, R. 2005. La vivienda social en Chile y la construcción del espacio urbano en el Santiago del siglo XX. *EURE*, 31(93), pp.108-112.

Hodgson, F. 2011. Structures of encounterability: space, place, paths and identities. In: Grieco, M. and Urry, J. (eds). *Mobilities: new perspectives on transport and society*. Surrey: Ashgate Publishing Ltd, pp.59-86.

Hodgson, F. 2012. Everyday connectivity: Equity, technologies, competencies and walking. *Journal of Transport Geography*, 21, pp. 17-23.

Horton, J., Christensen, P., Kraftl, P. and Hadfield-Hill, S. 2014. 'Walking… just walking': how children and young people's everyday pedestrian practices matter. *Social & Cultural Geography*, 15(1), pp.94-115.

Ingold, T. 2011. *Being alive: Essays on movement, knowledge and description*. London: Routledge.

Ingold, T. and Vergunst, J. 2008. *Ways of walking: Ethnography and practice on foot*. Aldershot: Ashgate.

Jensen, O. 2009. Flows of meaning, cultures of movements–urban mobility as meaningful everyday life practice. *Mobilities*, 4(1), 139-158.

Jones, P., Bunce, G., Evans, J., Gibbs, H. and Hein, J. 2008. Exploring Space and Place With Walking Interviews. *Journal of research practice*, 4(2), p.D2.

Kaztman, R. 2007. La calidad de las relaciones sociales en las grandes ciudades de América Latina: viejos y nuevos determinantes. *Pensamiento iberoamericano*, (1), pp.177-205.

Koskela, H. and Pain, R. 2000. Revisiting fear and place: women's fear of attack and the built environment. Geoforum, 31(2), pp.269-280.

Kusenbach, M. 2003. Street phenomenology: The go-along as ethnographic research tool. *Ethnography*, 4(3), pp.455-485.

Link, F., Mora, R., Greene, M. and Figueroa, C. 2017. Patrones de sociabilidad en barrios vulnerables: dos casos en Santiago, Chile. *Revista Bitácora Urbano Territorial*, 27(3), pp.9-18.

Lorimer, H. 2011. Walking: new forms and spaces for studies of pedestrianism. In: Cresswell, T. and Merriman, P. (eds.) *Geographies of mobilities: Practices, spaces, subjects*. London: Routledge, pp. 31-46.

Mason, J. 2002. *Qualitative Researching*. Second ed. London: Sage.

Matos, F. 2008. Walking and rhythmicity: Sensing urban space. *Journal of Urban Design*, 13(1), pp.125-139.

McFarlane, C. 2011. *Learning the city: knowledge and translocal assemblage*. Chichester: John Wiley & Sons.

Middleton, J. 2009. 'Stepping in time': walking, time, and space in the city. *Environment and Planning A*, 41(8), pp.1943-1961.

Middleton, J. 2018. The socialities of everyday urban walking and the 'right to the city'. *Urban studies*, 55(2), pp.296-315.

Næss, P. 2015. Built environment, causality and travel. *Transport reviews*, 35(3), pp.275-291.

Næss, P. 2016. Built environment, causality and urban planning. *Planning Theory & Practice*, 17(1), pp.52-71.

Ogilvie, D., Foster, C., Rothnie, H., Cavill, N., Hamilton, V., Fitzsimons, C. and Mutrie, N. 2007. Interventions to promote walking: systematic review. *BMJ*, 334(7605), p.1204.

Pooley, C., Horton, D., Scheldeman, G., Mullen, C., Jones, T. and Tight, M. 2014. 'You feel unusual walking': the invisible presence of walking in four English cities. *Journal of Transport & Health*, 1(4), pp.260-266.

Rapoport, A. 1990. *The meaning of the built environment: A nonverbal communication approach*. University of Arizona Press.

Rodríguez, A. and Sugranyes, A. 2004. El problema de vivienda de los "con techo". *EURE*, 30(91), pp.53-65.

Rodriguez, A., Rodriguez, P., Saborido, M., Segovia, O. and Mires, L. 2014. Visible and invisible violence and inequality in neoliberal Santiago. *Environment and Urbanization*, 26(2), pp.359-372.

Sabatini, F. 2000. Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial. *EURE*, 26(77), pp. 49-80.

Sabatini, F. and Wormald, G. 2013. Segregación de la vivienda social: reducción de oportunidades, pérdida de cohesión. In: Sabatini, F., Wormald, G. and Rasse, A. (eds.). *Segregación de la vivienda social: ocho conjuntos en Santiago, Concepción y Talca*, *Santiago*. Santiago, Chile: Colección Estudios Urbanos UC, pp.15-31.

Saraví, G. 2004. Segregación urbana y espacio público: los jóvenes en enclaves de pobreza estructural. *Revista de la CEPAL*.

Saelens, B. and Handy, S. 2008. Built environment correlates of walking: a review. *Medicine and science in sports and exercise*, 40(7 Suppl), p.S550.

Sharmeen, F. and Timmermans, H. 2014. Walking down the habitual lane: analyzing path dependence effects of mode choice for social trips. *Journal of Transport Geography*, 39, pp.222-227.

Sheller, M. and Urry, J. 2003. Mobile Transformations of 'Public' and 'Private' Life. *Theory, Culture & Society*. 20(3), pp. 107-125.

Spinney, J., Aldred, R. and Brown, K. 2015. Geographies of citizenship and everyday (im)mobility. *Geoforum*, 64, pp.325–332.

Stefansdottir, H., Næss, P. and Ihlebæk, C. 2019. Built environment, non-motorized travel and overall physical activity. *Travel Behaviour and Society*, 16, pp.201-213.

Wang, H. and Yang, Y. 2019. Neighbourhood walkability: A review and bibliometric analysis. *Cities*, 93, pp.43-61.

Chapter 5

Walking through deprived neighbourhoods:
meanings and constructions behind the attributes of the built environment

This chapter has been published in Travel Behaviour and Society as:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. 2019. Walking through deprived neighbourhoods: Meanings and constructions behind the attributes of the built environment. *Travel Behaviour and Society,* 16, pp. 171-181.

Abstract

Existing research on relations between the built environment and walking has mostly focused on people's propensity to walk through a given area. Little work has investigated how people's experience of walking is mediated by their reading of how elements of the built environment confer social indications such as safety or threat, territoriality or community. Still less research has focused on walking through deprived areas.

The research reported here begins to redress this absence by exploring how and why aspects of the built environment influence the experience of walking by those who live in disadvantaged neighbourhoods of Santiago de Chile. Mixed qualitative methods, including mobile interviews with residents, researcher observation and mapping were used to explore experiences of walking in three housing estates in Santiago.

The findings reveal that residents' perceptions of safety or danger are shaped by the presence of deterioration of buildings and public space, territorial demarcations, the features of the borders of public space and the urban form. Those features are used to identify risks, are signified through personal experiences, knowledge and social constructions and induce changes on pedestrian trips that can be slight, by altering attitudes towards certain places, or profound, by involving adjustments on everyday routes.

Highlights

» Provides an analysis of the relationship between the built environment and walking.

» Analyses deprived neighbourhoods using walking interviews, mapping and observation.

» Suggests that the relevant aspects of the built environment are those signified.

» Reveals that the built environment can induce slight and profound changes on walking.

Keywords: walking, deprived built environments, walking interviews, deterioration, territorialities, public space.

5. 1. Introduction

Walking is a unique mode of transport; with features that set it apart from other transport modes. It is an emotional habit in which the act of going on foot shapes time (Middleton, 2009); a skill learnt during childhood in a relational context (Ingold, 2011; McFarlane, 2011); a recurring behaviour constructed by experience and delimited by performative norms, conventions and values (Edensor, 2000; Matos, 2008; Sharmeen and Timmermans, 2014). Walking is a sensual practice immersed in the multiple temporalities of everyday lives; it entails an intense social interaction and its exercise permits the access to the public space and to all the possibilities that it grants (Bauman, 2000; Hodgson, 2011; Matos, 2008; Sheller and Urry, 2003; Zukin, 1995). Walking is in interaction with the built environment which comprises "all physical features of the urban landscape [...] that collectively define the public realm" (Cervero and Kockelman, 1997: 200).

This paper explores how and why aspects of the built environment influence the experience of walking in deprived neighbourhoods of Santiago de Chile. It seeks to understand how those who have little or no other mobility option available experience walking, and alter the journeys they make in response to their interpretation of visible features of the built environment as indicating or even presenting risks, or as indicating social cohesion and relative safety.

The article builds on what is still a limited body of work researching this relationship through narratives and constructions reflected on its features (Koskela and Pain, 2000; Banerjee and Hine, 2014; Figueroa and Forray, 2015; Næss, 2015). It focuses on deprived neighbourhoods because those neighbourhoods experience patterns of resource investment and under-investment that may result in specific built environments and aspects that influence the experience of walking; and because deprived neighbourhoods have received scant attention in the literature about walking (Bostock, 2001; Adkins *et al.*, 2017). In addition, the article examines Santiago de Chile, aiming to provide insights into the Latin American literature that has focused mostly on walking and its conflicts with cars (Quistberg *et al.*, 2010); perceived insecurity (Harrison and Swain, 2003; Rainero, 2006; Iglesias *et al.*, 2013; Paydar *et al.*, 2017); the qualities of the built environment (Guimpert and Hurtubia, 2018; Rossetti *et al.*, 2019), its effects on health (Gómez *et al.*, 2010) and the complementarity with public transport (Rodriguez *et al.*, 2009; Vergel-Tovar and Rodriguez, 2018).

To understand how the built environment shapes the journeys of those who walk in deprived neighbourhoods, this article reports the findings from mobile interviews (in which the researcher accompanies the participant on a "normal" journey on foot), mapping and non-participant observation carried out in Santiago.

Following this introduction, the article is structured in four sections. The first covers the literature of walking and the built environment. The second section contains a description of the issue of deprivation in the context of Santiago and the methods employed. A third section includes the main results and is organised in five subsections. Of these, the first four subsections cover aspects of the built environment and the fifth summarises strategies to walk through deprived environments. The final section contains the conclusions of this article.

5. 2. Walking and the built environment

The adverse consequences of the introduction of cars in the urban landscape, the growing suburbanization, the rampant spatial, social and even racial segregation, among other changes suffered by the cities of the middle of the past century, put in evidence the close relationship between the qualities of the urban space and its life. The critical account of Jacobs (1961) highlighted the effects of the permeability of the public space on public activities. How permeable places promote the creation of natural guards of the public space, strengthen local communities, increase the diversity of encounters and public activities, among others. Lynch (1960) emphasised the abstraction process in which people symbolise notable features to comprehend their territories. Gehl (1987) and Appleyard *et al.* (1981) started to trace guidelines to design public spaces at a "human scale". Others, like Newman (1972), Whyte (1988), Jacobs (1995), raised similar concerns about the intricate relationship between the public realm, its activities, and the physical features that define it.

Many of those approaches inspired public policies (like the "Broken Windows" theory implemented in New York through zero-tolerance policies, *see* Kelling and Coles, 1996), influenced the production of urban spaces (like Newman's "defensible space" and the proliferation of gated spaces *see* Aalbers, 2003; Grant and Mittelsteadt, 2004; Blandy, 2007) and encouraged urban agendas which shaped new developments (like "New Urbanism", which sought to emulate the features of traditional cities in American suburbs, *see* Calthorpe, 1993; Katz *et al.*, 1994) and reconfigured old neighbourhoods.

Seeking to identify the impact of those theories, the pioneering study by Cervero and Kockelman (1997) comparing suburban neighbourhoods and those designed under New Urbanism paradigms found that three aspects of the physical environment (density, diversity/land use and design, the 3Ds) can promote pedestrian trips and decrease the use of private transport. According to the evidence gathered in their study (travel data, surveys), the influence of the 3Ds on walking is differential (diversity has the highest, followed by design and density) and more noticeable in pedestrian-friendly planned neighbourhoods, like those produced by the New Urbanism, than regular suburbs. This evidence suggesting a correlation between the

built environment and walking informed a now large body of literature (*see* Owen *et al.*, 2004; Sealens and Handy, 2008) which replicated the approach of Cervero and Kockelman—and grounded its inquiries on the assumption that particular aspects of the built environment can alter the "metrics" of walking (e.g. length, frequency of the journeys).

By combining density, connectivity, and land use measures in a "walkability index", Frank *et al.* (2010) suggest that low-density and single-use neighbourhoods can be less conductive to walking. Cleland *et al.* (2008) found that the availability of alternative routes, measures to slow down traffic and the quality of local facilities can predict increases in walking. Christian *et al.* (2011) found that walking had a significant association with a more diverse range of land uses. Whereas to Sehatzadeh *et al.* (2011), the built environment can influence car ownership and, therefore, can have a role in the replacement of pedestrian journeys by motorised trips.

Despite being successful in demonstrating the influence of the built environment on walking, the findings of those studies have been contested. This has prompted challenges to the interpretations given to data gathered, and further challenges to the suitability of the data and the methods used to collect that data as means of investigating walking (Banerjee and Hine, 2014; Lindelow *et al.*, 2014). It has been argued that studies which show highly aggregated results, can neglect particularities thus producing ambiguous outcomes. As Gallimore *et al.* (2011) claim, a neighbourhood which is for the most part walking-friendly can still hide hostile pockets which, located at key points, can inhibit journeys.

Different interpretations of the variables can also lead to misleading findings. For instance, Sehatzadeh *et al.* (2011) link density with constraints to accommodation of cars (i.e. lack of parking spaces), fewer cars and, therefore, more tendency to walk. Gallimore *et al.* (2011) associate the same issue with more traffic congestion and more barriers for walking (e.g. insufficient pedestrian crossings). The influence of density—or any other feature—on walking can largely depend upon what version of "density" is being considered.

Kamphuis *et al.* (2010) criticise the direct correspondence drawn between the built environment and how individuals perceive it. According to these authors, the built environment and its perception are often considered as equivalents despite the correlation between both being "moderate" in the most optimistic scenario. Even objective features of the built environment (i.e. density, land use) may have diverse implications depending upon personal experiences, gender, age, to name a few (Lamíquiz and López-Domínguez, 2015; Van den Berg *et al.*, 2016; Adkins *et al.*, 2017).

The complex temporal and spatial patterns of the everyday life can also modify findings. Time geography perspectives point out that journeys fixed in time and space (e.g. trips to the school or work) can have a "low" correlation with the built environment (Lindelöw at al., 2014; Shen *et al.*, 2015; Schwanen *et al.*, 2008). Likewise, those who have few—or no—options available can also exhibit a low impact of the built environment on the traditionally measured aspects of walking like length. In those cases, journeys must be completed regardless of the conditions of the environment.

The low or inexistent correlation has somehow obscured the effects of the built environment on other dimensions of pedestrians' experiences or on those who walk in fragile conditions. Bostock (2001) shows that low-income mothers walk to open space in the budgets at the cost of pressuring routines already constrained by the care of children, restricting the resolution of needs to the services located within walkable distances (Bostock, 2001). Other authors statistically linked pedestrian journeys through neglected environments with higher perceptions of crime (Mason *et al.*, 2010). Meanwhile, in the case of Latin America, the question of how those who walk by necessity rather than choice interact with the built environment remains as an under-researched field (Gutiérrez and Rearte, 2006). The few available works about walking emphasise the complex strategies people adopt to travel and cross dangerous places (Landon, 2013; Figueroa and Forray, 2015).

Finally, a number of studies have recognised the built environment as a complex phenomenon which can be socially-constructed—and have provided novel insights to inquire on its complex relationship with walking (Koskela and Pain, 2000; Banerjee and Hine, 2014; Næss, 2015; Stefansdottir *et al.*, 2018). Stefansdottir *et al.* (2018) triangulated quantitative and qualitative methods to understand the relationship of the built environment with walking and cycling. Using qualitative techniques, Banerjee and Hine (2014) interpreted the impacts of the urban form on travel in the context of the political history of Northern Ireland. The built environment shapes travel behaviour by reflecting the political history on its features. Koskela and Pain (2000) analysed the built environment of Helsinki and Edinburgh to understand women's fear of crime and challenged traditional approaches which separate it from other social processes. In their findings, the built environment is meaningful, highly contextual, constructed on accumulative experiences and is used as a "cue" to deduce the social qualities of the places (e.g. presence of people). Instead of a "passive backdrop to other social processes" (Ball, 1986: pp. 447), these works interpret the built environment as a dynamic construct—which influences and is influenced by the society.

5. 3. Overview of Santiago de Chile

With more than 6.5 million people, Santiago de Chile is one of the largest metropolitan areas of Latin America. Due to robust public policies, the distribution of urban services like drinkable water, electricity, sanitation is universal (WHO, 2017) and the population living in irregular settlements was drastically reduced to less than 2% (Techo-Chile, 2016). All the neighbourhoods of the city have squares or parks and continuous footpaths bordering paved roads (Greene *et al.*, 2017). Meanwhile, a dense network of bus services and train lines facilitates the 13,7 million trips (74% of the total) which are daily performed in public transport, bicycles or walking (SECTRA, 2012). All evidence pointing to the conclusion articulated by Caldeira (2017: pp. 12) that, Santiago "is no longer a precarious city".

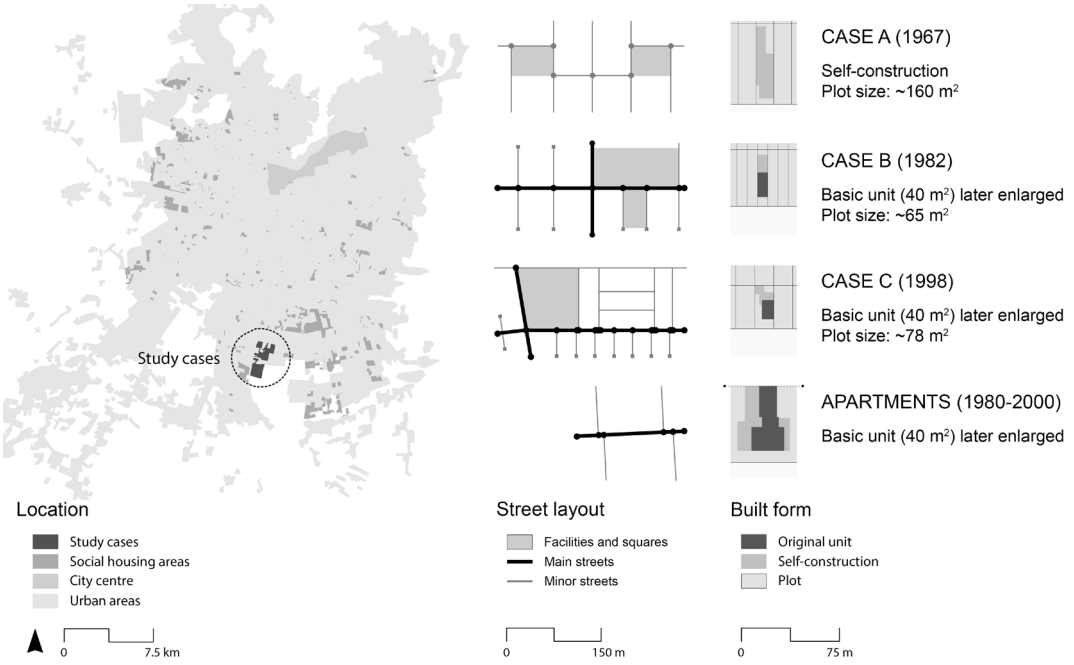
Nonetheless, the city mirrors an unequal society in which some groups are spatially, socially and symbolically displaced to marginal positions (Rodríguez and Sugranyes, 2004). "Hopeless" and with a high distrust towards the institutions; those inhabit the outskirts, in deteriorated neighbourhoods, weak communities, and in small houses, steadily enlarged with their own effort (Ducci, 1997; Rodríguez and Sugranyes, 2004; Sabatini, 2000). They travel more to reach the available services (*see* Figueroa *et al.*, 2017) and walk more through hostile environments (48% in comparison with the city average of 34,5% in SECTRA, 2012).

To extend the minimal understanding of experiences of walking in deprived areas, this article explores in depth three housing estates located in the southern periphery of Santiago. The oldest housing estate (Case A) was part of a collaborative and incremental policy (Operación Sitio) which considered a close relationship between the State and the organised communities. It started its construction in 1967 with the delimitation of plots and the construction of precarious shelters by the residents. In a long span of time, houses were self-constructed, consolidated and enlarged, occupying, if not the whole, a large portion of the plot (Figure 1). The public space and the facilities were constructed with the intermittent assistance of the State (MINVU, n.d.).

The other two cases were built in 1982 (Case B) and 1998 (Case C) under the Basic Housing Program (Programa de Vivienda Básica) which provided a basic but finished house to those who were living in irregular settlements or in the home of relatives. Case B was built during the dictatorship (1973-1989) and Case C in democracy (1990-onwards), yet both belong to policies in which the State acted as a "subsidiary agent" because its functions were restricted to the assignation of subsidies and to the definition of the framework that would guide the construction of the social housing stock by private agents. Despite not considering an incremental growth, and due to their small size of the houses (less than 40 m^2), in both cases the original units were

Figure 1. Studied housing estates of Santiago de Chile.

Source: Source: authors' own.



enlarged inside the plot. The same program of basic housing also built apartment blocks, many of which are now intervened by the State due to poor living conditions (MINVU, 2018). Arranged in smaller and denser areas, those apartment blocks are well-known territories for the residents of the three cases (Figure 1).

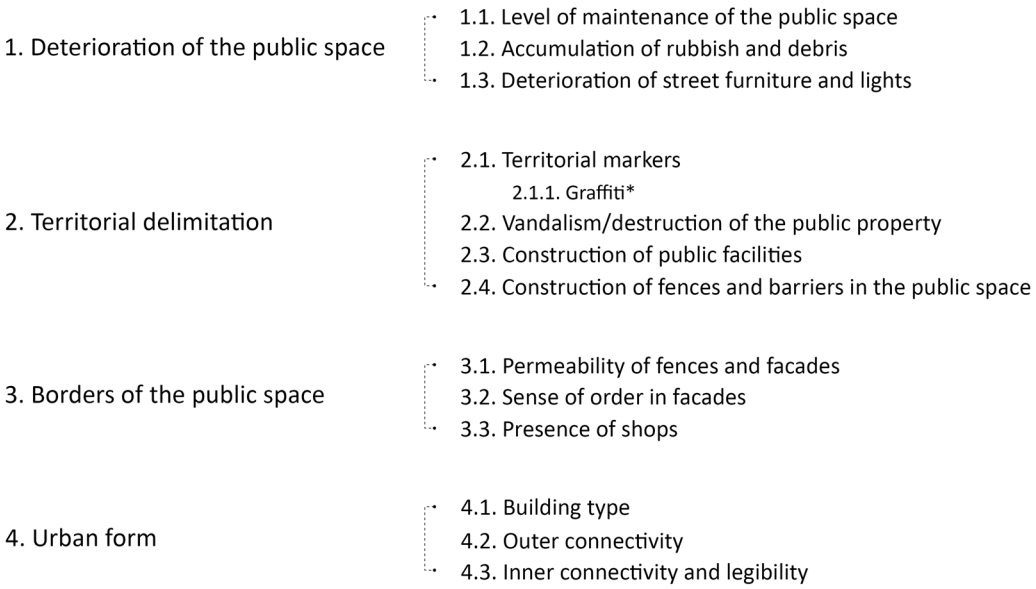
The trajectories of the cases are deeply intertwined as it was common in old housing estates (like Case A) to give shelter to rural migrants or relatives that were unable to obtain a house by their own means. In old neighbourhoods, the houses were informally enlarged until the public sector opened options for accessing affordable houses. Among the residents of the studied neighbourhoods, it is common to have lived in an old settlement (self-constructed), have ties with older relatives living in it and have acquaintances with individuals residing in newer housing estates (either blocks or houses).

Along with non-participant observation and mapping, in-depth semi-structured walking interviews were carried out in these three cases[1]. In walking interviews, participants were invited to walk in the neighbourhood where they live or visit frequently and have a guided conversation about (a) the features of the built environment to which they put attention, (b) the public activities they perform or observe, and (c) the skills used when going on foot. After walking, photographs of three places were shown to the participants to move the conversation to the experience of being a pedestrian in unfamiliar environments.

1 The number of interviews was defined according to saturation of data that started to appear in some topics after interviews 23 and 24. Gatekeepers provided the contact details of potential participants.

Figure 2. Resulting codes and categories.

Source: Source: authors' own.



* Due to the high number of times mentioned, graffiti was isolated as a sub-code of territorial markers.

As participants were recruited in three neighbourhoods, photographs depicted two cases and a fourth place, unfamiliar to all. To avoid colour biases, photographs were in greyscale and, to enrich the conversation, showed intentionally places in contrasting conditions like well-maintained squares next to piles of rubbish or a well-defined and well-lit street next to a "brown place" lacking in amenities as such. The questionnaire which guided the interviews was designed under a constructivist approach in which the reality is contextual and is constructed by participants and researchers (Geels, 2010; Mason, 2002).

Thirty-two participants were part of this research. Of them, twenty-one were female, eleven were male and ranged in age between 18 and 65 years. Nine participants were classified as young adults (between 18 and 30 years), thirteen were classified as middle-aged adults (between 31 and 50 years) and ten were older adults (between 51 and 65 years). Twelve participants resided in Case A, nine in Case B and eleven in Case C.

Attitudes, manners, spontaneous encounters and other behaviours observed when conducting the walking interviews were written down in field notes. Meanwhile, the conversations were recorded, transcribed and then analysed in a qualitative data analysis software (*NVivo* 11), assigning labels (codes) to relevant excerpts related to the built environment, activities performed in the public realm and walking skills. Those codes were later grouped into broader categories, seeking to identify ideas, relationships and omissions within the narratives developed by the participants (Berends and Johnston, 2005; Gough and Scott, 2010). Codes and categories emerged

from fields notes and transcriptions and were later refined through memos in an iterative process of revision of the data and comparison with the literature on the matters. In the case of the features of the built environment, the coding process ended with four categories and thirteen codes which are illustrated in Figure 2 and are examined in detail in the next section.

The study was reviewed by the relevant Faculty Research Ethics Committee of the University of Leeds. As confidentially and anonymity could not be assured in walking interviews, consents and information sheets contained special passages to clarify this point. To protect personal data, recordings and transcripts were pseudo-anonymised using only general identifiers (i.e. gender, age range, case study residency and familial relationship only if needed to contextualise). To preserve meanings, transcripts were kept in Spanish (the original language) during the analysis—and to exemplify the phenomena in the article some excerpts were translated into functional English.

5. 4. Reading the built environment

The findings of this study show that the built environment is interpreted by pedestrians in a dynamic process that constantly transforms the meanings and values assigned to each feature. For pedestrians, the relevant aspects vary in time (i.e. hour) and place, and, consequently, two places with similar features can have differential effects on walking due to the location in the city, the connection with other neighbourhoods, among others. This interpretation also shows a sequential scheme in which they fragment the environment into features, isolate those with meaning and infer from them the characteristics of the community, the public activities performed by its members and the potential threats. One participant exemplifies this saying:

(1) "The presence of rubbish [in the street] already tells you that the people who live there do not care much. And that leads you to the other issue, maybe… there is crime, drug addiction." (older male, Case B)

The analysis identified four categories of built environment attributes relevant for pedestrian journeys. These were: the process of decay of the public space or deterioration, interventions deliberately introduced to demarcate frontiers or territorial delimitation, the progressive consolidation of facades, fences and other elements which confine the public realm or the construction of the borders of the public space, and the features derived from the urban layout of the housing estates or urban form. According to the participants, those attributes affect in a different degree all journeys, regardless of their destinations and purposes.

5. 4. 1. Deterioration

Participants describe deterioration as an accumulative process for which the communities are primarily responsible. The State, which has been shrinking in size and retiring from the public sphere, is seen as a secondary actor that can provide facilities to keep places clean (e.g. trash cans) or support in the solution of disputed areas where there are no clear entities in charge. It is a passive agent, part of a broader narrative in which the conditions of each person lie on its own merit and not in the society and its institutions. This process is also an emotional issue related to the sense of progress of the communities—and is visible in the neglect of urban furniture and streetlights, the accumulation of rubbish and debris in public spaces and the maintenance of sidewalks, streets and green areas.

In the view of the participants, the accumulation of rubbish and debris in public spaces indicates fragmented communities, incapable of protecting their own spaces, trapped inside the houses and fearful of drug dealers and other activities that can take control of the public realm. Although participants often walk through deteriorated places located in their neighbourhoods, they explained that those places made them feel sad, frustrated and angry. In contrast, a clean environment indicates to participants the support of an organised community with strong ties between their members as this extract shows:

(2) "You normally care about what is inside your doors. Towards the outside, you don't know. [In this place] you can note that people know each other. To have a street that clean, everyone must care a little of it" (older male, Case B).

In line with the Latin American literature on crime prevention (Harrison and Swain, 2003; Rainero, 2006; Iglesias *et al.*, 2013), the lack of street lights increases the perception of insecurity. Independently of the level of maintenance, any dark place is difficult to cross because darkness reduces visibility, impedes the recognition of people from a distance and protects illicit activities. When walking, participants reported that they avoid places with grown trees when natural light is not enough and prefer to cut vegetation outside their houses if that improves visibility and secures the beginning and ending of the trips. The landscape or other benefits of trees seem less relevant.

The knowledge present in social networks also affects the values assigned to clean and well-maintained places:

(3) "There are some big trees, here in the square, and had happened that [some guys] climb on them and jump over other people." (middle-aged female, Case C)

This participant does not have any negative experience in a square, but for her that place is still dangerous to walk due to incidents heard from others. Considerations of a similar nature appear frequently in the narratives of participants who evaluate places and shape behaviours based on the experiences present within their social networks. Hiding valuable objects in clothes, paying more attention to the environment, requesting company, avoiding travel in certain hours, not looking to the sides to avoid accidental eye contact, among others, are—often gendered—patterns of action collectively constructed to walk in places with negative precedents.

Furthermore, the values assigned to the features of the built environment and patterns of action like those mentioned are transferred from well-known places to others less familiar. If a square is dangerous in "my" neighbourhood during the morning, a square in another area is equally risky at the same hour.

5. 4. 2. Territorial delimitation

Triggered by disputes between groups with different interests, territorial delimitation encompasses several deliberate alterations of the built environment. These are often located in strategic points of the neighbourhoods; points with high visibility or places that are easy to integrate into the territory of one of the groups in conflict. This process is evident in the destruction and vandalism of the public property, the introduction of territorial markers (e.g. graffiti, shoes hanging on power lines) and facilities (e.g. schools, healthcare centres) and the construction of fences to close public spaces.

Damaged play areas, urban furniture and street lights and graffitied or marked walls are common in the three studied housing estates. The damage is usually explained as the result of antisocial groups that claim the public realm to perform illegal activities by reducing its attractiveness:

(4) "Swings were installed [in the square], but they were removed [by drug addicts] and during the night kids don't come here because youngsters come to smoke a joint." (older female, Case C).

For participants, this visible damage defines the patterns of who they might encounter when walking, but also reflects the existence of tacit agreements between groups in conflict. In this regard, Case B (*see* Section 5.5.3) exhibits two contiguous squares. The smallest square is perceived by the participants to be taken over by drug traffickers due to the presence of strangers (presumed by interviewees to be dealers) and the vandalism of the public property (sports facilities are destroyed). Although nobody formally prevents the access to the square, it is perceived as a territory where pedestrians are not entitled to walk or perform any public activity.

The participants reported that the largest square is well-maintained and is commonly occupied by kids and families. Parents protect this square from dealers and consumers, and it is an available place to walk until dusk. From this moment until the morning, the largest square becomes part of a single territory together with the smallest, controlled by drug consumers and dealers. It is clear from the interviews that walking through this unified territory causes fear and anxiety; it requires additional precautions to identify risks and to find safety like this participant explains:

(5) "I leave [the house] close to six, ten minutes to six I have to go to Lo Blanco [a bordering avenue] to catch the bus. When crossing the square[s] here, I always put attention, look here and there, I have to be careful that nobody is around, nobody suspicious.

When I see someone leaving [the house], I'm more relaxed because I'm not alone anymore. [I know that person] is going to work because is carrying a bag, a backpack… because of the way in which the person behaves. Then, we're all good, we're not alone, you say that for the other person, but also for me…" (older male, Case B)

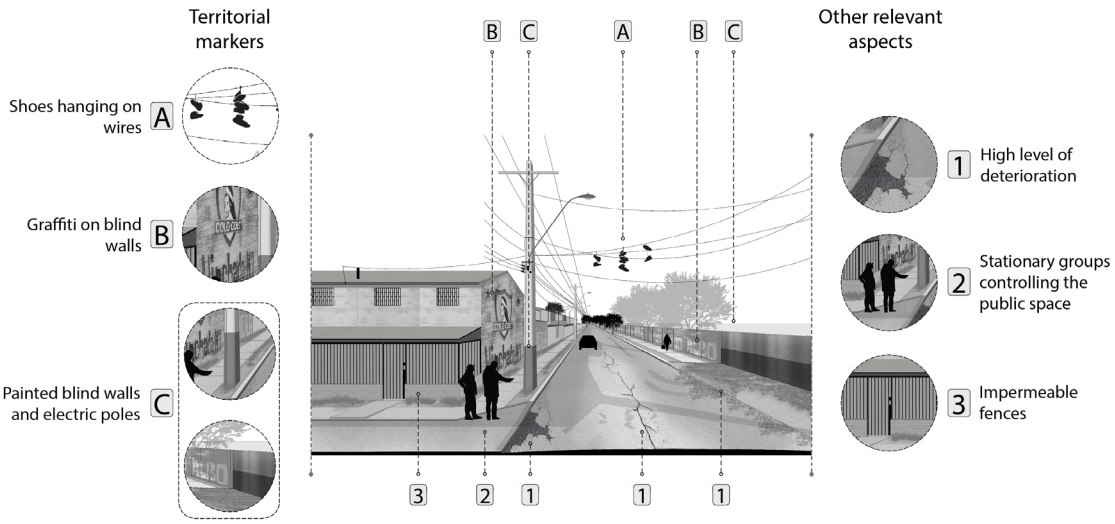
The borders of the same housing estate are also clearly demarcated (figure 3). In addition to the high level of deterioration, our observations showed that this frontier has shoes hanging on the wires, graffiti covering blind walls and light poles are painted in colours associated with gangs. During the interviews we observed stationary individuals standing at points around the border of the area. Participants reported their perceptions that these were gang members standing guard and ready to intimidate others and to get into dispute with other gang members. As participants walking in this neighbourhood explained, the latent risk of being accidentally involved in conflicts means that this highly vandalised place and others in similar conditions are perceived to be unsuitable for walking.

The vandalism of the public property and illicit activities constitutes a great concern to those who consider themselves as "people of few acquaintances". To avoid highly vandalised places, these participants reported that they suppress trips and stay at home, take buses to cover short distances, walk in the middle of the roads despite the risks of traffic or take long detours through better-known areas. However, not all those engaged in illegal activities are unknown or 'outsiders':

(6) "[I] have seen children like my kids smoking marijuana, here, outside [my house]. I go and ask to them to stop smoking because my kids can see it […]. And they never answer [aggressively] to me. I know them since they were children. [Yet] if you're an outsider and you see them, for you… they are bad guys." (middle-aged female, Case C)

Figure 3. Territorial demarcations in one housing estate.

Source: Source: authors' own.



Familiarity arose in the interviews in a number of ways. On the one hand some participants reported knowing or being familiar with those engaged in illicit activities, such as drug-taking or painting graffiti. On the other hand some reported being familiar with the signs and markers left in the street by gangs or dealers. Participants who reported that they knew individuals that made the graffiti also reported that they were less afraid to walk through places with tags or painted walls. Recognising those involved in illegal activities influenced the perception of threat, they could provide help to face potential threats, and diminished adverse repercussions of territorial delimitations on walking.

The effect of being familiar or not with the alterations in the built environment exhibits similar tendencies with territorial markers left by gangs or dealers. In familiar places, shoes hanging on power lines, flags over the roofs, memorials to gang members, among others, have minimum effect on walking because the meanings and causes are known. Markers are part of a "parallel world" that, despite sharing territories, does not represent a threat. Nonetheless, it was clear from the interviews that pedestrian trips can be affected if territorial marks are perceived to be introduced by "outsiders".

Participants in all three case studies (*see* section 5.5.3) referred to outsiders "invading" their neighbourhoods and engaging in activities such as drug trafficking or prostitution. Based on the interviews we have identified that the incursion from outsiders proceeds in two ways: a housing estate surrounded by others with different characteristics and "corroded" from its borders or the introduction of new activities and later transformation of a familiar place within the housing estate. Both are accompanied by the arrival of look-outs people ("sentries"); stationary individuals who protect drug dealers and introduce new unintelligible signs. The illegibility of

the markers increases the strangeness, since they do not fit in the local knowledge, and reduce the walkable area.

Conversely, the construction of new facilities by the State is seen by participants as a mechanism to reclaim captured places, secure spaces and promote changes that are perceived as beneficial for the public life of the neighbourhoods. Large facilities (i.e. healthcare centres) facilitate the arrival of new people and the emergence of other activities around them (i.e. street vendors); while small facilities (i.e. sports centres) also attract outsiders but in specific moments of the day or the week (i.e. tournaments). These strangers walk "calmly"; rarely stopping, and, by doing that, are perceived as positive presences. In the view of the participants, there is not a valid reason to stop a long time in a mostly residential neighbourhood. If someone does, is because he/she is looking for opportunities to commit a crime. As Jacobs (1961) and Gehl (1987) argue these good strangers add "eyes" to the streets and create safer places to walk. Like the participant quoted above (*see* quotation 5) indicates, these strangers are also passive companions to ameliorate fears and encourage perceptions of safety.

However, interventions of the State are depicted by participants as slow and bureaucratic. Instead of waiting for the State, territorial losses are compensated by some communities with the installation of fences and barriers in the public space:

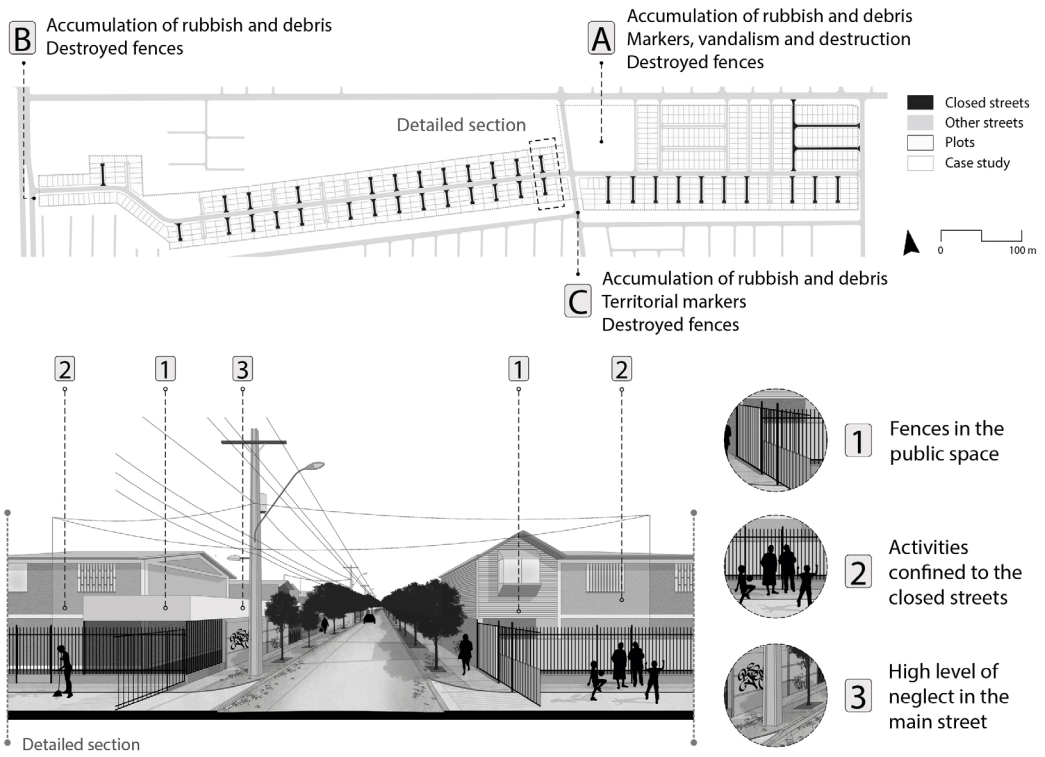
(7) "[The neighbourhood] was completely open, we didn't have fences, nothing (...). Later, [the State] built a housing estate next to ours, everything was all right, nothing happened. Then El Manzano [a nearby area] started [to be inhabited] and everything became muddy." (young female, Case C)

Echoing Newman's territorialism (1972) and its widespread influence on the production of defensible public spaces, participants believe that fences offer the opportunity to secure places. Nevertheless, studies report that residents of fenced streets feel trapped (Aalbers, 2003; Grant and Mittelsteadt, 2004; Blandy, 2007). From inside the fence they feel safe, entitled to walk and perform social activities like talk and encounter others. From the "outside the fence", they feel less competent to walk or establish complex social interactions.

Figure 4 depicts the processes of deterioration and delimitation described in the interviews in one of the studied housing estates (Case C). This neighbourhood has a "fishbone scheme" or one main street east-west with narrow streets emerging from it in the opposite direction. It has four main entrances, two in the main street and another two in a second street north-south. At the crossing of both, a big square is located. Accumulation of rubbish and debris and neglect of public property are

Figure 4. Deterioration and territorial delimitations.

Source: Source: authors' own.



present mostly in the borders of the neighbourhood. Territorial marks that seek to delimit territories are concentrated on the borders and in the entrances.

The main square (A in figure 4) is the place of several illicit activities, mostly drug trafficking, and exhibits destruction, graffiti, territorial markers and failed attempts to enclose it with fences. These unsuccessful efforts to close the square were accompanied by similar interventions in the other borders that, taking advantage of the urban form with few entrances, sought to control the invasion of foreigners (B and C in figure 4). Due to the impossibility to close the whole neighbourhood, the narrow streets were closed one by one, thus creating the only places where people feel safe enough to walk or interact in the public space for a long time.

Even though participants portray those who live "outside" as people like themselves, they do not understand the activities in public spaces, nor the meanings behind the built environment. The neighbourhood crystallises its narratives and ties inwards, making trips to the outside a complicated task. To not walk outside the fences, participants detailed strategies to restrict trips, suppress non-vital ones, travel in the company of others to cross unfamiliar places or use private transportation to depart directly by vehicle from inside the private property.

The dichotomy between being familiar or not is also stressed in the last process identified in the built environment: the collective construction of the borders of the public space. This process refers to those individual changes made inside the private

properties, in facades and fences, that collectively configure the borders of the public space.

5. 4. 3. Construction of the borders of the public space

Traditionally, the borders of the public space have been related to the natural surveillance of the spaces and the presence of eyes on the streets. Windows, doors, entrances to shops and the permeability of the facades secure public spaces and promote healthy activities in them (Jacobs 1961; Appleyard *et al.* 1981; Gehl 1987). In this study, permeable borders can indeed secure spaces, but most important, they provide a mechanism to discriminate neighbourhoods where is possible to walk safe.

The three case study areas are surrounded by housing estates also built by social housing policies. With similar architectural schemes (e.g. design, colour pattern), all those neighbourhoods are often perceived as a unique, precarious and dangerous territorial entity[2]. Nonetheless, the interventions made by the residents in their houses modify the appearance of the places, decrease the homogeneity and, therefore, collaborate in alleviating those stigmas.

As reported earlier, a better appearance is often perceived as indicating that the neighbourhoods are inhabited by "good and strong communities" (*see* quotation 1). In many of the interviews, participants reported knowing the histories of the people who live in the houses or manage shops, articulating narratives in which they assign the personal characteristics of the inhabitants to the visible features of the constructions. Houses with tidy facades, well-painted and decorated are perceived as signs of hardworking people, neighbourhoods where the opportunities to thrive exist and where drug trafficking is not dominant.

Based on the interviews we have detected that the correlation between the visible features of houses and the histories of the inhabitants is transferred as an assumption to non-familiar places to measure how threatening a specific place can be. Order (i.e. irregular expansions), permeability and harmony in facades (i.e. colour, cleanness) ease walking. Participants stressed that these features are a characteristic of places where people are not imprisoned inside the houses by fear, where residents feel entitled to use the public space and contest its control to eventual wrongdoers and, therefore, where the possibilities to face risks are low.

The opposite, apparent disorder in houses (i.e. complex building lines) and deterioration (i.e. low-quality materials) indicate the presence of people who are perceived to have hidden resources and engage in illegal activities. A similar interpretation is given to the apparent disorder provoked by illegal expansions of the

2 Participants referred to the existence of large "red areas" in which several services do not enter (e.g. postal service) and others provide a low-quality service (e.g. internet provision, public transport).

houses over the public space; those expansions evince the existence of groups who feel above the rest. Powerful enough to contravene regulations and ignore pedestrians needs if these, by any chance, interfere with their interests. Other participants raised similar concerns indicating that illegal extensions of the apartments or houses do not respect urban rules and, therefore, is expected that people who made them will not respect others. The connection goes further and links the appearance of the facades with decayed communities, incapable of advancing and overcoming deprivation.

The presence of shops is also linked to places where pedestrians are highly unlikely to encounter hostile activities: if a shop survives, it is because crime is low. Conversely, closed stores mean danger:

(8) "[Abandoned shops mean people who] tried to progress and sadly the surroundings or the location in which they were did not allow them to stay, it did not. I mean (...) if there is too much crime or many people related with micro-trafficking and stuff like that; [drug dealers] worry to scare away the people who settled there to improve [their living conditions]. And sadly, with those pressures, in place of finding progress people were scared away; they moved." (middle-aged male, Case A)

Figure 5 summarises the construction of the borders of public spaces in a housing estate where participants were willing to walk only under special circumstances (e.g. not having another option). In this complex of blocks, self-construction is highly visible. At ground level, blocks do not have shops, they are commonly surrounded by opaque fences and entrances are not easily identifiable. Those fences prevent any visibility from/to the houses and make public spaces difficult to read. "A dangerous labyrinth" is an expression often used to illustrate this place even by those participants who live or are familiar with it.

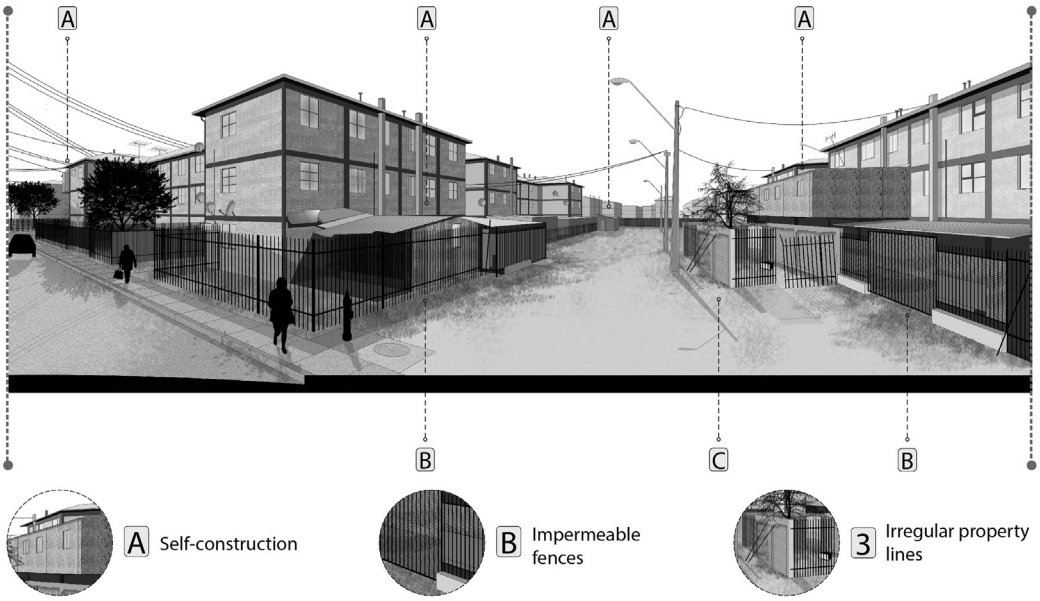
5. 4. 4. Urban form

Fixed by the original design of the housing estates, three features of the urban form are the last aspect highlighted in this analysis: building type, outer and inner connectivity (street layout). As mentioned in Section 5.5.3, the oldest housing estate was created with an incremental and collaborative approach in the decade of 1960; houses here were completely self-constructed. The other two housing estates were inaugurated in 1982 and 1998 under the Basic Housing Program; which provided a small basic house. The same policy also constructed high-density blocks of apartments which participants commonly describe as dangerous places to walk.

Participants, even those who are residents or visit them frequently, expressed almost unanimously negative opinions to apartment blocks. "Blocks, awful" (middle-aged female), "blocks, that is... dangerous" (older male), "blocks (...) a complicated and

Figure 5. The construction of the borders of the public space.

Source: Source: authors' own.



a difficult area" (young male) and "blocks (…) are used sometimes for trafficking" (young female). Despite those negative perceptions, participants acknowledge that those are socially and economically similar to the housing estates where they live but suffered from conditions which fuelled a deep social deterioration. Participants' perceptions and narratives about these block apartments seem to be interpretations of the social deterioration they have—directly or indirectly—observed and should be noted that this leaves open questions about the whether or how these interpretations are substantiated by other evidence.

The perception of multiple participants is that, high densities, small apartments, inadequate privacy due to poor-quality materials and other issues preclude people from adequate living standards and prevent social mobility. For others, the low quality of the apartments pushes down the prices, making them easy to acquire by drug dealers. In all these cases, the social deterioration and related risks are perceived as a given reality, "confirmed" by the visible disorder of the public space and by mainstream cultural portrayals of block apartments.

Studies and reports depict blocks as "problematic ghettos" with high ratios of drug addiction, school dropout and teenage pregnancy since several complications related to their quality were raised in the decade of 1990 (Ducci, 1997). These issues have gained more prominence in policy sector and in popular media due to recent programs which seek to regenerate critical areas, "de-densifying" neighbourhoods by tearing down buildings, fusing small apartments and moving residents to new houses (MINVU, 2018). In addition, a simple architectural scheme (i.e. three or four-storey buildings, painted in red with external stairs) replicated in different areas of

the city has given a clear image to the aforementioned social issues and has helped in the creation of a collective construct which links any area with apartments with social deterioration. In what seems to be a mixture of broader constructs and a complex social phenomenon, block apartments are places to avoid, even if that represents exposition to other risks:

(9) "Well, last Friday I had to get off [the bus] in San Francisco with Vecinal Sur [local avenues]—and that place is more dangerous [referring to the block apartments of the area].

I walked in the middle of the street, fast […] If I walked on the sidewalk, next to the apartment blocks, someone could appear [and attack me], and I'm not going to be able to do something." (young female, Case B)

In contrast with apartments, neighbourhoods with houses are seen, and reported in the interviews, as better places to walk. They are associated with enough space to have a good life and so having a lower chance of falling into antisocial behaviours. As mentioned earlier, self-constructed houses also provided shelter to close acquaintances until they got a definitive solution. References to this phenomenon were frequent, participants mentioned to have lived in older neighbourhoods and, like a myth, alluded to the resilient communities that built the houses by themselves. The figure of the house seems to be tied to those strong communities that can protect their neighbourhoods from disruptive activities and can create safe places to walk.

High connectivity with adjacent neighbourhoods is associated with an increase in the number of outsiders, though the effects on walking are relevant only if there are active territorial disputes. Connectivity with places perceived as equal does not provoke any relevant effect on walking. In these cases, the similarity points to the difficulty to trace frontiers, due to equivalent urban forms, and a common history which still lingers in the form of ties between the inhabitants of the connected neighbourhoods. Connectivity with places perceived as different, due to contrasting urban forms and histories, can transform well-connected places into a threat and facilitate undesirable invasions:

(10) "[Dangerous places] are those where they [delinquents] have access to different places, where they have an option to run. Like the square, you have access to there and there [referencing two adjacent neighbourhoods]." (middle-aged female, Case C)

That square and other spaces with high accessibility were described as places to evade. Participants reported avoid walking near those places if there is a feasible detour and—if there is not—they walk in bordering sidewalks to not cross the centre of squares or on the roads to have better visibility and foresee ambushes.

Inner connectivity affects the legibility of the housing estates. In the view of the participants, complex inner structures do not discourage walking, they can be mastered with practice, but can create areas of easy control. Moreover, complex urban forms seem to naturally facilitate the construction of fences as cul-de-sacs and other complex forms have little repercussions on the patters of non-residents; one of the main obstacles for gating streets in low-income neighbourhoods (Grant and Mittelsteadt, 2004). As a consequence, any attempt to close portions of the public space, or retro-gating (Blandy, 2007), face little resistance from outsiders. Fences are easy to construct, yet at the cost of fragmenting territories, creating a strong dichotomy between the secure and the unsafe and restricting the construction of familiarity to the neighbours living in the adjacent plots.

Furthermore, the urban form appears to be relevant only if it completes the narratives of another aspect. Building type complements the construction of the borders of public spaces as block apartments are prone to have visible expansions and look more deteriorated than houses; outer connectivity is pertinent only if there are territorial disputes and inner connectivity may strengthen deterioration and territorialities. Complex urban layouts do not represent an issue (they can be mastered with practice) if the three processes are controlled. Negative walking environments are not necessarily those with the less favourable urban forms; they are those where deterioration, territorial delimitations and unintelligible facades concur. For instance, the square depicted in Figure 4 is highly vandalised and deteriorated despite being surrounded by houses and a relatively simple street layout. A deteriorated, demarcated and frightening pocket, as Gallimore *et al.* (2011) notice, which situated on a key point of the neighbourhood interrupts quotidian trips and make difficult the access to the facilities located around.

5. 4. 5. Negotiating deprived environments

As it has been reported throughout this article, the existence of deteriorated, demarcated or illegible built environments can have profound impacts on walking. At a macro level, the territories in which participants feel confident enough to walk are patchworks of go and no-go areas which, depending on the ties, experiences, among other factors explored earlier in this article, can be as small as a gated street. Strategies and skills to negotiate and walk through those fragmented territories varied among participants, going from slight changes in attitudes and manners, to long detours and even immobility. However, and despite the variety of strategies to face potential hostilities, the majority of those who participated in this research coincided in indicating that walking through their neighbourhoods, or in other places in similar conditions, requires additional efforts.

To be more aware of the environment, look for cues of risk and seek for ample visual angles, participants make slight changes in their attitudes and manners. They walk at a slower pace, cross to the opposite sidewalk or walk in the road (*see* quotation 9 in Section 5.4.4) to have a better chance to react when approaching deteriorated, unfamiliar or vandalised places presumably in the hands of wrongdoers. To walk through places which are perceived as foreign territories or cross unavoidable frontiers, other participants elaborate strategies to camouflage themselves among strangers, either modifying manners to look confident or walking near to others (*see* quotation 5 in Section 5.4.2).

Fragile participants, due to the age or traumatic experiences, consider themselves incapable to walk alone and required the company of a third person to fulfil everyday needs. In complex processes of time synchronisation, the companion must adjust his/her routine to the needs of another person even if that means immobility. In a gendered role, the companion is commonly a woman:

(11) "For instance, if he [her son] leaves at 8:00 pm [from the workplace], he arrives here at 9:30. At that time I walk to meet him [at the bus stop].

[…] He calls me from there [his workplace] «mom, I'm leaving». And then I have to calculate the hour when I have to be at the bus stop." (older female, Case C)

No matter the cost in time, participants described detours as a "normal" mechanism to evade frontiers between territories in conflict or places in which the chances to be involved in an incident are high such as those described in Section 5.4.2 and Section 5.4.3. In other cases, detours were depicted as an opportunity to be less predictable and not being familiar with any place in particular. The strategy is to hide routinised trips from potential wrongdoers and prevent a potential organised attack. As was briefly explained in Section 5.4.4, detours can imply just border a square or follow intricate routes through safer places.

A small number of participants, who suffered traumatic experiences or are isolated inside the house or in a gated street, tend to avoid walking. A few participants who have available cars replace walking by it and depart from what they considered safe (inside the private property) to the outside. Meanwhile, the rest reduce their contact with the public space to those trips which they consider "vital" and can be completed in the immediate vicinity. In these cases, walk less represent the solution to an unmanageable public realm.

5. 5. Conclusions

This article explores how pedestrians shape walking by interpreting visible features of the built environment in deprived neighbourhoods of Santiago. The evidence of this study suggests that the built environment is meaningful; a dynamic construct that reflects narratives forged on personal experiences and developed further in the social networks.

This implies that suffering traumatic experiences and making these resonate in the social networks, having ties with others who are not seen as equals and becoming more, or less, familiar with alterations in the environment (i.e. markers) can determine or modify the effect of the different features of the built environment on walking and on other public activities. In line with the arguments raised by Sharmeen and Timmermans (2014), the contextual and changing nature of walking and the built environment can be enlightened *only if* pedestrians' experiences are considered. The results also evince that the narratives of the built environment are transferred from the familiar to the non-familiar. A negative experience can act as a "precedent" and can discourage walking in unfamiliar locations.

From the signified built environment pedestrians infer the social attributes of the places to determine the right patterns of action to safely walk. Like the concept of "cue" introduced by Koskela and Pain (2000), the built environment in this study was a sign of the occurrence of specific activities in the public realm and narrates stories on its features. The meaningful built environment is also consistent with the approach developed by Jacobs (1961) and others in which the physical environment reflects the life of the public realm and other complex societal issues.

The findings show that participants feel stigmatised by other segment of the society that "put in the same sack" different communities that, despite looking similar in "numbers" (e.g. income), are different in "manners" (e.g. strong communities). By revealing how the quality of the built environment can contribute to community cohesion and quality of life, it is possible to understand the potential value of the built environment as a means to alleviate people's sense of living in disadvantaged conditions.

Of the four relevant categories found in this study, the three processes identified echo structural issues of Chilean deprived areas (e.g. social fragmentation, distrust, stigmas)—and reflect a constant search for signals of decreased risks. Deterioration is accumulative and indicates the lack of strength of the communities. Territorial delimitation evinces social disputes and raises questions about who belong to "our" community and who does not. The construction of the borders of the public space is associated with broader social constructions and the sense of progress. The fourth aspect, the urban form, can strengthen the others.

The four aspects of the built environment induce changes on pedestrian trips that can be slight, by altering attitudes towards certain places, or profound, by involving adjustments on everyday routes. Deterioration exacerbates emotions that decrease the quality of the experience of walking. As deterioration is linked with weak communities confined inside their houses; this aspect can also modify the routes described by those who feel unable to manage the absence of persons in the public space.

In combination with the urban form and the visible features of facades and fences, delimitation of the territories draws the limits of the walkable. The installation of fences or the introduction of markers by strangers delineate frontiers and, therefore, separate the safe from the unsafe. In those secure areas people walk and perform other activities; whereas outside, in the foreign territory, non-vital trips can be suppressed or performed just under specific conditions such as walk just in daylight hours, synchronise times with other members of the family to be accompanied or perform trips only in cars.

Although this article does not examine public policies, the built environment is a phenomenon which reflects social constructions and encloses in its features a diverse range of public activities. It is an issue whose resolution may require urban reforms to improve the quality of the public space, multidimensional strategies to redress stigmas against certain areas (e.g. block apartments) and social measures to consolidate local communities, build bridges between the different groups and institutions and make less clear the boundaries between "us" and "them".

Lastly, this study aimed to investigate the socially-constructed built environment and its relationship with walking. Further analysis is forthcoming to identify gendered patterns and the impacts of the built environment and walking on social cohesion and capital. These issues appeared in the data but were not explored in depth in this article. Due to the focus of this study on disadvantaged neighbourhoods, more research is required to understand how the signified built environment affects other groups or more affluent neighbourhoods where walking can be an option to replace motorised trips.

Acknowledgments

This article was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the first author. We would like to thank the gatekeepers, the participants and two anonymous reviewers who helped us to improve the article.

References

Adkins A, Makarewicz C, Scanze M, Ingram M and Luhr G (2017) Contextualizing walkability: do relationships between built environments and walking vary by socioeconomic context? *Journal of the American Planning Association*, 83(3), 296-314.

Aalbers M (2003) "The double function of the gate. Social inclusion and exclusion in gated communities and security zones. In conference Gated Communities: Building Social Division or Safer Communities". Paper presented at *Gated Communities: Building Social Division or Safer Communities*, Glasgow, September 2003.

Appleyard D, Gerson M and Lintell M (1981) *Livable streets, protected neighborhoods*. California: University of California Press.

Ball M (1986) The built environment and the urban question. *Environment and Planning D: Society and Space* 4(4): 447-464.

Banerjee U and Hine J (2014) Identifying the underlying constructs linking urban form and travel behaviour using a grounded theory approach. *International Journal of Environmental Science and Technology* 11(8): 2217-2232.

Bauman Z (2000) *Liquid modernity*. Cambridge: Polity.

Blandy S (2007) Gated communities in England as a response to crime and disorder: context, effectiveness and implications. *People, Place and Policy Online* 1(2): 47-54.

Berends L and Johnston J (2005) Using multiple coders to enhance qualitative analysis: The case of interviews with consumers of drug treatment. *Addiction Research & Theory* 13(4): 373-381.

Bostock L (2001) Pathways of disadvantage? Walking as a mode of transport among low-income mothers. *Health & social care in the community* 9(1): 11-18.

Caldeira T (2017) Peripheral urbanization: Autoconstruction, transversal logics, and politics in cities of the global south. *Environment and Planning D: Society and Space* 35(1): 3-20.

Calthorpe P (1993) *The next American metropolis: Ecology, community, and the American dream*. Princeton architectural press.

Cervero R and Kockelman K (1997) Travel demand and the 3Ds: density, diversity, and design. *Transportation Research Part D: Transport and Environment* 2(3): 199-219.

Christian H, Bull F, Middleton N, Knuiman M, Divitini M, Hooper P, Amarasinghe A and Giles-Corti B (2011) How important is the land use mix measure in understanding walking behaviour? Results from the RESIDE study. International *Journal of Behavioral Nutrition and Physical Activity* 8(1): 55.

Cleland V, Timperio A and Crawford D (2008) Are perceptions of the physical and social environment associated with mothers' walking for leisure and for transport? A longitudinal study. *Preventive medicine* 47(2): 188-193.

Ducci M (1997) Chile: el lado obscuro de una política de vivienda exitosa. *EURE. Revista Latinoamericana de Estudios Urbano-Regionales* 23(69): 99.

Edensor T (2000) Walking in the British countryside: Reflexivity, embodied practices and ways to escape. *Body & Society* 6(3-4): 81-106.

Figueroa C and Forray F (2015). Movilidad femenina: los reveses de la utopía socio-espacial en las poblaciones de Santiago de Chile. *Revista de Estudios Sociales* (54): 52-67.

Figueroa C, Hodgson F, Mullen C and Timms P (2018) Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile. *Journal of Transport Geography* (67): 102-109

Frank L, Sallis J, Saelens B, Leary L, Cain K, Conway T and Hess P (2010) The development of a walkability index: application to the Neighborhood Quality of Life Study. *British journal of sports medicine* 44(13): 924-933.

Gallimore J, Brown B and Werner C (2011) Walking routes to school in new urban and suburban neighborhoods: An environmental walkability analysis of blocks and routes. *Journal of environmental psychology* 31(2): 184-191.

Geels F (2010) Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research policy* 39(4): 495-510.

Gehl J (1987) *Life between buildings: using public space*. New York: Van Nostrand Reinhold.

Gómez L, Parra P, Buchner D, Brownson R, Sarmiento O, Pinzón J, Ardila M, Moreno J, Serrato M and Lobelo F (2010) Built environment attributes and walking patterns among the elderly population in Bogotá. *American journal of preventive medicine* 38(6): 592-599.

Gough S and Scott W (2000) Exploring the purposes of qualitative data coding in educational enquiry: Insights from recent research. *Educational Studies* 26(3): 339-354.

Grant J and Mittelsteadt L (2004) Types of gated communities. *Environment and planning B: Planning and Design* 31(6): 913-930.

Greene M, Mora R, Figueroa C, Waintrub N and Ortúzar J (2017) Towards a sustainable city: Applying urban renewal incentives according to the social and urban characteristics of the area. *Habitat International* 68: 15-23.

Guimpert, I and Hurtubia, R (2018). Measuring, understanding and modelling the Walking Neighborhood as a function of built environment and socioeconomic variables. *Journal of transport geography*, 71, 32-44.

Gutiérrez A and Rearte J (2006) Segregación y accesibilidad a servicios públicos de transporte en la Ciudad de Buenos Aires. *Panorama Nacional da pesquisa en Transportes*: 829-840.

Harrison F and Swain B (2003) *Guía de diseño del espacio público*. Santiago de Chile: LOM.

Hodgson F (2011) Structures of encounterability: space, place, paths and identities. In: Grieco M and Urry J (eds) *Mobilities: new perspectives on transport and society*. Ashgate Publishing Ltd: 59-86.

Iglesias P, Greene M and Ortúzar J (2013). On the perception of safety in low income neighbourhoods: using digital images in a stated choice experiment. In Hess S and Daly A (Eds.). *Choice Modelling: The State of the Art and the State of Practice* (193-210). Emerald Group Publishing Limited.

Ingold T (2011) *Being alive: Essays on movement, knowledge and description*. Taylor and Francis.

Jacobs A (1995) *Great streets*. Cambridge: MIT Press.

Jacobs J (1961) *The death and life of great American cities*. New-York: Vintage.

Kamphuis C, Mackenbach J, Giskes K, Huisman M, Brug J and Van Lenthe F (2010) Why do poor people perceive poor neighbourhoods? The role of objective neighbourhood features and psychosocial factors. *Health & place* 16(4): 744-754.

Katz P, Scully V and Bressi T (1994). *The new urbanism: Toward an architecture of community*. New York: McGraw-Hill.

Kelling G and Coles C (1997) *Fixing broken windows: Restoring order and reducing crime in our communities*. Simon and Schuster.

Koskela H and Pain R (2000) Revisiting fear and place: women's fear of attack and the built environment. *Geoforum* 31(2): 269-280.

Lamíquiz P and López-Domínguez J (2015) Effects of built environment on walking at the neighbourhood scale. A new role for street networks by modelling their configurational accessibility? *Transportation Research Part A: Policy and Practice* (74): 148-163.

Landon P (2013) Movilidad cotidiana e infraestructura vial: nuevos desafíos urbanos para la inclusión social en la ciudad. El caso de la Autopista Acceso a Santiago. *Revista de trabajo social* (84): 31-45.

Lindelöw D, Svensson A, Sternudd C and Johansson M (2014) What limits the pedestrian? Exploring perceptions of walking in the built environment and in the context of every-day life. Journal of Transport and Health 1(4): 223-231.

Lynch K (1960) *The image of the city.* Cambridge: MIT press.

Mason J (2002) *Qualitative researching*. Sage.

Mason P, Kearns A and Livingston M (2013) "Safe Going": the influence of crime rates and perceived crime and safety on walking in deprived neighbourhoods. *Social science & medicine* 91: 15-24.

Matos F (2008) Walking and rhythmicity: Sensing urban space. *Journal of Urban Design* 13(1): 125-139.

McFarlane C (2011) *Learning the city: knowledge and translocal assemblage*. John Wiley and Sons.

Middleton J (2009) "Stepping in time": walking, time, and space in the city. *Environment and Planning A* 41(8): 1943-1961.

MINVU (2018) *Regeneración de Condominios sociales (Recuperación de Condominios Sociales - Segunda Oportunidad)*. Santiago: Ministerio de Vivienda y Urbanismo.

MINVU (no date) *Memorias de la 6 de Mayo*. Santiago: Secretaría Ejecutiva de Desarrollo de Barrios.

Næss P (2015) Built environment, causality and travel. *Transport reviews* 35(3): 275-291.

Newman O (1972) *Defensible space*. New York: Macmillan.

Owen N, Humpel N, Leslie E, Bauman A and Sallis J (2004) Understanding environmental influences on walking: review and research agenda. *American journal of preventive medicine* 27(1): 67-76.

Paydar M, Kamani-Fard A and Etminani-Ghasrodashti R (2017). Perceived security of women in relation to their path choice toward sustainable neighborhood in Santiago, Chile. *Cities* 60, 289-300.

Quistberg A, Miranda J and Ebel B (2010) Reduciendo el trauma y la mortalidad asociada a los accidentes de tránsito en los peatones en el Perú: intervenciones que pueden funcionar. *Revista Peruana de Medicina Experimental y Salud Pública* 27(2): 248-254.

Rainero L, Pérez S and Rodigou M (2006) *Herramientas para la promoción de ciudades seguras desde la perspectiva de género*. CISCSA.

Rodríguez A and Sugranyes A (2004) El problema de vivienda de los "con techo". *EURE. Revista Latinoamericana de Estudios Urbano-Regionales* 30(91): 53-65.

Rodríguez D, Brisson E and Estupiñán N (2009). The relationship between segment-level built environment attributes and pedestrian activity around Bogota's BRT stations. *Transportation research part D: transport and environment* 14(7): 470-478.

Rossetti T, Lobel H, Rocco V and Hurtubia R (2019). Explaining subjective perceptions of public spaces as a function of the built environment: A massive data approach. *Landscape and Urban Planning*, 181, 169-178.

Sabatini F (2000) Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial. *EURE. Revista Latinoamericana de Estudios Urbano-Regionales* 26(77): 49-80.

Schwanen T, Kwan M and Ren F (2008) How fixed is fixed? Gendered rigidity of space–time constraints and geographies of everyday activities. *Geoforum* 39(6): 2109-2121.

Saelens B and Handy S (2008) Built environment correlates of walking: a review. *Medicine and science in sports and exercise* 40(7 Suppl.): S550.

SECTRA (2012) *Informe ejecutivo. Encuesta Origen Destino de viajes*. Santiago: SECTRA.

Sehatzadeh B, Noland R and Weiner M (2011) Walking frequency, cars, dogs, and the built environment. *Transportation research part A: policy and practice* 45(8): 741-754.

Sharmeen F and Timmermans H (2014) Walking down the habitual lane: analyzing path dependence effects of mode choice for social trips. *Journal of Transport Geography* 39: 222-227.

Sheller M and Urry J (2003) Mobile transformations of public and private life. *Theory, Culture and Society* 20(3): 107-125.

Shen Y, Chai Y and Kwan M (2015) Space–time fixity and flexibility of daily activities and the built environment: A case study of different types of communities in Beijing suburbs. *Journal of Transport Geography* 47: 90-99.

Stefansdottir H, Næss P and Ihlebæk C (2018) Built environment, non-motorized travel and overall physical activity. *Travel Behaviour and Society*.

Techo-Chile (2016) *Catastro de Campamentos 2016*. Santiago: Centro de investigación social Techo-Chile.

Van den Berg P, Kemperman A, de Kleijn B and Borgers A (2016). Ageing and loneliness: the role of mobility and the built environment. *Travel Behaviour and Society*, 5: 48-55.

Vergel-Tovar C and Rodriguez D (2018) The ridership performance of the built environment for BRT systems: Evidence from Latin America. *Journal of Transport Geography*.

WHO (2017) *Global Health Observatory data repository*. Available at: http://www.who.int/gho/en/ (accessed 30 April 2018).

Whyte W (1988) *City. Return to the center*. New York: Anchor books.

Zukin S (1995) *The cultures of cities*. Oxford: Blackwell.

Chapter 6

Pedestrianizing deprived neighbourhoods:
exploring the limits of the built environment as a means to ease walking

The work in Chapter 6 of the thesis is a forthcoming article:

Figueroa, C., Hodgson, F., Mullen, C. and Timms, P. (forthcoming b). Pedestrianizing deprived neighbourhoods: exploring the limits of the built environment as a means to ease walking.

Abstract

Can improvements in the built environment ease walking and ameliorate the experience of those who are in disadvantage? This article seeks to explore that question by reporting the findings of semi-structured interviews in which participants were asked to locate silhouettes, representing public activities, on four images, depicting incremental improvements of a highly deteriorated place of Santiago de Chile. Throughout this paper, it is argued that walking is shaped by individual disadvantages (e.g. lack of resources), contextual conditions (e.g. urban violence) or a mixture of both; the features of the built environment are signified to cope with these—and the learnt behaviours, attitudes and apprehensions often kept regardless of the improvements or changes made in the built environment.

The evidence suggests that the built environment can contribute to the production of healthy interactions, the appropriation of the public space, the reduction of signs of violence and, therefore, can alleviate fears and give more certainties to pedestrians. Investing in the built environment can also diminish spatial inequalities and can provide opportunities to understand the patterns of better public spaces. Moreover, a better environment could be the starting point for the implementation of strategies to support those who are afraid of walking due to deep-rooted fears.

Keywords: disadvantage, disadvantaged neighbourhoods, built environment, walking.

6. 1. Introduction

There is a vast body of research aiming to identify links between the built environment and the willingness to walk through a given area. Literature on promotion of walking as a means to counteract the multiple impacts of the introduction of cars in everyday life (e.g. car-dependence, sedentary lifestyles, obesity), has correlated numerous aspects of the built environment with a higher propensity to travel on foot and, by doing so, has provided guidelines to improve the "walkability" of the cities (Sealens and Handy 2008; Ewing and Cervero 2010; Maghelal and Capp 2011; Ding and Gebel 2012). Numerous scholars have argued that the effects of the built environment on walking can vary in accordance with multiple factors. From authors suggesting that trips fixed in time and space (e.g. to work, school) are less likely to be influenced by the environment (Schwanen *et al.* 2008; Lindelöw *et al.* 2014; Shen *et al.* 2015) to others noting differential effects depending on conditions like gender, age or income (Lamíquiz and López-Domínguez 2015; Van den Berg *et al.* 2016).

Adkins *et al.* (2017), in a review of the literature, found that there is a weaker effect of the built environment on walking and physical activity in those socio-economic groups with fewer resources. In other words disadvantaged groups tend to display similar behaviours in unsupportive and supportive built environments. Adkins *et al.* conclude that the "rigidity" of the behaviour appears to be less likely related to walking in a context of necessity (i.e. walking is the only feasible alternative) and more linked to disadvantaged groups being, for many reasons, "less likely than advantaged groups to as fully realize the potential of walking, physical activity, and related health benefits of supportive built environments for walking" (pp. 308). This article seeks to explore this point.

The article seeks to investigate how an improved built environment can ease the experience of walking of disadvantaged groups. This article reports the findings of a qualitative study exploring participants' feelings, judgments and stated willingness to walk in different neighbourhoods. Participants took part individually and were invited to locate silhouette images of people engaged in everyday activities, on four images depicting a highly deteriorated neighbourhood, then with each successive image showing an incremental improvement, and as they did this to engage in a facilitated interview on their assessments of the environment shown in each image and how it would affect experiences and their willingness to walk. Participants were recruited in four disadvantaged neighbourhoods of Santiago de Chile (the capital and biggest city of the country); in four places produced by Chilean housing policies which have access to basic services (e.g. drinkable water, sanitation), facilities (e.g. schools), public transport, paved roads and sidewalks yet suffer from social isolation,

neglect and different forms of urban violence (Ducci 1997; Rodríguez and Sugranyes 2004; Rodriguez *et al.* 2014).

The article is structured in five sections. As the traditional quantitative body of literature addressing this issue has tended to find weak impacts of the built environment on walking, Section 6.2 focuses on the few works which have explored the built environment beyond as an emotional and meaningful matter that mirrors the qualities of the public space (Koskela and Pain 2000; Figueroa and Forray 2015), social constructs (Figueroa *et al.* 2019) and personal experiences (Bostock 2001; Benediktsson 2018). Section 6.3 is an overview of the context of Santiago de Chile; meanwhile, the methods employed are described depth in Section 6.4. Section 6.5 contains the main results and Section 6.6 the final remarks.

6. 2. Walking and the built environment of disadvantaged neighbourhoods

Since the insights provided by Jacobs (1961) and others (Lynch 1960; Appleyard *et al.* 1981; Gehl 1987; Whyte 1988; Jacobs 1995; Zukin 1995) to challenge the growing space consumed by cars and its prejudicial effects on the public life, many have inquired on the intertwined relationship between the physical environment and the life of the public realm. More recently and encouraged by the consequences of sedentary lifestyles on public health, climate change and other issues, the discussion has focused on the identification of environmental variables which can encourage physical activity (*see* Handy *et al.* 2002; McCormack and Shiell 2011; Ding and Gebel 2012) and improve planning practices (*see* Ewing and Cervero 2010; Durand *et al.* 2011).

In the case of walking, lengths, frequencies of pedestrian journeys and other metrics have been often used either as goals or benchmarks to assess the walkability of the environments, leading to findings which corelate certain physical features with more or less conduciveness to walking (for extensive reviews on this matter *see* Sealens and Handy 2008; Maghelal and Capp 2011). In these studies, an attractive built environment can make walking pleasant and attractive enough to be preferred over motorised trips, to be considered a recreational alternative and, consequently, to palliate the harms already done by the introduction of the automobile in the everyday life. However, much of this research has focused on middle-income groups. As reviewed by Adkins *et al.* (2017) the few studies about those who walk due to budgetary or social constraints have found a "low correlation" between the built environment and walking behaviour. Walking seems to be unaffected by the built environment. The scant evidence about those who walk through disadvantaged places suggests this rigid behaviour and some links between walking and perception of insecurity (Romero 2005; Mason *et al.* 2011; Mason *et al.* 2013).

By investigating the daily routine of low-income mothers, Bostock (2001) emphasises the little understanding about those who, lacking in resources, regularly walk and travel through disadvantaged places. The women have little option other than to walk, yet this further reduces time for what are already complex and time-consuming domestic responsibilities. Further their reliance on walking means that they can access only those services within a short distance of their home regardless of the extent to which the availability and quality of those services fulfil their needs. Bostock's study indicates the cumulative effects of multiple inequalities (in this case gender and income inequalities). Bostock's study indicates that these difficulties are aggravated by neighbourhoods which reproduce them on social problems (e.g. poor cohesion, and limited social networks) and physical structures (e.g. degraded built environment). To mothers walking, boarded up houses, neglected public spaces and abandoned buildings cause sadness and despair and are signs of places which were left behind. Studying spatial inequalities, Benediktsson (2018) reaches an analogous conclusion indicating that the landscape of poor American suburbs imposes risks for pedestrians and, at the same time, is a reminder of their position in the society.

Architecture and design have explicitly work on the meaningful nature of the environments to convey messages and to, therefore, shape behaviours. In buildings and spaces intended to promote norms of consumption such as shopping malls (Rapoport 1990; Goss 1993; Zukin 1998), or in urban design to promote the appropriation of the public space and security, like Newman's (1972) well-known idea of defensible space. Despite that, there is relatively little evidence of how these messages or other beliefs which emerged naturally in less controlled places, and open to everyone, affect pedestrians' experience as indicated by Bostock (2001) and Benediktsson (2018).

Koskela and Pain (2000) argue that people's views of a given form of built environment can be influenced not by intrinsic features of that environment but more indirectly by experiences there. By studying fear of crime, a common attribute of disadvantaged neighbourhoods in the literature, these authors demonstrate how the built environment does not induce fear by itself, but it does reflect the social qualities of the public space it confines (e.g. dark places are lonely). The meaningful features are "cues" to infer the occurrence of activities, the presence of individuals who can cause harm and, hence, the latent risks of particular locations. This indicates a practical implication of the insights provided by Jacobs (1960), Gehl (1987) and others mentioned above—and suggests the existence of indirect effects of the built environment on walking depending on the lecture given to the visible features of the places.

Furthermore, Koskela and Pain (2000) challenge traditional approaches to create safer spaces based on improvements in the built environment. The authors indicate

that an improved built environment can indeed ameliorate the experience of being in the public space; but can do little for places with unfavourable reputations or for individuals who endure violence in their everyday life and are afraid of the public realm in general. Personal experiences are "territorialised" and that can influence the way in which people later feel about walking (Edensor 2000; Matos, 2008; Sharmeen and Timmermans 2014). People can feel unable to access spaces with negative precedents, so jeopardising learning processes tied to walking and the acquisition of the expertise and skills required to understand the patterns and complexities of the public realm (*see* McFarlane 2011; Ingold 2011; Hodgson 2011). Figueroa *et al.* (forthcoming) found evidence that a single threatening incident can transform a location into a threat, re-signify the features of the built environment, cause fear and discourage walking.

Social norms can also influence perceptions of walking. Hanson *et al.* (2016), for instance, found resistance to certain forms of physical activity as these were not considered "proper" activity in the context of deprived communities in the United Kingdom. Also in British cities, Pooley *et al.* (2014) identified obstacles to promote walking; it was considered an unusual activity. In both studies, walking is discouraged by the cultural context.

6. 3. Walking in disadvantage in Santiago de Chile

While Chilean housing policies had success in almost eradicating extreme forms of deprivation and irregular settlements[1] they also had the effect of marginalising the most vulnerable groups by moving them to the periphery of the cities. Those "with roofs"[2] were provided with access to basic services, facilities, public transport services and a network of public spaces with paved roads, green areas and continuous sidewalks but this provision was in neighbourhoods distant from the city centres where economic activities are most abundant. In places where the high sense of having few opportunities and the difficulty to encounter those living in different contexts facilitated the physical and social deterioration of the neighbourhoods and allowed the emergence of despair, distrust towards the institutions, different forms of urban violence, among other complex phenomena (Ducci 1997; Sabatini 2000; Rodríguez and Sugranyes 2004; Rodriguez *et al.* 2014; Caldeira 2017).

These groups tend to walk more and rely more on walking than more affluent groups. In the case of Santiago, the capital of the country, 48% of the trips done by the more disadvantaged groups were on foot, higher than the average of the city of 34.5%. Almost a quarter (23.5%) were done on public transport, lower than the

1 The population living in irregular settlements is less than 2% (Techo-Chile 2016).

2 Name given to the new poverty by Chilean authors. It references to the people who have houses (the roof) but suffer from several forms of deprivation.

average of the city of 29%, and less than 16.6% were done on private transport, below the average of the city of 28% (SECTRA 2012). Nonetheless, as the few works on the matter have suggested, these "healthy" metrics can happen in unfavourable conditions, in highly fragmented territories, with high perceptions of insecurity and through networks of deteriorated public spaces, and can hide normalised inequalities, immobility, suppression of trips and complex strategies to fulfil needs within the "walkable range" (Landon 2013; Figueroa and Forray 2015).

6. 4. Methods and materials

To understand how different built environments affect walking, this article explores the findings of forty-one[3] semi-structured interviews conducted in four neighbourhoods of Santiago. Of the four, three are classified as "Áreas Prioritarias" ("Priority Areas" in English) due to low levels of public and private investment and high levels of teenage pregnancy, school dropout, drug addiction/trafficking and other metrics linked to social inequalities. The fourth case was part of the regeneration program "Quiero mi Barrio" ("I love my neighbourhood" in English) between 2007 and 2012 and, therefore, is no longer considered Priority Area as consequence of the increase in public invest (MINVU 2012; MINVU n.d.).

Those semi-structured interviews were informed by the results of a quantitative analysis of transport-related inequalities in Santiago (Figueroa *et al.* 2018); by the triangulated analysis of walking interviews, observation and qualitative mapping (Figueroa *et al.* 2019)—and consisted in an exercise in which participants had to place silhouettes of nineteen public activities on four fictional scenarios (a baseline scenario and three others showing improvements) and have a guided conversation about their willingness to walk in each one.

Participants were first asked about their opinions of the scenarios; if they know places like them and if they would walk in each. Following this, participants were asked to place the silhouettes of the activities on the four scenarios having the possibility to place an activity in all, in some or in none of them. When placing activities, participants were asked about the reasons why they placed the activities where they did—and after placing all of them, they were asked again about their willingness to walk in each one or perform other activities (mostly chatting in the public space or letting children play in the public space). Participants had the four scenarios available all the time and activities were given to them one by one

3 The number of interviews was defined according to saturation of data that started to appear around the eighth interview of each neighbourhood. Of the forty-one participants, nineteen were also part of the previous stage (walking interviews) which informed the interviews. Gatekeepers provided the contact details of potential participants.

randomly. After this initial activity, participants were asked about the aspects they think hinder, or ease, the improvement of the environments of their neighbourhoods.

Inspired in stated preference exercises that use fictional scenarios to illustrate spatial matters (Iglesias *et al.* 2013; Torres *et al.* 2013), the four scenarios showed sequential improvements of the "less-walkable" place detected in previous stages of this research (i.e. walking interviews, observation and mapping). This place is a narrow unpaved space, surrounded by block apartments. It exhibits a high level of deterioration, damaged public property and other signs of vandalism. In addition, self-construction is highly visible. This place was digitalised using computer-aided design and drafting software (*AutoCAD*) and graphics editors (*Photoshop*) and represented in greyscale to avoid colour biases (red buildings are linked to social housing), with midday light (all participants walk during daylight hours) and sunny weather (the predominant weather of Santiago).

The digitalised image (Baseline Scenario) was later digitally improved, decreasing the level of deterioration, erasing territorial demarcations and irregular extensions from the buildings, and adding a street and sidewalks in Scenario 1: adding well-maintained green areas with urban furniture and pedestrian lights in Scenario 2; and shops and regular enlargements in Scenario 3. As darkness tends to be associated with a high perception of insecurity and can monopolise discourses and conversations, trees were represented as young specimens with high treetops and public lights were depicted by highly visible light poles (Figure 1). All these changes were focused in the right side of the image, leaving the left side in the same conditions in the three improved scenarios, and were inspired in existing interventions of deprived neighbourhoods implemented by recent governmental programs like the aforementioned "Quiero mi Barrio" (MINVU 2012)

Using similar digital tools, nineteen activities were represented in black silhouettes of equal size, with a descriptive phrase/word and a colour in the top to ease the identification of them by the researcher. All the activities were printed on transparencies (Figure 2) and represented nine illicit or violent activities, six recreational or social activities and four activities which implied either contest illicit activities or protect the public space.

Interviews were recorded, transcribed and later analysed with the assistance of the qualitative data analysis software *NVivo* (version 11). Using the tools of the software, meaningful excerpts of the transcripts (which varied from short phrases to complex interactions between the researcher and the participant) were labelled in accordance to their content in "codes" and later re-classified in specific "nested-codes" creating a tree-like structure in a continuous process of decontextualization and re-contextualisation of the data (Starks and Brown 2007). Depending on the content, extracts were labelled under one or more codes.

Figure 1. Scenarios.

Source: authors' own.

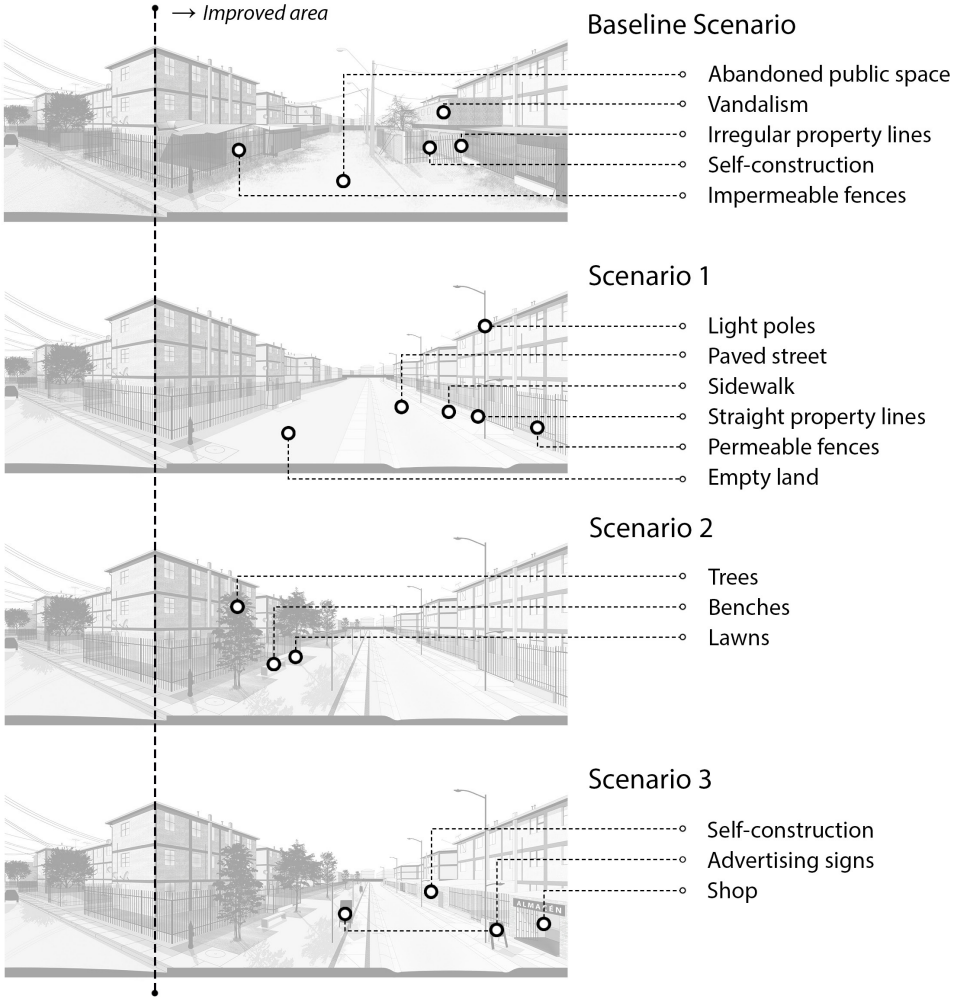
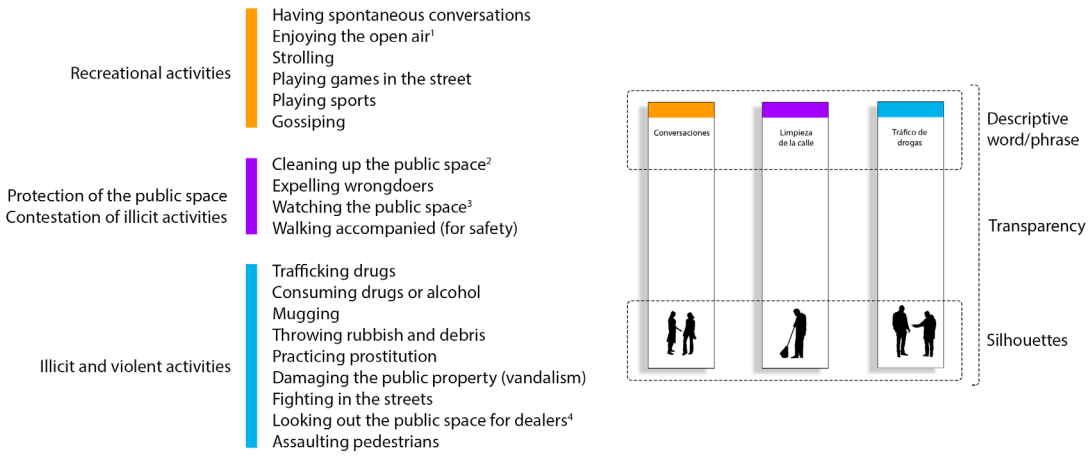


Figure 2. List of activities (left) and examples of transparencies (right).

Source: authors' own.



1 Bring chairs and sit outside the house, on the sidewalks, during the afternoon.
2 Cleaning up the public space is seen as a form to contest the deterioration caused by drug traffickers.
3 Showing up in the public space if something unusual is heard or observed.
4 "Sentries" or "soldiers" who protect the public space for drug dealers.

The discovered-oriented analysis sought to identify relevant narratives and meta-narratives within the data without a preconceived theory (Fossey *et al.* 2002) and ended with three relevant categories: (i) correlations between features of the built environment and public activities, (ii) familiarity with the scenarios and (iii) willingness to walk. In addition to these three categories, the analysis also revealed the existence of meta-narratives, or beliefs that have explanation in the broader social context and act as "unquestionable truths" (*see* Bruce *et al.* 2016), which played a key role in explaining the boundaries of environmental improvements. The analysis was complemented by field notes and by photographs taken in each interview to the four scenarios with the activities over them.

To complement the data collected, twenty-four policymakers and officials working in the national, metropolitan and local levels were invited to have a guided conversation about the factors that facilitate or hinder the improvement of deprived environments. Like semi-structured interviews, the interviews with policymakers were recorded, transcribed, analysed in *NVivo* following the procedures and approaches explained above. The topic guide used to stimulate the conversation was also designed under a constructivist approach and the number of interviews was defined by empirical saturation that started to emerge around the eighteenth interview. As the structure of the Chilean public sector can be cryptic for an outsider, the recruitment of policymakers was done by using the "snowball effect" in which the acquaintances of the researcher provided the contact details of potential participants, those who accepted to be interviewed provided the contact details of other individuals who they think can provide valuable insights for the research and so forth (Geddes *et al.* 2018). Following this approach, thirty-two policymakers were contacted and, as mentioned before, twenty-four accepted to be interviewed.

The study was reviewed by the Faculty Research Ethics Committee of the University of Leeds. To protect personal data, recordings and transcripts were pseudo-anonymised using only general identifiers (i.e. gender, age range, neighbourhood). Transcripts were kept in Spanish (the original language) in the analysis and to exemplify findings some excerpts were translated into functional English. As many narratives evolved during the interviews due to the construction of scenarios, some quotations are contextualised by a description of the moment of the interview in which participants stated them.

6. 5. Reflecting disadvantages on the built environment

Lacking in opportunities in the neighbourhoods where they inhabit and travelling far to reach jobs, schools and other facilities; being stigmatised and having few chances to experience other realities; doubting of the institutions and being afraid of those who seem different; feeling stuck on the margins of the society and having fewer

Table 1. Activities placed and willingness to walk in the four scenarios*.

Source: author's own.

	Individuals… (activities expected to happen in the public space)	Baseline scenario	Scenario 1	Scenario 2	Scenario 3
Recreational activities	Having spontaneous conversations	14	20	30	36
	Enjoying the open air	1	12	36	38
	Strolling	3	18	30	33
	Playing games in the street	12	24	33	37
	Playing sports	5	24	32	29
	Gossiping	33	22	24	27
Protection of the public space Contestation of illicit activities	Cleaning up the public space	3	23	29	38
	Expelling wrongdoers	5	16	17	18
	Watching the public space	27	23	20	21
	Walking accompanied (for safety)	37	19	10	12
Illicit activities	Trafficking drugs	40	11	12	10
	Consuming drugs or alcohol	37	14	19	17
	Mugging	38	18	21	22
	Throwing rubbish and debris	37	14	8	6
	Practicing prostitution	34	8	5	5
Violence	Damaging the public property (vandalism)	38	11	12	14
	Fighting in the streets	40	14	14	16
	Looking out the public space for drug dealers	38	11	11	11
	Assaulting pedestrians	39	8	13	11
Willingness to walk	Participant would walk	1	18	22	27
	Participant would walk under conditions[1]	11	12	9	8
	Participant would not walk	25	3	2	1

* Cells are coloured in shades of blue to facilitate the visualisation of the data. Higher values are coloured in darker tones.

1 Have company, only in daylight hours or having no other option available.

opportunities than those who were born in more affluent areas; being negatively affected by poorly implemented policies and other inequalities frame the narratives developed by those who were part of this research:

(1) "[The State] builds houses in the periphery where obviously crime will appear. It puts all the [poor] people together; it does not allocate them in different places. It will never, for instance, build social housing in Vitacura or Las Condes (both well-off areas of Santiago). It's impossible; the social class is different. They are the upper class and we… we are the middle class, because the lower class doesn't exist anymore.

> The State makes the difference; it discriminates people according to their social class. […] It doesn't care about what happens to the people here; in the periphery. People have to subsist as they can; survive as they can." (middle-aged female explaining places like the Baseline Scenario)

Like this excerpt shows, participants were aware of the eradication of extreme forms of deprivation and the role of the State in the creation of the inequalities which affect them. They described the scenarios depicting a well-maintained public space as distant realities. In many cases, participants were unable to identify an equivalent place among their everyday spaces arguing that cleanness, order and maintenance are attributes of the well-off. Conversely, those scenarios which illustrated deteriorated public spaces or those which are clean, but lacking in amenities, were mirrored on well-known places; places where participants live(d), have relatives or experience daily. The public space was often described as a privilege of those who have resources, yet a risk for the those who live in disadvantaged neighbourhoods.

Participants feared their public space—it epitomises the urban violence present in Santiago's disadvantaged neighbourhoods—and modified their practices to reduce the possibilities to be accidentally involved in a serious incident. Reflecting on everyday practices, they described as a normal action walk just for the strictly necessary and avoid any place which hints violence on its features. When placing activities, almost all participants expected to find drug trafficking and consumption, robbery, aggressions, street fights, vandalism and other violent and illicit activities in the Baseline Scenario; a well-known place. These activities were less anticipated in the other three scenarios. Activities which imply recreation or contest any form of violence were mostly placed on Scenario 2 and Scenario 3 and almost not expected to happen in the Baseline Scenario and in Scenario 1 (Table 1).

Participants regularly walk through places like the Baseline Scenario. They described that walking in these places is an unavoidable, unpleasant and risky experience that require additional effort (e.g. constant alertness) and strategies (e.g. walking accompanied, walking during certain hours). If participants had a choice, the majority would not walk in places like the Baseline Scenario. Scenario 2 and Scenario 3 were less resisted, still a group of participants would not walk or would walk only accompanied or during daylight hours (Table 1).

As reported in Figueroa *et al.* (2019), the high level of deterioration and neglect, the presence of territorial markers, the impermeable facades, self-construction and the building typology of the Baseline Scenario were considered indications of social degradation. For participants, this scenario represented the stereotype of recent social housing: a dense neighbourhood which offers a low quality of life, is prone to be controlled by drug trafficking and is inhabited by a weak community. As such,

participants expected to encounter drug trafficking and its related activities (i.e. consumption, street fights, aggression caused by drug consumers, robbery and even prostitution) in the public space of the Baseline Scenario (Table 1).

Few participants placed recreational activities (e.g. street games, sports) or any other which could imply a community expelling wrongdoers or taking care of the public space (e.g. cleaning). Although participants walk regularly through areas like this scenario, the majority would avoid walking in equivalent places if they had an opportunity to do so. They fear the latent violence provoked by drug trafficking and its consequences; and these activities which may not be present all the time in the public space but are unpredictable:

(2) "I would prefer to walk there (pointing Scenario 3). Here (pointing the Baseline Scenario) is more complicated because you have the risks of stray bullets, drug addicts. Between this two [scenarios], there is an imminent risk here (pointing the Baseline Scenario again)." (middle-aged male before placing activities)

Among the activities placed in the Baseline Scenario, trafficking was described as the concluding stage of long processes of social decay and a leading activity which prepares the ground for other activities to arrive. In the view of those who participated in this research, if the physical environment of a particular place seems suitable for trafficking; it is also favourable for drug and alcohol consumption, robbery and related forms of violence (e.g. street fights and violent attacks from addicts suffering comedowns).

In judging what activities might occur in the public space, participants tended to draw links between the built environment, the qualities of the residing community and the public life. The local community was described as the primary—and even the sole—responsible actor for the maintenance of the public space and its protection from potentially harmful activities. Although drugs and crime were described as widespread issues affecting the Chilean society at all its levels, both are visible and capable of controlling the public space in deprived neighbourhoods just because the local communities have given room to let it happen.

The correlations between the community and the public life gave prominence to the private property as well. To be able to walk, deteriorated and vandalised streets are comparable to impermeable fences and over-protected houses. The first case symbolises a community that has been permeated by wrongdoers and has allowed the destruction of the public space; whereas the second case is linked to families which have chosen, or were forced, to restrict their life to the private space and have renounced to the public realm. In the latter, it is just a matter of time to see the public space destructed and occupied by dealers and addicts:

(3) "Look, many good people can live here (pointing the Baseline Scenario). The wrongdoers can be ten out of one thousand, but these ten can prevent people's development in the public space. Because, to avoid conflicts with drug buyers, people prefer to stay inside… I think people avoid cleaning [the public space] and worry more of putting fences, of imprisoning themselves [in the houses], of evading the street." (older male)

Participants were aware of the prejudicial effects of being trapped in the houses on the cohesion of the communities, on the protection of the public life and on personal development. Reflecting on the trajectories of decay observed in their own neighbourhoods, they described a process which starts in the social structures and is crystallised later on the built environment. A silent conflict between the local community, which need time and opportunities to strengthen, and drugs, which start to consume those individuals who have fewer opportunities. In this conflict, participants described a tipping point where the local community is strong enough to persist in time—and at least keep drugs confined inside the private space—or has weakened at the point of losing entitlements and the control of its spaces.

Pedestrians avoid highly neglected places, they can be involved in violent incidents and, if something happens, there is a low chance to receive help from locals. Nonetheless, participants are also afraid of better-maintained places. Any public space that looks "good" can be located in a neighbourhood where social deterioration has not been yet reflected in the built environment and, therefore, can still be an unpredictable place to walk.

6. 5. 1. Emptiness

In comparison with the Baseline Scenario, Scenario 1 has a well-delineated road and two sidewalks next to a clean, but vacant, piece of land. Self-construction is not visible from the public space, property lines are straight, fences are not destructed and are visually permeable. Fewer activities were placed on this scenario as the "newness" polarised the expected patterns in the public space (Table 1).

Echoing the social decline mentioned earlier, a number of participants placed mostly illicit activities (e.g. drug trafficking, consumption and violence), recognising in this scenario a neighbourhood already taken by drugs. Conversely, other participants considered this scenario as inhabited by a resilient community and, hence, placed activities which involve the defence of the public realm and recreation. However, in both cases participants expressed concerns of the emptiness, of not knowing what to expect and how to behave when walking:

(4) "Honestly, this image (Scenario 1) causes me.... I don't know. It looks like… new apartments [doubting]… but has nothing. If you ask me to walk here, I see nothingness." (young male)

Of the recreational activities placed in this scenario, participants expected to find children playing street games or sports and people chatting due to the existence of a well-defined road for cars (i.e. safety) and the availability of an open space. In this regard, participants stressed that some activities will happen anywhere if there is an available place. This, nevertheless, came coupled with the normalisation of spatial inequalities. More than the resilience of certain recreational activities for children (e.g. street games), adolescents (e.g. sports) and adults (e.g. chatting) to the environmental conditions, participants referred to the absence of adequate spaces to socialise which are either far from home, in unfamiliar neighbourhoods, or presumably occupied by dealers. Lacking in spaces, a narrow and bare sidewalk, relatively calm roads or an empty piece of land are the sites to socialise or play.

Well-maintained public spaces like squares, parks, playgrounds or multi-sport pitches are relatively new in the landscape of numerous disadvantaged neighbourhoods of Santiago. Recently constructed as part of programs of urban rehabilitation; these places are still "dots" in vast networks of precarious streets which rarely offer more than a shared paved surface for cars and pedestrians or a narrow and dry sidewalk. As such, better public spaces are described as *singularities* which can be utilised *only if* they are located *nearby* and *belong* to my community.

Participants were unfamiliar with good public spaces. To walk, they can easily predict patterns on neglected, vandalised or deteriorated built environments, which are common where they travel; yet well-maintained spaces are less-known, more unpredictable and, hence, are not necessarily good places to walk. Conversely to the Baseline Scenario, where all participants coincided on relating features of the environment with illicit activities and described precise and similar if not identical patterns; in the scenarios which included well-maintained public spaces participants differed in their rationales and doubted of their ability to rightly read the risks.

6. 5. 2. "Normal" behaviours

The square with trees, lawns and benches added in Scenario 2 to occupy the vacant space of Scenario 1 increased the number of recreational activities expected to happen and the willingness to walk. Participants placed more recreational activities and fewer illegal or violent activities in comparison with the Baseline Scenario and Scenario 1. In addition, many were willing to walk in a place with similar features. The square was described as an indication of healthy social interactions which can secure the public space for pedestrians. Following the sense of privilege of well-

maintained spaces and attributing to this place a resilient community, participants also placed activities which eventually could contest the emergence of drug-related activities. The square was depicted as something "worthy" to protect (Table 1).

The night tended to change the significance of the square for pedestrians. From dusk, and independent of street lighting, the square symbolised drugs and violence for those participants who have been regularly exposed to the risks of these activities in equivalent places. When placing drug trafficking, consumption and related activities in this scenario, these participants stressed their negative experiences in known public spaces. Like the argument of Koskela and Pain (2000) and as reported in Figueroa *et al.* (2019), the exposition to violence transformed the public space in general into a threat. Other participants placed drugs-related activities, arguing that a good public space still can be taken by wrongdoers living in adjacent neighbourhoods. Meanwhile, a third group of participants placed just drug consumption in the square, this related to the availability of a comfortable place to stay (e.g benches and grass) for the consumption of "soft" drugs (like cannabis) and the "normal" absence of the rest of the community from the public space during night hours.

The absence of the community was paired with other assumptions about the expected normal behaviour. Although participants did not penalise walking as Pooley *et al.* (2014) and Hanson *et al.* (2016) noticed in the British context, they did consider abnormal other activities which secure the public space for walking. Unless there is a clear environmental opportunity to engage in social interactions, gossiping, chatting in the public space for a long time or in unusual hours (e.g. the night), watching the public space if something strange happens (an activity placed more times on the Baseline Scenario than the others) and other less purposive activities are either attributed to the poor or uncommon acts in an individualistic society:

(5) "Where I lived, it was calm. I arrived from my work to my house; I stayed in the house until the next morning to go to work again. Nobody knew if I was at home or not." (middle-aged female exemplifying the proper behaviour of hard-working people)

(6) "People don't talk in the streets anymore. Each person lives in its own world; the old friendly environment disappeared. Nobody cares about what is happening around." (middle-aged female)

6. 5. 3. Appropriation

In comparison with Scenario 2, Scenario 3 just adds three self-constructed extensions of the main apartment building in the right corner of the image. These extensions replicate existing schemes in block apartments yet following the straight line drawn by the fences. Of these three extensions, one is occupied by a groceries

shop ("almacén" in Spanish) and has three advertising signs: two adjacent to the green area and another sign outside the shop. The willingness to walk in this place was the highest and the majority would walk in a place with features like Scenario 3. Recreational activities followed a similar pattern to the observed in the previous scenario; participants placed them in this scenario because of the well-maintained square. Those participants who, due to personal experiences, placed drug trafficking and consumption in the previous scenario also situated these activities in Scenario 3.

The shop in this scenario caused an increase in the number of recreational and social activities placed. It was linked to consolidated communities; places where crime is low or under control to allow shops to thrive. Similar to the "public character" described by Jacobs (1961), revisited by others (Appleyard *et al.* 1981; Jacobs 1995; Zukin 1995), participants described shop owners and vendors as individuals who are in contact the community, participate in the public life of the neighbourhoods and prevent disorder with their presence in (or close to) the public space. A shop is a sign of a healthy community, secures the public space and creates valid opportunities to encounter others, to converse or just to "cahuinear" (a friendly expression used to describe short conversations and gossiping).

Nevertheless, to be considered as a sign of social reproduction and safety for pedestrians, the inside of the shop and the public space must have spatial continuity. Fences and barriers protecting entrances, shelves or counters, distance vendors from the public space and limit their opportunities to act as a public character. The *metric* (how far away) and topological *distances* (how many barriers exist) between the interior and the public space also are seen as an indicative of appropriation. In participants' view, closeness to the street encourages vendors, shop owners or residents to "show up" in the public space to keep it in good conditions.

In addition to that, owners and vendors were described as "people who have something [to protect] and dare to do more" (young female), "people who need to protect their image" (middle-aged male) or "people who care about others" (middle-aged male). There is an underlying belief in which people take care of those elements which affect them directly or define others' perceptions. A shop or a house which is close enough to the street should care for its patch of public space to attract clients or to project a good image to the rest of the community.

6. 5. 4. The meta-narratives of the built environment

The improvements illustrated in the four scenarios increased the willingness to walk in the majority of those who participated in the research. More indicatives of socially productive activities in the built environment, less resistance to walk. However, these improvements provoked little change in some individuals who expressed

aversion to walk in any place regardless of the environment. As Table 1 shows, a number of participants would travel only under special circumstances (i.e. being accompanied, having no other option than travel or walk during daylight hours) even in the Scenario 3 which was generally described as a good place to walk.

As briefly described before, the attitudes of those who suffered a traumatic incident, have acquaintances with similar experiences or face(d) regularly violence (e.g. hearing gunshots) were translated into fears to the public space in general. For other few participants, the improvement of the built environment caused minor effects on their willingness to walk due to fears rooted outside the personal experience. These participants walk just for the strictly necessary, prefer to stay at home and consider themselves incapable to deal with the public realm. They were reluctant to walk even in the scenarios which they depicted as pleasant because there is not a safe place. Drugs and violence are "everywhere", are powerful enough to obstruct any attempt to recover the environment and can harm anyone present in any public space.

This was reinforced by the absence of a clear agent responsible for the public space. As mentioned earlier, participants assigned the care of the public space to the local communities and not to the State which is, in fact, the entity in charge. For participants, the State is an unreliable actor which forgot them many years ago in the periphery and appears sporadically to build/repair local facilities or to construct/maintain surrounding infrastructures which are key for the city (e.g. avenues, highways, rainwater collection systems). This belief tended to transform into threats any place which cannot be attributed to a particular community. Frontiers between neighbourhoods, empty land surrounding facilities, blind walls, minor arteries and other intermediate spaces are no man's land for participants no matter the physical conditions. Illegible places, with unfamiliar patterns and hostile conditions, where walking, if possible, is difficult:

(7) "For instance, in San Francisco (a local avenue) is rare to see people cleaning, but in these (pointing to scenarios 2 and 3) people should care of the public space because they live there. […] There is rubbish [in San Francisco avenue], it's empty, nobody walks. It is not a place to go." (young male)

6. 5. 5. The improvement of the built environment

The analysis of the data gathered from the public sector suggests that participants' narratives are expressions of deeper phenomena that may be hindering the improvement of the built environment. As policymakers and officials argued, the territorial fragmentation and the patterns of territorial inequality of Santiago

seems to have fuelled on residents of deprived areas feelings of having fewer opportunities to progress and having no support to face the drawbacks that affect their neighbourhoods, leading to a general social disengagement and a lack of interest to be involved in any activity or program that may imply the improvement of the environment. Like many participants explained during the interviews, there are strong beliefs that better environments cannot exist in the neighbourhoods where they live and their spaces and structures, no matter what they do, will deteriorate.

The lack of mechanisms to intervene directly disadvantaged neighbourhoods seems to have reinforced the belief that the State is absent. From policymakers and officials' point of view, the success of Chilean policies in almost eradicating extreme forms of deprivation narrowed the options to intervene on the structures of the neighbourhoods. As they argued, the main mechanisms to reach those in need tend to be indirect (e.g. subsidies), atomise demands (e.g. resources assigned to individuals/ families), focus on the provision of shelter (e.g. houses), have made difficult larger interventions on neighbourhoods and have overshadowed other aspects of the experience of living in deprived areas. Walking, for instance, was described by policymakers and officials as a key aspect that has received little attention from the public sector.

Policymakers and officials described that organised local communities and local governments had collaborated in the creation of new mechanisms to intervene in deprived areas. In a country that is often struck by earthquakes and fires, catastrophes and emergencies were pointed out as opportunities to skip traditional mechanisms, unveil hidden needs and create new instruments to intervene long-neglected aspects of the policies (e.g. facades). However, despite these innovations and although there are numerous programs that are recovering deprived areas, these are relatively recent and seem to be not enough for the large territories that need upgrading, to ameliorate broader disparities (e.g. socio-spatial segregation), construct trust and modify the narratives of the absent State.

6. 6. Conclusions

The article seeks to investigate how and why an improved built environment eases the experience of walking of disadvantaged groups. According to the data collected, hostile built environments are a normal characteristic of walking through Santiago's disadvantaged neighbourhoods; an aspect to be "negotiated" rather than an option which can be avoided.

As a cue of the social qualities of the places, like Koskela and Pain (2000) and Figueroa *et al.* (2019) describe, pedestrians find safety on built environments which reflect consolidated social processes and appear to be "socially productive", by this means,

places which have visible opportunities to engage in healthy social interactions. For instance, despite being clean, ordered and well-maintained, Scenario 1 was not considered a good place to walk. Participants described this scenario as a place where the built environment still does not reflect the qualities of the residing communities—which can be either strengthening or decaying—and can have hidden risks. In opposition, the shop depicted in Scenario 3 was characterised as a feature that can subsist only in neighbourhoods inhabited by strong communities and was linked to appropriation, to healthy social interaction, to shelters in case of emergency and to "public characters" as defined by Jacobs (1961) and others (Lynch 1960; Appleyard *et al.* 1981; Gehl 1987; Whyte 1988; Jacobs 1995; Zukin 1995).

The shop also highlighted the relevance of the topological and metric distances between the public space and the private property in the production of supportive built environments to walk. A shop connected to the public space, not over-protected by fences and other devices, tended to have more beneficial impacts on the public life and walking. Conversely, fortified shops or houses were seen as signs of frightened communities, threatening activities in the public realm and discouraged walking regardless of how well-maintained or well-equipped was the public space. In addition, the prejudices against certain activities and the expected behaviour of the community made more difficult the production of supportive environments for pedestrians. Even though walking is not socially penalised as Pooley *et al.* (2014) and Hanson *et al.* (2016) have noticed in other contexts, some activities which secure the public space (e.g. chatting) are either attributed to the "poor" or considered "abnormal".

The improvements illustrated in the scenarios evinced the existence of barriers linked to the context of disadvantage which framed pedestrians' comprehension of the built environment. The social isolation and other inequalities detected by numerous scholars that have studied Santiago (Ducci 1997; Sabatini 2000; Rodríguez and Sugranyes 2004; Rodriguez *et al.* 2014) tended to be reflected in the lack of familiarity with better public spaces. As the sequence of scenarios showed improvements, participants were less familiar with the public realm, less skilled to infer patterns from the built environment, more likely to anticipate threatening, but well-known, activities in any given place and less likely to modify acquired attitudes and behaviours. Better places are far, in wealthy neighbourhoods, and can be hard to comprehend for those who are isolated and experience disadvantaged environments daily.

The obstacles to ease walking through improvements in the built environment found more resistances in individuals who have negative precedents. In line with the argument in which territorialised experiences can cause fear to the public realm (Koskela and Pain, 2000) and shape walking (Edensor 2000; Matos, 2008; Sharmeen

and Timmermans 2014), those participants who suffered violent experiences, knew someone who was assaulted or were exposed to violence regularly were reluctant to travel even in environments which they defined as "walkable" and with no clear signs of violence or other risks.

Rooted beliefs like the perception of drugs being everywhere and the absence of agency in spaces which cannot be attributed to the community also acted as barriers to walk independently of the environmental conditions. In those cases, apprehensions trigger a "vicious circle" in which experiences, fears and beliefs incite individuals to walk less, less walking decreases the contact with the public space, less contact with the public space strengthen fears and so forth. The vicious circle undermines the abilities to handle the public realm (Ingold 2011; Hodgson 2011; McFarlane 2011)—and supports the claim made by Adkins *et al.* (2017) of the existence of "many reasons" which may impede the enjoyment of supportive environments—and may explain the low impact of the built environment on walking among those living in disadvantage. Furthermore, social disengagement and narratives of distrust towards the State seem to by preventing or making difficult the improvement of the public space.

Can an improved built environment ease walking? According to the findings, improvements in the configuration of the built environment can contribute to the production of healthy interactions, the appropriation and protection of the public space, the reduction of signs of violence and, therefore, can alleviate fears and give more certainties to pedestrians. Investing in the built environment of disadvantaged places can diminish spatial inequalities and can provide opportunities to understand better public spaces. Meanwhile, a better environment could be the starting point for the implementation of other strategies to support those who are afraid of walking due to deep-rooted fears. To give them opportunities to access the public realm and allow them to walk again.

Acknowledgments

This article was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the first author.

References

Adkins, Arlie, Carrie Makarewicz, Michele Scanze, Maia Ingram, and Gretchen Luhr. 2017. "Contextualizing walkability: do relationships between built environments and walking vary by socioeconomic context?" *Journal of the American Planning Association* 83, no. 3: 296-314.

Appleyard, Donald, Sue Gerson, and Mark Lintell. 1981. *Livable streets, protected neighborhoods*. University of California Press.

Benediktsson, Mike. 2018. "Where Inequality Takes Place: A Programmatic Argument for Urban Sociology." *City & Community* 17, no. 2: 394-417.

Bostock, Lisa. 2001 "Pathways of disadvantage? Walking as a mode of transport among low-income mothers." *Health and social care in the community* 9, no. 1: 11-18.

Bruce, Anne, Rosanne Beuthin, Laurene Sheilds, Anita Molzahn and Kara Schick-Makaroff. 2016. "Narrative research evolving: Evolving through narrative research." *International Journal of Qualitative Methods* 15, no. 1.

Caldeira, Teresa. 2017. "Peripheral urbanization: Autoconstruction, transversal logics, and politics in cities of the global south." *Environment and Planning D: Society and Space* 35, no. 1: 3-20.

Ding, Ding and Klaus Gebel. 2012. "Built environment, physical activity, and obesity: what have we learned from reviewing the literature?" *Health & place* 18, no. 1: 100-105.

Ducci, María Elena. 1997. "Chile: el lado obscuro de una política de vivienda exitosa." *EURE* 23, no. 69: 99.

Durand, Casey, Mohammad Andalib, Genevieve Dunton, Jennifer Wolch and Mary Ann Pentz. 2011. "A systematic review of built environment factors related to physical activity and obesity risk: implications for smart growth urban planning." *Obesity Reviews* 12, no. 5: e173-e182.

Ewing, Reid and Robert Cervero. 2010. "Travel and the built environment: a meta-analysis." *Journal of the American planning association* 76, no. 3: 265-294.

Figueroa, Cristhian and Rosanna Forray. 2015. "Movilidad femenina: los reveses de la utopía socio-espacial en las poblaciones de Santiago de Chile." *Revista de Estudios Sociales/Journal of Social Studies* 54: 52-67.

Figueroa, Cristhian, Frances Hodgson, Caroline Mullen and Paul Timms. 2018. "Creating inequality in accessibility: The relationships between public transport and social housing policy in deprived areas of Santiago de Chile." *Journal of Transport Geography,* 67: 102-109.

Figueroa, Cristhian, Frances Hodgson, Caroline Mullen and Paul Timms. 2019. "Walking through deprived neighbourhoods: meanings and constructions behind the attributes of the built environment." *Travel Behaviour and Society,* no. 16: 171-181.

Figueroa, Cristhian, Frances Hodgson, Caroline Mullen and Paul Timms. Forthcoming. "Walking the line: territorial and performative aspects of walking in deprived neighbourhoods of Santiago de Chile." Unpublished work.

Fossey, Ellie, Carol Harvey, Fiona McDermott and Larry Davidson. 2002. "Understanding and evaluating qualitative research." A*ustralian and New Zealand journal of psychiatry* 36, no. 6: 717-732.

Geddes, Alistair, Charlie Parker and Sam Scott. 2018. "When the snowball fails to roll and the use of 'horizontal'networking in qualitative social research." *International Journal of Social Research Methodology* 21, no. 3: 347-358.

Gehl, Jan. 2011. *Life between buildings: using public space*. Island Press.

Goss, Jon. 1993. "The "magic of the mall": an analysis of form, function, and meaning in the contemporary retail built environment." *Annals of the Association of American Geographers* 83, no. 1: 18-47.

Handy, Susan, Marlon Boarnet, Reid Ewing and Richard Killingsworth. 2002. "How the built environment affects physical activity: views from urban planning." *American journal of preventive medicine* 23, no. 2: 64-73.

Hanson, Sarah, Cornelia Guell and Andy Jones. 2016. "Walking groups in socioeconomically deprived communities: a qualitative study using photo elicitation." *Health & place* 39: 26-33.

Hodgson, Frances. 2011. "Structures of encounterability: space, place, paths and identities." *Mobilities: news perspectives on transport and society*: 41-64.

Iglesias, Paula, Margarita Greene and Juan de Dios Ortúzar. 2013. "On the perception of safety in low income neighbourhoods: using digital images in a stated choice experiment." *Choice Modelling: The State of the Art and the State of Practice*: 193-210.

Ingold, Tim. 2011. *Being alive: Essays on movement, knowledge and description*. Taylor and Francis.

Jacobs, Allan. 1995. *Great streets.* Cambridge: MIT Press.

Jane, Jacobs. 1961. *The death and life of great American cities*. New York, NY: Vintage.

Koskela, Hille, and Rachel Pain. 2000. "Revisiting fear and place: women's fear of attack and the built environment." *Geoforum* 31, no. 2: 269-280.

Lamíquiz, Patxi and Jorge López-Domínguez. 2015. "Effects of built environment on walking at the neighbourhood scale. A new role for street networks by modelling their configurational accessibility?" *Transportation Research Part A: Policy and Practice* 74: 148-163.

Landon, Paulettn. 2013. "Movilidad cotidiana e infraestructura vial: nuevos desafíos urbanos para la inclusión social en la ciudad. El caso de la Autopista Acceso a Santiago." *Revista de trabajo social* 84: 31-45.

Lindelöw, David, Åse Svensson, Catharina Sternudd and Maria Johansson. 2014. "What limits the pedestrian? Exploring perceptions of walking in the built environment and in the context of every-day life." *Journal of Transport and Health* 1, no. 4: 223-231.

Lynch, Kevin. 1960. *The image of the city.* Cambridge: MIT press.

Maghelal, Praveen and Cara Jean Capp. 2011. "Walkability: A Review of Existing Pedestrian Indices." *Journal of the Urban & Regional Information Systems Association* 23, no. 2.

Mason, Phil, Ade Kearns and Lyndal Bond. 2011. "Neighbourhood walking and regeneration in deprived communities." *Health & Place* 17, no. 3: 727-737.

Mason, Phil, Ade Kearns and Mark Livingston. 2013. ""Safe Going": the influence of crime rates and perceived crime and safety on walking in deprived neighbourhoods." *Social science & medicine* 91: 15-24.

Matos, Filipa. 2008. "Walking and rhythmicity: Sensing urban space." *Journal of Urban Design* 13, no. 1: 125-139.

McCormack, Gavin and Alan Shiell. 2011. "In search of causality: a systematic review of the relationship between the built environment and physical activity among adults." *International journal of behavioral nutrition and physical activity,* no. 8 (1): 125.

McFarlane, Colin. 2011. *Learning the city: knowledge and translocal assemblage.* John Wiley and Sons.

Middleton, Jennie. 2009. "'Stepping in time': walking, time, and space in the city." *Environment and Planning A* 41, no. 8: 1943-1961.

MINVU. 2012. *Instructivo para identificación y definición de Zonas prioritarias de interés público.* Santiago: Secretaría Ejecutiva de Desarrollo de Barrios, MINVU.

MINVU. n.d. M*emorias de la 6 de Mayo.* Santiago: MINVU.

Næss, Petter. 2015. "Built environment, causality and travel." *Transport reviews* 35, no. 3: 275-291.

Newman, Oscar. 1972. *Defensible space*. New York: Macmillan.

Pooley, Colin, Dave Horton, Griet Scheldeman, Caroline Mullen, Tim Jones and Miles Tight. 2014. "'You feel unusual walking': The invisible presence of walking in four English cities." *Journal of Transport and Health* 1, no. 4: 260-266.

Rapoport, Amos. 1990. *The meaning of the built environment: A nonverbal communication approach*. University of Arizona Press.

Rodríguez, Alfredo and Ana Sugranyes. 2004. "El problema de vivienda de los" con techo"." *EURE* 30, no. 91: 53-65.

Rodríguez, Alfredo, Paula Rodríguez, Marisol Saborido, Olga Segovia and Lylian Mires. 2014, "Visible and invisible violence and inequality in neoliberal Santiago." *Environment and Urbanization* 26, no. 2: 359-372.

Romero, Andrea. 2005. "Low-income neighborhood barriers and resources for adolescents' physical activity." *Journal of Adolescent Health* 36, no. 3: 253-259.

Sabatini, Francisco. 2000. "Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial." *EURE* 26, no. 77: 49-80.

Schwanen, Tim, Mei-Po Kwan and Fang Ren. 2008. “How fixed is fixed? Gendered rigidity of space–time constraints and geographies of everyday activities.” *Geoforum* 39, no. 6: 2109-2121.

Sharmeen, Fariya and Harry Timmermans. 2014. "Walking down the habitual lane: analyzing path dependence effects of mode choice for social trips". *Journal of Transport Geography*, 39, pp.222-227.

Saelens, Brian and Susan Handy. 2008. “Built environment correlates of walking: a review.” *Medicine and science in sports and exercise* 40, no. 7 Suppl.: S550.

SECTRA. 2012. *Encuesta Origen Destino Santiago.* Santiago: SECTRA.

Shen, Yue, Yanwei Chai and Mei-Po Kwan. 2015. "Space–time fixity and flexibility of daily activities and the built environment: A case study of different types of communities in Beijing suburbs". *Journal of Transport Geography* 47: 90-99.

Starks, Helene and Susan Brown. 2007. “Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory.” *Qualitative health research* 17, no. 10: 1372-1380.

Techo-Chile. 2016. *Catastro de Campamentos 2016*. Santiago: Centro de investigación social Techo-Chile.

Torres, Ignacia, Margarita Greene and Juan de Dios Ortúzar. 2013. “Valuation of housing and neighbourhood attributes for city centre location: A case study in Santiago.” *Habitat International* 39: 62-74.

Van den Berg, Pauline, Astrid Kemperman, Boy de Kleijn and Aloys Borgers. 2016. “Ageing and loneliness: the role of mobility and the built environment.” *Travel Behaviour and Society* 5: 48-55.

Whyte, William. 1988. *City. Return to the center.* New York: Anchor books.

Zukin, Sharon. 1995. *The cultures of cities.* Oxford: Blackwell.

Chapter 7

Conclusions

7. 1. Overview (objective 1)

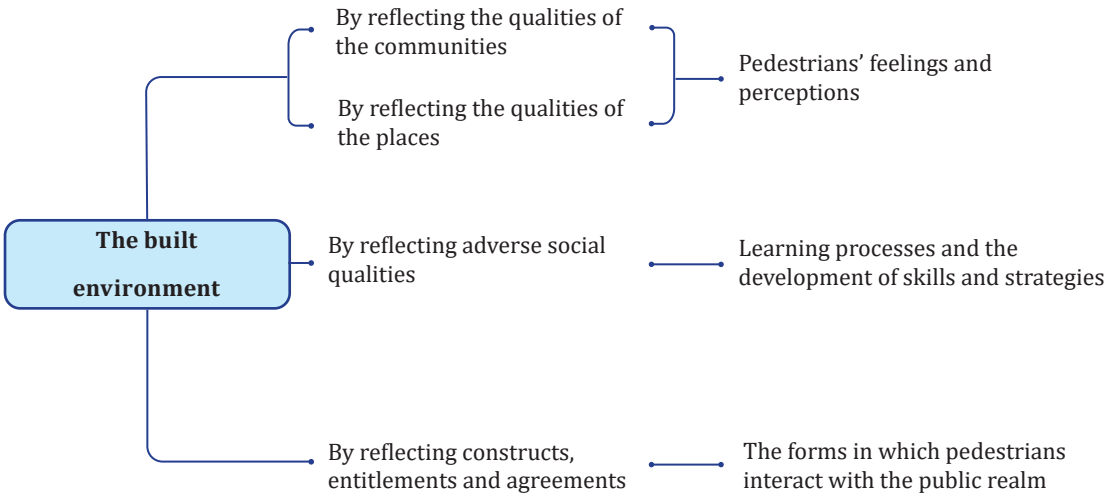
This research sought to inquire on how and why the built environment influences the practice of walking of those who live in deprived and disadvantaged areas. The data gathered and the subsequent analyses reported in this thesis differ in a variety of forms with the traditional body of literature investigating the impacts of the built environment on walking. For instance, density, a feature normally described as conducive for walking (*see* Sealens and Handy, 2008; Ewing and Cervero, 2010; McCormack and Shiell, 2011; Wang and Yang, 2019), appeared as unfavourable in this research due to participants' association of it with certain stigmatised building types (Chapter 5). Land use, another aspect of the built environment profusely measured in the literature, appeared as relevant in this research tangentially, as it collaborates in the construction of normality (Chapter 4) can redraw territories and nurture the public life (Chapter 5). The aspects of the built environment that appeared as relevant in this research were those imbued with meaning. Coinciding with Næss (2015; 2016), these aspects were described within the socio-cultural context (e.g. absence of the State) and, in conjunction with other causal powers (e.g. perception of insecurity), influenced walking in a variety of forms.

The data collected suggested impacts of the built environment on aspects of travelling on foot that have been explored in the literature about walking (mobilities) but rarely included in the body of research about the built environment (social geography). The evidence indicated that the built environment can influence:

- Pedestrians' feelings (Bostock, 2001; Matos, 2008; Benediktsson, 2018), as the physical conditions of the places can elicit emotions (Chapter 5).
- Pedestrians' perceptions (Koskela and Pain, 2000; Demerath and Levinger, 2003; Ingold and Vergunst, 2008; Jensen, 2009; Lorimer, 2011; Middleton, 2018), as the built environment can strengthen fears and can be a key element to find safety (Chapter 5).
- The complexity of walking (Hodgson, 2011; 2012), as the built environment can foment the development of complex skills and strategies (Chapter 4).
- Learning processes (Ingold, 2011; McFarlane, 2011), as the analysis suggested that habits and tactics learnt in particular environments are normalised and extrapolated elsewhere (Chapter 5).

Figure 1. Walking and the built environment.

Source: author's own.



- The forms in which pedestrians interact with the public realm (Matos, 2008; Spinney *et al.*, 2015), as the built environment can reflect and strengthen social constructs, entitlements and tacit agreements (chapters 3, 4 and 5).

Summarised in Figure 1, the data collected also showed that the built environment was imbued with meaning and caused a variety of changes in pedestrians' attitudes and behaviours (chapters 4 and 5).

Somehow challenging the low correlation between the built environment and walking in groups that suffer disadvantages detected by the traditional body of literature (Adkins *et al.*, 2017), the analyses of the data collected suggested that an "improved" built environment can ease walking and, therefore, potentially modify its metrics. An improved built environment seemed to ameliorate fears and collaborate to dismantle narratives that restrict walking, improving people's experience and willingness to walk. However, complex barriers that prevent the improvement of the built environment were also detected in this research (Chapter 6).

Excluding objective 1 which was addressed in Chapter 1, the following sections cover the objectives of this thesis and summarise the main findings. Section 7.2 covers objective 2, characterises the expressions of disadvantage in Santiago de Chile, and explores the findings reported in chapters 2 and 3. Section 7.3 covers objective 3, characterises the conditions in which walking happens in disadvantaged areas of Santiago de Chile, and includes findings reported in chapters 4 and 5. Section 7.4 covers objective 4, characterises those features of the built environment that are relevant for walking, and summarises the findings reported in chapters 4 and 5. Section 7.5 covers objective 5, characterises the impacts of improved built environments on pedestrians' experience and willingness to walk, and summarises findings reported

in chapter 6. Section 7.6 covers the last objective, describes those aspects that prevent or facilitate the improvement of the built environment of deprived areas, reported in chapter 6. Section 7.7 and Section 7.8 summarises the findings and the limitations of this research, respectively. A final section (Section 7.9) covers further questions that were not investigated in depth in this research.

7. 2. On the expressions of inequality and disadvantage in Santiago de Chile (objective 2)

Chapters 2 and 3 summarised the key role played by the public sector in the production and reproduction of disadvantages and inequalities in Santiago de Chile. In a high register, the combination of housing policies and a poorly implemented modernisation of the system of public transport seemed to have increased the costs of accessing the available services for the most disadvantaged groups of Santiago. In a low register, the changes in the approaches towards the provision of housing gave few opportunities to consolidate and enrich the social structures of the neighbourhoods that gave shelter to the most fragile groups of the society, increasing fears and apprehensions towards the public space.

Key finding

People suffering from socio-economic disadvantages live far and isolated

As discussed in Chapter 2, the analysis of the data suggested that certain exclusionary process (as defined by Atkinson, 1998; Kenyon *et al.*, 2002; Cass *et al.*, 2005; Levitas *et al.*, 2007) may have been operating in Santiago. The housing schemes implemented since the decade of 1980 displaced the most disadvantaged groups to the outskirts and collaborated in the creation of a dense, yet deprived, periphery (Hidalgo, 2005; Hidalgo *et al.*, 2007). The data revealed that the densest areas of Santiago tend to be those produced under the umbrella of housing policies and are often located in the periphery of the city; at more than ten kilometres away from the city centre.

The data showed that the distribution of functions and activities is highly unequal. Jobs, services and facilities are clustered in the historic quarter and its financial expansion eastwards, whereas the rest of the city, and in particular the disadvantaged areas, tend to be homogeneously residential. In comparison with the averages of Santiago, individuals living in the most deprived areas require more time to access the available supply of jobs and services (i.e. education, healthcare and shopping). The areas where jobs and facilities are located are far and the system of public transport, in most of the cases, did not compensate this by providing better accessibility (Chapter 2).

Key finding

The State is invisible in the local sphere

The detrimental consequences of the public policies outlined above, referenced throughout this thesis and documented in the literature (Rodríguez *et al.*, 2014) seemed to have fuelled the distrust towards the figure of the State. In participants' narratives, the State is absent, represented as an unreliable actor and replaced in the local sphere by the community. As described in depth in Chapter 3, participants assigned the care of the public space, and more broadly of the local public realm, to the residing communities and not the State which is, in fact, the entity in charge of—at least—the public space (MINVU, 1975; MINVU, 1992). From the participants' point of view, if the public realm is physically deteriorated or controlled by drug trafficking or other harmful activities is just because the local community allowed it.

Key finding

The public space is invaded by "vices"

In the four studied neighbourhoods, participants described social deterioration. They depicted an "invasion of vices" that corroded their neighbourhood from its borders or slowly changed the nature of well-known inner public spaces. A sequential process in which they had a relatively pleasant life until the arrival of "strangers" or "outsiders" to their mundane spaces evinced the presence of drugs within the social and physical structures of their neighbourhoods. As reported in Chapter 3, this invasion seemed to echo the flipsides of Chilean housing policies, the lack of mechanisms to consolidate the local communities and develop ties within its members (Link *et al.*, 2017). It also seemed to reflect the inner polarisation detected by other authors in similar settings; a process in which the socio-territorial isolation foments the abandonment of the local spaces by those who can pursue traditional paths of social mobility, and traps those who are unable to do so in socially homogenous local structures (Saraví, 2004; Sabatini and Wormald, 2013; Ortega, 2014).

In participants' narratives, the public space epitomised the habits and behaviours of individuals who were left behind and, lacking in options, have engaged in drug trafficking and drug consumption. The public space was described as an unusual, unsafe and unattractive realm for "hard-working" people who should not linger in it unless necessary (i.e. journey to/from work or school). As discussed in Chapter 3, this belief tended to be reinforced by the residential nature of the neighbourhoods, shaping people's patterns of action in the public space; restricting the moments in which it is believed to be safe to stay outside and increasing the distrust towards those who linger more than expected or in unusual hours. Those were often described as individuals that could cause harm to others.

Key finding

Detrimental public policies, territorial inequalities and an unattractive public space are the starting point of many narratives of disadvantage

As reported in chapters 3, 4 and 5, the consequences of housing policies and the inequalities of Santiago were often the starting point from which individuals understand the everyday life they observe and experience in their neighbourhoods. In both data collections, participants acknowledged the prejudicial impacts of public policies on their lives and the general isolation in which they live. For the majority, travelling hours in crowded buses to reach jobs and services, having few opportunities to experience other realities and having to cope with the social and physical deterioration of their neighbourhoods are consequences of the abandonment in which they were left in the periphery. For those who are more isolated, these are the "costs" of being poor and being unable to progress.

7. 3. On walking in deprived neighbourhoods (objective 3)

As reported in chapters 4 and 5, the analysis suggested that the hostility of the deprived areas of Santiago influenced walking in a number of ways. Contrasting with the findings of other authors (Pooley *et al.*, 2014; Hanson *et al.*, 2016), walking itself was not represented in unfavourable forms in participants' narratives. However, its practice was delimited by negative perceptions towards the public realm and its life. These perceptions narrowed the moments of the day in which walking was possible, tightened the walkable territories and increased the apprehensions towards the public space (Chapter 4).

The interactions between pedestrians and the broader environment transformed walking into an unpleasant and challenging experience. Coinciding with the findings of Bostock (2001) and Benediktsson (2018), the general neglect of the physical structures of deprived neighbourhoods elicited unpleasant emotions on pedestrians. Furthermore, the social nature of walking (as defined by Demerath and Levinger, 2003; Ingold and Vergunst, 2008; Jensen, 2009; Middleton, 2018) was severely restricted by drug trafficking, consumption, its consequences on the public life and people's perceptions. Walking occurred among fears towards others; it happened accompanied by careful demeanours and premeditated patterns to avoid interactions with those that can cause harm.

The demeanours, attitudes, tactics and strategies that accompanied walking were represented in the narratives as reactions to the hostilities that participants faced in their everyday spaces. These were described as requirements to be able to walk and the result of environments that have become increasingly aggressive. Examining the findings from McFarlane's perspective (2011), the hostile environment of the

deprived areas of Santiago seemed to have shaped a difficult and challenging form of walking.

Key finding

Walking happens between narrow margins

Participants' territories have clear frontiers, between neighbourhoods, due to differing trajectories (Chapter 5, Section 5.4.4), or within their neighbourhoods, as a consequence of a profound social fragmentation (Chapter 4, Section 4.4.4). Depending on how social networks, experiences and knowledge were territorialised, pedestrians "meander" through patchworks of go and no-go areas. Detours were common strategies to evade places and not construct familiarity with those present in the public realm. If cars were available, walking could be replaced. If not, trips could be reduced by suppressing those journeys considered non-vital—and company could be a requirement for those who had fewer skills (e.g. children, teenagers) or had no other option than leave their comfort zone. The territorial restrictions were often more intense during night hours and those moments of the day where participants consider it "unusual" to be in the streets.

The data collected suggested that the participants' patterns of action in the public space were deeply intertwined to their definitions of normality. Narrow definitions of normality had numerous consequences; these fuelled apprehensions and fears towards those who linger in the streets in deviant hours, decreased people's willingness to occupy the public space (e.g. "hard-working" people should stay at home) and seemed to hinder the reproduction of capital and the construction of ties (Chapter 4, Section 4.4.2). Walking was less likely to happen in deviant hours and, if it does so, it happened among fears and apprehensions.

Key finding

Walking is unpleasant and challenging

The evidence indicated that through walking pedestrians experienced directly the processes that were acquiring form in their neighbourhoods. Participants pointed out that walking caused sadness, despair, anger and frustration as the environments where they walked often have signs of physical or social deterioration. Walking was represented as an unpleasant chore that offered a vivid reminder of the many disadvantages that affect the places where they live, the limited opportunities they have to progress and the lack of support they have to do so (Chapter 4, Section 4.4.1).

The unpleasantness was exacerbated by the challenges that drugs and several forms of urban violence prompted to pedestrians. Well-documented by the local literature (Ducci, 1997; Sabatini, 2000; Sabatini and Wormald, 2013; Rodríguez *et al.*, 2014), drug trafficking, consumption and different forms of urban violence were thoroughly

described by those who participated in this research. These were characterised as increasingly common problems that, by introducing more uncertainty into the spaces of the neighbourhoods, have multiplied the efforts needed to walk. Summarised in Section 5.4.5 (Chapter 5), the additional efforts that are required to walk were being gradually incorporated in the local narratives as essential capacities to travel.

Key finding

Walking is moulded by a hostile context

Participants' narratives suggested that the actions described above had been developed in close interaction with the hostile environments that are common in the places where they live. As vital skills, tactics and strategies to have a functional life. Changes in routes were described as strategies that are necessary to reach services and facilities located outside. The suppression of walking or the use of cars were characterised as forms of reducing the chances of being involved in an incident. Walking with the company of a third person was represented as a key strategy to make possible the journeys of fragile individuals. Meanwhile, skills and tactics in the spaces were described as significant behaviours to anticipate risks. The development of these skills and tactics, however, showed signs of having further implications.

Suppression of trips on foot, or their replacement by journeys in cars, seemed to be part of broader circles of reproduction of fear. Participants who suppressed or replaced walking tended to decrease their contact with the public space, multiplying their fears towards it. Requiring the company of another person to walk often meant the immobility of the companion and, in a gendered role, the companion tended to be a woman. As walking is learnt in a hostile context, apprehensions were often extrapolated to other realities. This phenomenon was particularly acute in participants who had suffered traumatic experiences or lived in isolation and rarely experience better realities. For them, walking was depicted as a risky activity no matter the conditions of the place.

7. 4. On the features of the built environment that influence walking (objective 4)

Chapters 4 and 5 reported and discussed the aspects of the built environment that emerged as relevant for pedestrians. Aspects that are traditionally measured in the literature about walking and the built environment, such as land use or and features of the urban form (*see* Sealens and Handy, 2008; Ewing and Cervero, 2010; McCormack and Shiell, 2011; Wang and Yang, 2019), appeared indirectly in participants' narratives (Chapter 4). As was outlined earlier, these aspects were not described as having immediate impacts on people's propensity to travel or the experience of walking, yet it was clear that these collaborated on the definition of

broader constructs that influenced the apprehensions towards the public space and its life (Figure 3).

Other features of the built environment that emerged as relevant for walking where those that conveyed messages. As mentioned earlier, some relevant aspects of the built environment elicited emotions in pedestrians and affected the quality of walking (Section 5.4.1). In the context of the social deterioration described earlier, other aspects of the built environment were those that were described as, using the words of Koskela and Pain (2000), "cues" to infer risks and adjust walking to different environments (Chapter 5, Section 5.4).

The conveyed messages were constructed on personal experiences, knowledge and broader narratives of disadvantage (in particular, the absence of the State and the invasion of vices) and were processes, such as the evolution of territorial conflicts or the trajectory of the community. The relevant features of the built environment represented points within these processes such as deteriorated public spaces representing a community in an advanced stage of social decay. In addition, the features of the built environment imbued with meaning were situated in the public space, like the vandalism on the public property, and the private property, like facades. Participants were well-aware of the different nature of the features located in the public space and the private property (e.g. time-related qualities or agency), yet they understood them in interaction. For instance, facades were described as a response to or a cause of the conditions of the public space.

Key finding

The built environment collaborates in the definition of normality

The urban form and land use were indirectly described by the participants and collaborated in the construction of narratives that strengthened fears towards strangers. In neighbourhoods lacking in facilities and with complex urban layouts, participants argue that the public space should be occupied almost exclusively by residents travelling from/to work or school during morning and afternoon peak hours. Any "stranger" entering to the streets of these neighbourhoods or doing so in unusual hours tended to be profiled as a potential wrongdoer. In these residential neighbourhoods, fear when walking was high. Participants living in well-connected neighbourhoods that have facilities or attractive public spaces inside showed less resistance to strangers. These were described as individuals that were using the available services or were crossing to nearby places. In neighbourhoods having diverse functions inside, fears when travelling on foot were lower (Chapter 4, Section 4.4.2).

Key finding

The built environment can elicit emotions

As the State was absent in the narratives, the level of maintenance of the public space was described as a result of the cohesion of the local community. Participants argued that an organised community cares for the public space; keeps it clean and in good conditions. Conversely, an unorganised or divided community allows its deterioration. Participants characterised the level of maintenance of the public space as a key feature to understand the communities where they live. It was depicted as a "benchmark" through which they understood the path that their communities are following and, therefore, it was described as an emotional issue that reflected the support they have from their social context to progress. Participants argued that deterioration of the public space does not hinder walking, but it makes it unpleasant (Chapter 5, Section 5.4.1).

Key finding

The built environment can be a "cue" to infer risks

The analysis of the data showed that certain features of the built environment epitomised disadvantages. Those features induced fears and were part of a rich repertoire of cues to infer the patterns of activities of the places and the qualities of the communities and adjust walking to different environments. In places that have environmental features that suggested the presence of hostile activities (e.g. drug trafficking), participants modified their practices to be aware of the surroundings and the actions of others (e.g. change the pace), have time to react in case of need (e.g. walk on the roads) and avoid encounters (e.g. cross the street). Places that have environmental features that suggested the presence of resilient communities and the absence of crime allowed more careless forms of walking.

The features of the built environment that mirrored the qualities of the community were located mostly in the private property. The characteristics of houses (e.g. facades) and shops reflected the cohesion of the community and how much support it can give to its members to progress. Conversely, the features that reflected the patterns of activities of the places, in particular, the presence of hostile activities, were situated in the public space (e.g. vandalism or destruction of the public property). In participants' narratives, the public space reflected the entitlements of the local community and the eventual transmission of these to groups and individuals who engage in illegal activities.

The built environment mirroring the qualities of the communities

Echoing the intertwined relationship between the borders of the public space and the public life described by Jacobs (1961) and others (Lynch 1960; Appleyard *et*

al., 1981; Gehl, 1987; Whyte 1988; Jacobs 1995; Zukin 1995), participants argued that the arrangement of facades, the characteristics of fences and other elements that confine the public space indeed influenced the public life, collaborated in the definitions of its patterns and secured environments if these were permeable and brought "eyes on the streets". Moreover, participants considered that these elements were also mechanisms to discriminate safe places.

Participants extrapolated the stories of success they know to understand the qualities of other communities. A properly maintained house was described as a family that was able to thrive, whereas a shop represented individuals who were pursuing progress. If well-kept houses or shops are visible and not hidden behind impermeable fences, it meant that the local community supported these attempts to progress by keeping illicit activities under control. Well-kept and ordered facades, the presence of shops and permeable fences were depicted as signs of groups that are not afraid of the public realm; of groups that can thrive and of safe places where threatening activities are not dominant. Impermeable facades and fences were depicted as a response to a dangerous public realm and signs of frightened communities (Chapter 5, Section 5.4.2).

The built environment mirroring territorial conflicts and the qualities of the places

For participants who considered themselves as "people of few acquaintances" or for those who believed that their neighbourhoods have been invaded, territorial marks, vandalism and damage on the public property were pointed out as features that indicate the existence of territorial conflicts and the presence of individuals that can cause harm. These features were described as part of an advanced stage of social deterioration; a stage in which the local community had renounced to the public space and had ceded its entitlements to drug traffickers, consumers and wrongdoers. For participants who had acquaintances that either engaged in drugs or introduced territorial markers (like graffiti), these features represented a less relevant matter. In these cases, familiarity decreased to some degree the potential prejudicial impact of these features.

Features that somehow counteract the territorial gains of wrongdoers were also described as relevant—yet contradictory—aspects of the built environment. In familiar neighbourhoods, fences erected to close streets and cul-de-sacs were pointed out as effective strategies that secure the public space for locals, at the cost of strengthening the dichotomy between the safe and the unsafe and increasing fears towards the "outside". In unfamiliar places, fences closing streets were signs of insecurity. The construction of new facilities was pointed out as an effective mechanism to reclaim and secure spaces and territories. Nevertheless, as mentioned before, the State was seen as an unreliable actor, slow for the needs of the communities (Chapter 5, Section 5.4.3).

Key finding

The built environment can cause detours and suppress walking

It was common that the environmental cues for risks showed fragmented communities or public spaces appropriated by drug traffickers. In those cases, the inferred threats modified the routes followed by pedestrians, causing detours or suppressing those routes that crossed particularly threatening areas (Chapter 5, Section 5.4.5).

Furthermore, participants' narratives showed correlations between the built environment and broader social constructions. Block apartments, often depicted as problematic "ghettos" in mass media and target of public policies of urban upgrading, were tied with crime in participants' narratives. Participants were unable to fully explain this association; however, it should be noted that it was powerful enough to cause detours, reduce the walkable areas and counteract features that are traditionally considered as beneficial for the public space and its life, like high densities (*see* Frank *et al.*, 2010). Block apartments were characterised by the participants as an unfavourable and undesirable condition that lowered living standards and pushed people to engage in drugs and other illicit activities (Chapter 5, Section 5.4.4).

7. 5. On the impacts of improved built environments on people's experience and willingness to walk (objective 5)

Challenging with the "low" correlation between the built environment and walking described by the literature that has studied groups in disadvantage (see Adkins *et al.*, 2017), the findings reported in Chapter 6 showed that the built environment can improve people's experiences and willingness to walk. The analysis of the semi-structured interviews that involved fictional scenarios showed that better built environments can make the public space more attractive, provide opportunities to engage in the public life, ameliorate fears and, therefore, ease walking.

As will be detailed in the following subsections, the features of the built environment that eased walking were not necessarily the antitheses of those that hinder its performance. For instance, well-maintained public spaces were not seen as places without crime or drugs. Well-maintained spaces had a small impact on people's walking experience as, in the participants' narratives, drugs and crime can still be hidden in neighbouring places or have not yet transformed the physical structures (e.g. vandalism). Well-maintained public spaces had a positive impact on walking only if these places had visible opportunities to engage in social activities for residents. The opportunities to engage in social activities included a number of features of the built environment (e.g. shops, well-kept urban furniture) and were described as

signs of a community that had become resilient enough to protect its entitlements and create a safe environment for any pedestrian that is crossing its spaces.

Key finding

The built environment can alter the expected normality

The findings indicated that the built environment can change participants' expectations. Shops and urban amenities (e.g. well-equipped square) were among the most relevant features of the built environment to ease walking as they provided opportunities for residents to engage in the public life. Participants argued that a space with these features is a good and safe place to walk as they expected to encounter residents occupying the public space (Chapter 6, Section 6.5.2) and protecting it from drug trafficking, consumption and its consequences (Chapter 6, Section 6.5.3).

Key finding

The built environment can improve people's willingness to, and experience of, walking

The analysis of the data showed that participants expressed a higher willingness to walk in spaces confined by improved built environments. Following the links between the built environment and the social qualities of the places described earlier, participants argued that well-maintained places surrounded by well-kept facades were likely to be inhabited by communities that are strong enough to control wrongdoers and illicit activities. Environments having these features lowered fears and, therefore, eased journeys and increasing the willingness to walk (Chapter 6, Section 6.5).

Key finding

The built environment has to reflect resilient communities to ease walking

The findings also showed that the built environment had to reflect a consolidated community to facilitate walking. Participants argued that a well-maintained space can be misleading if there are no clear signs to understand the qualities of the residing community. In their argument, a well-maintained space can exist either in a neighbourhood inhabited by a resilient community or in a neighbourhood inhabited by a community which weakening is still not reflected in the physical structures. Well-maintained spaces were seen with distrust if these were not accompanied by clear signs that the local community was consolidated and resilient (Chapter 6, Section 6.5.1).

Key finding

The built environment does not improve the experience or the willingness to walk of fragile individuals

Among the participants, there was a small group that expressed resistance to walk independently of the environmental conditions. Those individuals who had suffered a traumatic incident, had acquaintances with similar experiences or were exposed regularly to violence (e.g. hearing gunshots regularly) feared the public space in general. To other participants, walking was characterised as a risky chore because drugs and violence are present in every public space. The apparent absence of the State increased the fears and distrust towards those places that cannot be attributed to a particular community. Independently of the environmental conditions, intermediate spaces, like frontiers between neighbourhoods, were represented as complex and unpleasant places to walk (Chapter 6, Section 6.5.4).

7. 6. On the issues that ease or hinder the improvement of the built environment (objective 6)

As reported in Chapter 6 (Section 6.5.5), residents living in deprived areas considered that the social fragmentation of the communities can hinder—if not block—any attempt to improve the environment. In this point, the State was represented again as a secondary actor and the community was pointed out as the only actor that can improve the environments and the living conditions of the places where they live.

Key finding

The "scars" of previous public policies have created major obstacles to improve the environment of deprived neighbourhoods

From the institutions, policymakers argued that the consequences of previous policies, especially housing policies, had increased the distrust towards the institutions, had left many places in a long neglect which is difficult to redress and had created patterns of territorial, social and spatial inequality that, even with robust programs of intervention, will persist and will reproduce the conditions of social isolation that fuel the deterioration of the neighbourhoods and their communities.

Key finding

Rigid schemes prevent the creation of new mechanisms of intervention

Policymakers added that the success of subsidies to the demand as the main mechanism to reach disadvantaged groups had narrowed the options to intervene in deprived areas. The prevalence of subsidies had limited the options to intervene directly on the structures of the neighbourhoods. Organised local communities or

local governments were described as actors that can collaborate in the creation of new mechanisms to intervene in deprived areas. In a country that often is struck by earthquakes and fires, catastrophes and emergencies were described as opportunities to skip traditional mechanisms, unveiled hidden needs and create instruments to intervene long-neglected aspects of the policies such as facades.

7. 7. Summary and final remarks

Throughout this final chapter, I have reported the findings of this research that sought to inquire on how and why the built environment influence the practice of walking in deprived areas. These findings were framed by an integrative approach in which I have incorporated literature from different fields (i.e. mobilities, urban studies) to question and expand the traditional understandings (i.e. social geography) of the relationship between the built environment and walking—and were result of the analysis of two data collections completed in Santiago de Chile to explore walking and the built environment in the context of deprivation.

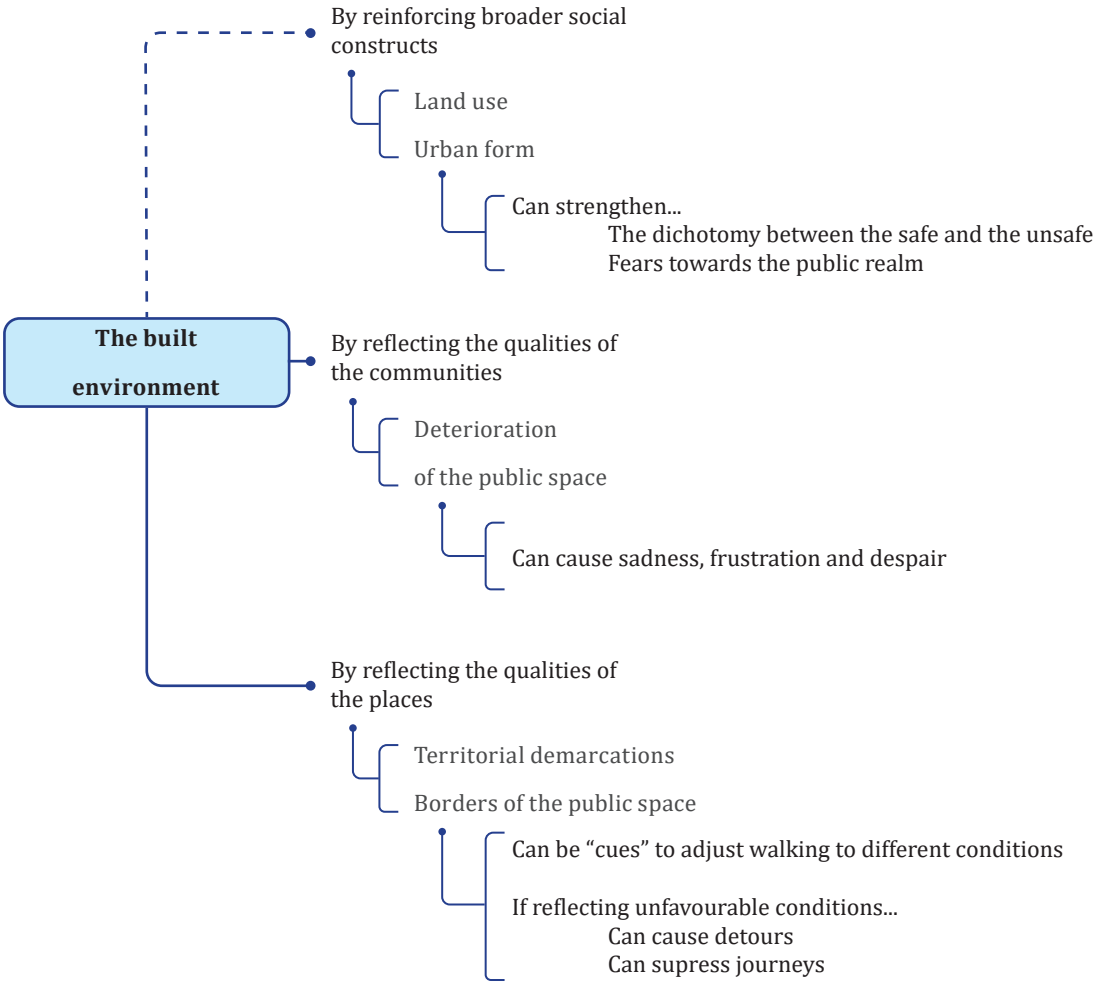
The results showed that the spaces of the deprived neighbourhoods of Santiago reproduce drawbacks and disadvantages. Walking happens in fragmented territories with clear physical and social frontiers. The embodied practice is unpleasant, as it is delimited by narratives that, reflecting territorial inequalities, the absence of the State and the social decay of the communities, have worsened the forms in which individuals perceive the public space and those who linger in it. Walking is also challenging, as pedestrians must cope with places that have suffered from years of neglect and have fallen in spirals of deterioration. Walking is a practice at certain risk because participants explained that they walk less to decrease risks, which, in the context of deprivation studied, means immobility.

The findings showed that the built environment affects walking in *at leas*t four clear forms that been suggested by the literature that informed this thesis. The built environment delimits walking (Næss, 2015; 2016), as it collaborates in the definition of several constructs that shape the forms in which people interact with their surroundings and perceive others in the public space. The built environment affects pedestrians' experience (Bostock, 2001; Benediktsson 2018), as it elicits emotions by mirroring the qualities of the communities and how much it supports its members. The built environment influences the act of walking, as it is a meaningful resource to infer risks and adjust behaviours (Ball, 1986; Koskela and Pain, 2000). It can restrict the walkable territories, as the meanings attached to its features can reflect stigmas and insuperable risks.

In the deprived neighbourhoods that were explored in this research (Figure 2), intricate urban forms and the lack of facilities in the neighbourhoods have reduced

Figure 2. Relevant aspects of the built environment and walking.

Source: author's own.



the walkable territories, have narrowed the hours in which walking is possible and fuelled fears towards those that linger in the public space in deviant hours. Highly deteriorated public spaces have made walking an unpleasant chore as pedestrians feel that they are alone and have no support from others to progress. Moreover, the built environment has been signified to foresee risks, mirroring on its features the drawbacks that afflict them (i.e. drug trafficking and its consequences) and the only valid entity they think can counteract the social and physical deterioration they have observed and experienced in their everyday lives (i.e. the community). The common reflection of unfavourable conditions on the built environment, like fragmented communities or hostile activities, have reduced the walkable areas and favoured the suppression of trips.

Challenging the findings of Adkins *et al.* (2017), the data collected suggested that an improved built environment can ease the experience of walking and increase their willingness to walk. Better connected layouts and more diverse land uses can widen the narrow normality that fuels fears towards the public space and restricts the hours in which walking happens. The sum of good public spaces and visible opportunities

for residents to engage in the public life can ameliorate fears and make walking less challenging. Nevertheless, the improvements made on the built environment do little for those who have suffered violent incidents, are exposed regularly to urban violence, are socially isolated, have become less mobile and have seen weakened their abilities to cope with the unpredictability of the public realm.

The analysis of the data suggested that interventions in the built environment to ease walking should be multi-layered. Territorial strategies to re-connect isolated areas and give more diversity to the activities within the neighbourhoods can collaborate in decreasing the strangeness towards the public space and widen the sense of normality. The upgrade of the space and coordinated actions in the public space and the private property can ameliorate fears. Both realms were deeply intricate and so were their impacts on walking. Strategies to strengthen the social structures of the neighbourhoods can reanimate the public space and decrease inner divisions. In addition, groups that are afraid of walking require further strategies to give them the opportunity to recover their weakened abilities.

For the Chilean and the Latin American context, the insights of this research showed the profound scars of the inequalities that affect the cities of the region. Profound senses of being alone, isolated and having fewer opportunities than others were often described as the starting points from which individuals understood their practices and the spaces of their neighbourhoods. Even in a country that exceeds the Latin American standards in many aspects due to robust public policies, the State was still described as an invisible and unreliable actor. An actor that forgot and hide people in need in the margins of the city. These senses and beliefs deepened drawbacks and seemed to be powerful barriers that may compromise any effort to improve the living conditions of those who live in the margins of the societies.

7. 8. Limitations

Lastly, this research has several limitations. Recruitment was limited by the social networks of the researcher and the gatekeepers, thus potentially leading to an under-representation of socially isolated individuals. Those could experience magnified versions of the problems described in this thesis and have more difficulties to travel on foot.

Due to the risks of the places where the methods were conducted (particularly walking interviews) some aspects of walking were not explored in depth or directly observed. For instance, despite that walking during night hours was described as an uncommon action by all participants, it was still a reality for numerous individuals who work in night shifts or need to travel early in the morning to reach job sources in distant areas of the city. The small number of sites for empirical work could have

limited the findings of this research. Lastly, part of the data is not fully reported in this thesis due to the limitations of the alternative format.

7. 9. Further research

This research aimed to investigate the relationship between the built environment and walking. Further research is needed to analyse other categories that appeared in the data but were outside the scope of this thesis. Gender arose in a number of ways in the data; it affected the forms in which individuals faced the unpredictability of the public realm and how individuals experienced fear. It also arose in the disproportionate number of responsibilities that women acquired to make viable the lives of others. Social capital seemed to have impacts on the extent of the walkable areas. Participants who had extended social networks tended to walk more and experience less fear. Age appeared in the transmission of fears and in how the younger generations have "normalised" many matters that are still abnormal for older individuals (e.g. urban violence). The introduction of technologies seems to be transforming the forms in which people shape and construct their practices to face risks and be able to have a functional life. A number of issues that arose during the interviews with policymakers were out of the scope of this thesis despite their potential relevance for other fields like city planning. Several articles are being prepared to explore those issues and extend the analysis.

Further research is needed to inquire on walking in other social contexts. In middle segments of the society, that have more options to travel, are less exposed to urban violence and are more integrated into the broader society, and affluent groups, that have more options and enjoy of other forms of walking that were barely mentioned in this thesis (e.g. recreational walking). Additional research could inquire on how these groups understand the public realm and construct meaning on the built environment, what matters do they reflect on its features and if these features are relevant or not for the practice of walking and other forms of travelling.

Acknowledgements

This thesis was supported by a grant from CONICYT/BECAS Chile (72160477) awarded to the author.

References

Adkins, A., Makarewicz, C., Scanze, M., Ingram, M. and Luhr, G. 2017. Contextualizing walkability: do relationships between built environments and walking vary by socioeconomic context?. *Journal of the American Planning Association*, 83(3), pp.296-314.

Appleyard, D, Gerson, M. and Lintell, M. 1981. *Livable streets, protected neighborhoods*. California: University of California Press.

Atkinson, A. 1998. Social exclusion, poverty and unemployment. *Exclusion, employment and opportunity*, 4.

Ball, M. 1986. The built environment and the urban question. *Environment and planning D: Society and Space*, 4(4), pp.447-464.

Benediktsson, M. 2018. Where Inequality Takes Place: A Programmatic Argument for Urban Sociology. *City & Community*, 17(2), pp.394-417.

Bostock, L. 2001. Pathways of disadvantage? Walking as a mode of transport among low-income mothers. *Health & social care in the community*, 9(1), pp.11-18.

Cass, N., Shove, E. and Urry, J. 2005. Social exclusion, mobility and access. *The sociological review*, 53(3), pp. 539-555.

Demerath, L. and Levinger, D. 2003. The social qualities of being on foot: A theoretical analysis of pedestrian activity, community, and culture. *City & Community*, 2(3), pp.217-237.

Ducci, M. 1997. Chile: el lado obscuro de una política de vivienda exitosa. *EURE*, 23(69), pp. 99-115.

Ewing, R. and Cervero, R. 2010. Travel and the built environment: A meta-analysis. *Journal of the American planning association*, 76(3), pp.265-294.

Frank, L., Sallis, J., Saelens, B., Leary, L., Cain, K., Conway, T. and Hess, P. 2010. The development of a walkability index: application to the Neighborhood Quality of Life Study. *British journal of sports medicin*e, 44(13), pp.924-933.

Gehl, J. 1987. *Life between Buildings: Using Public Space*. New York; Wokingham: Van Nostrand Reinhold.

Hanson, S., Guell, C. and Jones, A. 2016. Walking groups in socioeconomically deprived communities: A qualitative study using photo elicitation. *Health & place*, 39, pp.26-33.

Hidalgo, R., Zunino, H. and Álvarez, L. 2007. El emplazamiento periférico de la vivienda social en el área metropolitana de Santiago de Chile: consecuencias socio espaciales y sugerencias para modificar los criterios actuales de localización. *Scripta Nova*, 11(245), p.27.

Hidalgo, R. 2005. La vivienda social en Chile y la construcción del espacio urbano en el Santiago del siglo XX. *EURE*, 31(93), pp.108-112.

Hodgson, F. 2011. Structures of encounterability: space, place, paths and identities. In: Grieco, M. and Urry, J. (eds). *Mobilities: new perspectives on transport and society*. Surrey: Ashgate Publishing Ltd, pp.59-86.

Hodgson, F. 2012. Everyday connectivity: Equity, technologies, competencies and walking. *Journal of Transport Geography*, 21, pp.17-23.

Ingold, T. 2011. *Being alive: Essays on movement, knowledge and description*. London: Routledge.

Ingold, T. and Vergunst, J. 2008. *Ways of walking: Ethnography and practice on foot*. Aldershot: Ashgate.

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

Jacobs, A. 1995. *Great streets*. Cambridge: MIT Press.

Jensen, O. 2009. Flows of meaning, cultures of movements–urban mobility as meaningful everyday life practice. *Mobilities*, 4(1), 139-158.

Kenyon, S., Lyons, G. and Rafferty, J. 2002. Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography*, 10(3), pp. 207-219.

Koskela, H. and Pain, R. 2000. Revisiting fear and place: women's fear of attack and the built environment. *Geoforum*, 31(2), pp.269-280.

Levitas, R., Pantazis, C., Fahmy, E., Gordon, D., Lloyd, E. and Patsios, D. 2007. T*he multi-dimensional analysis of social exclusion*. University of Bristol: Bristol Institute for Public Affairs.

Link, F., Mora, R., Greene, M. and Figueroa, C. 2017. Patrones de sociabilidad en barrios vulnerables: dos casos en Santiago, Chile. *Revista Bitácora Urbano Territorial*, 27(3), pp.9-18.

Lorimer, H. 2011. Walking: new forms and spaces for studies of pedestrianism. In: Cresswell, T. and Merriman, P. (eds.) *Geographies of mobilities: Practices, spaces, subjects*. London: Routledge, pp. 31-46.

Lynch, K. 1960. *The image of the city*. Cambridge: MIT press.

Matos, F. 2008. Walking and rhythmicity: Sensing urban space. *Journal of Urban Design*, 13(1), pp.125-139.

McCormack, G. and Shiell, A. 2011. In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *International journal of behavioral nutrition and physical activity*, 8(1), p.125.

McFarlane, C. 2011. *Learning the city: knowledge and translocal assemblage*. Chichester: John Wiley & Sons.

Middleton, J. 2018. The socialities of everyday urban walking and the 'right to the city'. *Urban studies*, 55(2), pp.296-315.

MINVU. 1975. *Ley General de Urbanismo y Construcciones. DFL 458*. Ministerio de la Vivienda y Urbanismo

MINVU. 1992. *Ordenanza General de Urbanismo y Construcciones. Decreto 47*. Ministerio de Vivienda y Urbanismo

Næss, P. 2015. Built environment, causality and travel. *Transport reviews*, 35(3), pp.275-291.

Næss, P. 2016. Built environment, causality and urban planning. *Planning Theory & Practice*, 17(1), pp.52-71.

Ortega, T. 2014. Criminalización y concentración de la pobreza urbana en barrios segregados: síntomas de guetización en La Pintana, Santiago de Chile. *EURE*, 40(120), pp.241-263.

Pooley, C., Horton, D., Scheldeman, G., Mullen, C., Jones, T. and Tight, M. 2014. 'You feel unusual walking': the invisible presence of walking in four English cities. *Journal of Transport & Health*, 1(4), pp.260-266.

Rodriguez, A., Rodriguez, P., Saborido, M., Segovia, O. and Mires, L. 2014. Visible and invisible violence and inequality in neoliberal Santiago. *Environment and Urbanization*, 26(2), pp.359-372.

Sabatini, F. and Wormald, G. 2013. Segregación de la vivienda social: reducción de oportunidades, pérdida de cohesión. In: Sabatini, F., Wormald, G. and Rasse, A. (eds.). *Segregación de la vivienda social: ocho conjuntos en Santiago, Concepción y Talca, Santiago*. Santiago, Chile: Colección Estudios Urbanos UC, pp.15-31.

Sabatini, F. 2000. Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial. *EURE*, 26(77), pp. 49-80.

Saraví, G. 2004. Segregación urbana y espacio público: los jóvenes en enclaves de pobreza estructural. *Revista de la CEPAL*.

Saelens, B. and Handy, S. 2008. Built environment correlates of walking: a review. *Medicine and science in sports and exercise*, 40(7 Suppl), p.S550.

Spinney, J., Aldred, R. and Brown, K. 2015. Geographies of citizenship and everyday (im)mobility. *Geoforum*, 64, pp.325–332.

Wang, H. and Yang, Y. 2019. Neighbourhood walkability: A review and bibliometric analysis. *Cities*, 93, pp.43-61.

Whyte, W. 1988. *City: Rediscovering the Center.* New York: Anchor books.

Zukin, S. 1995. *The cultures of cities.* Oxford: Blackwell.

Appendix 1. Topic guide walking interviews

1. Description of the interview

Interview with two stages, the first part is a walking interview in a street of the neighbourhood where the participant lives (familiar places), while the second part involves photographs of non-familiar places. The interview seeks to inquire on the relevant aspects of the built environment and their impacts on walking.

2. Objective of the tool

The tool seeks to address those objectives related to the relevant features of the built environment and walking.

3. Topics to be covered in the interviews

3.1. Opening topics

3.1.1. The trajectory of the neighbourhood

Questions/topics to be covered:

How would you describe this place?

How did this place have changed since you arrive to this neighbourhood?

Presence/absence of commercial stores.

Presence/absence of trees and bushes.

Level of deterioration in public spaces.

Perception of insecurity.

3.1.2. Apprehensions

Questions/topics to be covered:

What precautions do you take before or when walking?

3.2. The environment

3.2.1. Public activities. It seeks to inquire in the perception of the activities performed in the places

Questions/topics to be covered:

What activities have you observed/heard in/about this place?

Which activities do you normally perform in this place?

Which activities would you never perform in this place?

Dangerous activities (e.g. drug traffic).

Positive activities (e.g. kids playing, people chatting).

Do you encounter other people in the public space?

Do you chat with others in the public space?

3.2.2. The environment. To inquire in the aspects of the built environment in which people put attention while walking

Questions/topics to be covered:

What things do you look in this place when walking?

Do you look for something specific?

Presence of garbage.

Presence of close doors/windows/stores.

Presence of fences.

Presence of signs of gangs (i.e. graffiti).

Presence of other people.

3.3. Walking

3.3.1.. Reading the environment. To inquire in the assumptions that people do about dark/unreachable places

Questions/topics to be covered:

What do you assume/think about the spaces that you cannot see or reach?

Level of fear.

In which conditions would you go through routes surrounded by dark/unreachable places?

3.3.2. Encountering others. To inquire in the ability to encounter and/or avoid others

Questions/topics to be covered:

In which conditions people can represent a threat (i.e. people alone, gender, groups)?

Would you look for other people in the public space to seek help?

Do you triangulate with other people in the public space to seek help?

How do you encounter other people in the public space?

3.3.3. Navigation. To understand the aspects of built environment that influence navigation skills

Questions/topics to be covered:

If you had to give me directions in this place, how would you do it? On what things should I put attention? Do I have to look specifics landmarks?

Presence of general landmarks.

Presence of specific landmarks.

3.4. Questions of the non-familiar places (interview with photographs)

3.4.1. The environment

Questions/topics to be covered:

What kind of things would you put attention in this place?

3.4.2. Public activities

Questions/topics to be covered:

What activities would you perform in this place?

3.4.3. Willingness to walk

Questions/topics to be covered:

Would you be willing to walk in this place? If so, what kind of precautions would you take to walk in this place?

Appendix 2. Topic guide semi-structured interviews (residents)

1. Description of the interview

Interview with two stages. In the first part, five images (scenarios) of high-density blocks (the housing typology with the worst reception in the first data collection) are presented to the participants. Two images are 'baseline scenarios' (the original situation, at the inauguration of the housing estate, and the current situation) and three images are 'alternative improved scenarios' designed in accordance with the categories of the built environment identified in the first data collection (deterioration, territoriality and borders of the public space). With the five scenarios, the assumptions that people make about who in-habit in the places according to the visible features of the built environment are tested (part A).

In the second part, the participants will be asked to place black silhouettes over the digital scenarios. Those silhouettes represent the fourteen public activities identified in the first data collection and are available for participants in five equivalent sets (one by each scenario). The process of placing activities on the scenarios is registered as part of the interview and, after that, the willingness to walk under dif-ferent circumstances and the obstacles to implement improvements in the view of the participants are tested (part B).

2. Objective of the tool

The tool seeks to resolve the objectives related to the improvement of the built environment.

3. Questionnaire

PART A

3.1. Scenarios. These questions aim to open the interview and understand the assumptions that people make about the built environment.

Questions/topics to be covered:

[In each scenario]

Could you describe the image?

Do you know any place like this?

Where do you think this place is located?

How is the community who live here? Could you describe it?

What activities do you think happen in this place? Why?

3.2. Placing activities on the scenarios. These questions aim to deepen in the relationship between the built environment and the activities performed in the public space.

Questions/topics to be covered:

Could you place the activities that you think happen in each place? Why did you put that activity there?

PART B

3.3. Willingness to walk in the scenarios. These questions aim to understand the conditions in which people would walk in deprived environments.

Questions/topics to be covered:

Which one is the best to walk? Why?

[In each scenario]

Would you walk in this place? Why? If not, under which conditions?

Would you walk in this place alone? With company?

How would you feel staying in the public space in this place?

What activities would you do in this place? (i.e. chatting, leaving the kids alone, etc.).

[In negative scenarios]

If you were forced to walk here, what would you do? To which things would you put your attention?

3.4. Improvements. These questions aim to identify obstacles and barriers to improve deprived environments in the view of the participants.

Questions/topics to be covered:

In your perspective, who or what institution do you think is responsible for the im-provements?

If you were living in one of those places, how do you think you can collaborate to im-prove them? What would you do?

What do you think can represent an obstacle to implement improvements?

Appendix 3. Topic guide semi-structured interviews (policymakers)

1. Description of the interview

Semi-structured interviews with policy makers and practitioners seek to disseminate the findings of the first data collection and identify the experiences of the agencies and departments with deprived housing estates; the role assigned to pedestrians and the obstacles and barriers to implement improvements. A brief presentation of the findings will start the interview and will be followed by questions that seek to fulfil the mentioned aims.

2. Objective of the tool

The tool seeks to resolve the objectives related to the improvement of the built environment.

3. Questionnaire

3.1. Brief presentation of the results of the first data collection.Questions/topics to be covered:

The presentation will focus on the features and social constructions identified. The scenarios will be presented.

The opinion of those results will be asked.

3.2. Diagnosis of deprived areas.

Questions/topics to be covered:

In this department, what is the current diagnosis of deprived areas?

Do this department have experiences working in deprived settlements? What were those experiences? What were the outcomes from them?

If the department/agency has programs in deprived areas, why were the reasons to implement those programs?

If have an unlimited budget, what would you do to improve those places?

3.3. The role of pedestrians.

Questions/topics to be covered:

Do pedestrians have a role in current policies? If yes, what is the role? If not, why?

What is the value of investing in pedestrians for this agency/ department?

In deprived areas, do pedestrians have a role in the programs?

3.4. Issues and obstacles

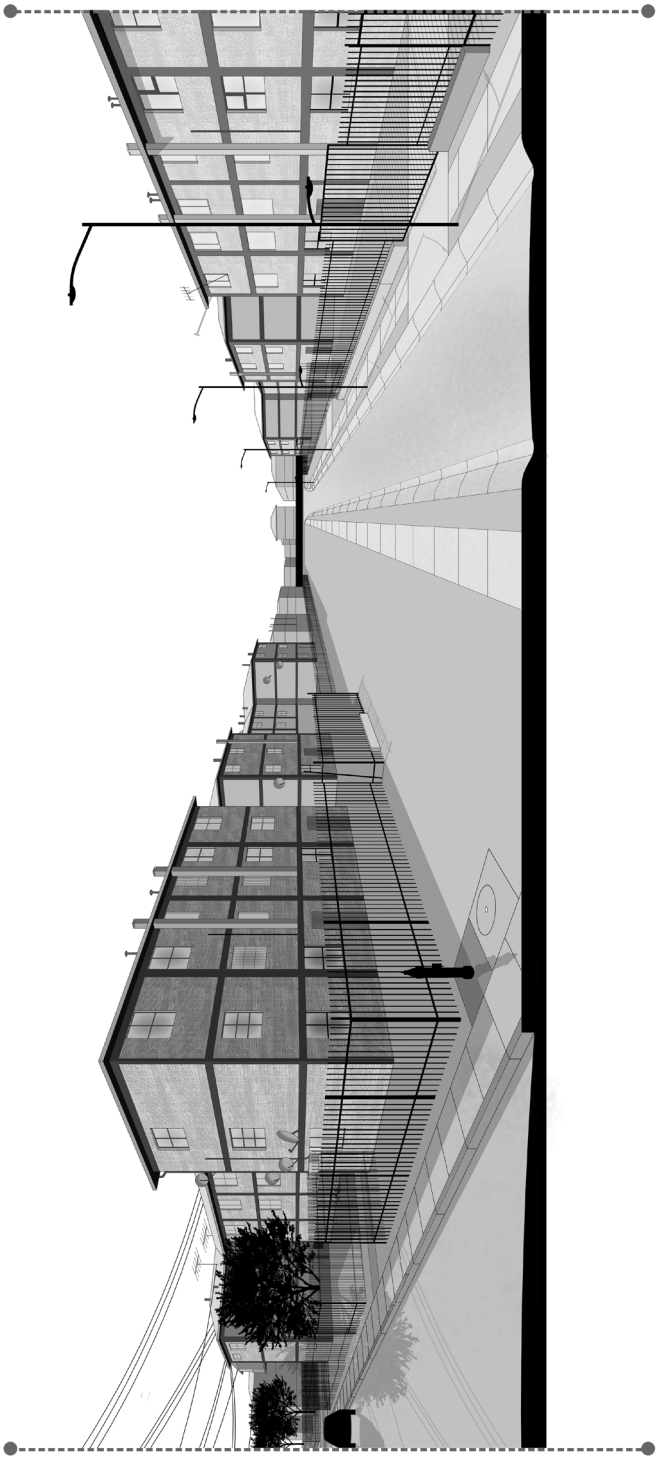
Questions/topics to be covered:

Which issues have been identified in previous experiences? (social, political, practical and financial aspects)

Appendix 4. Fictional scenarios and activities

Baseline Scenario

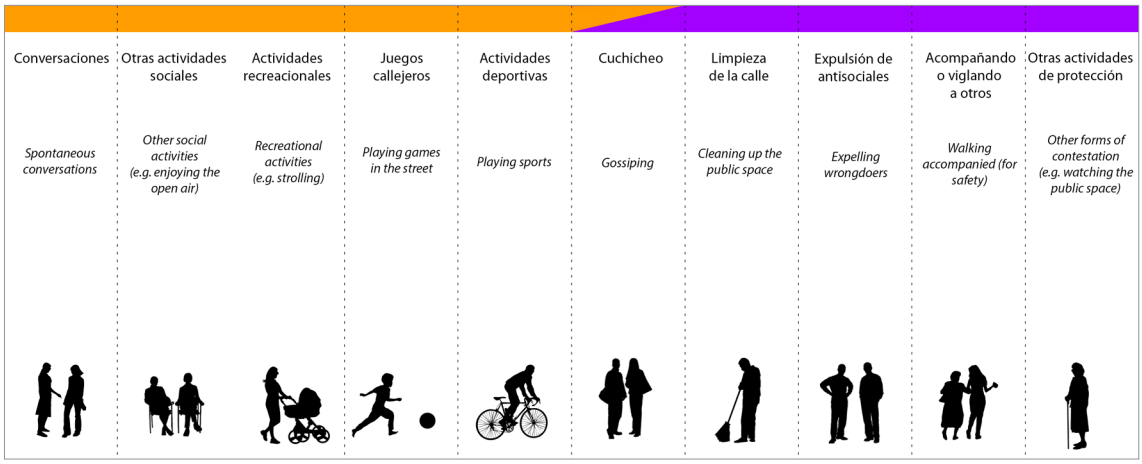
Scenario 1

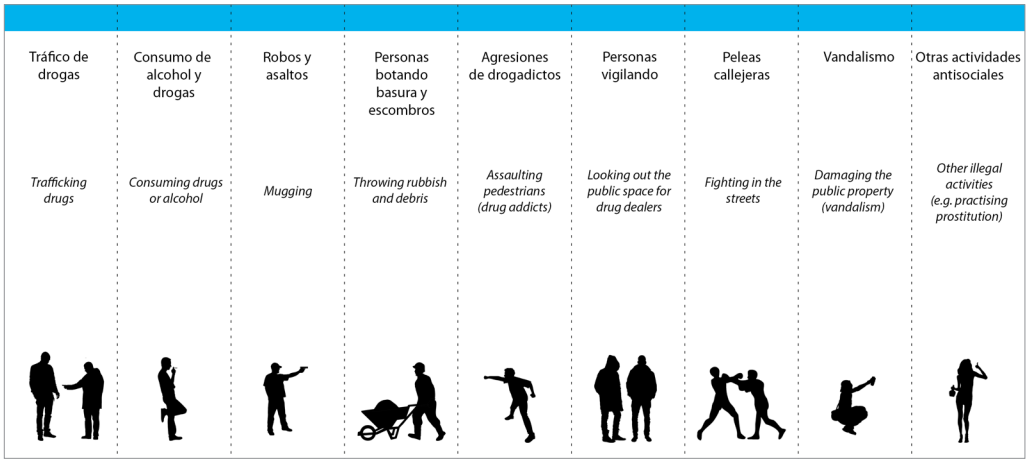


Scenario 2

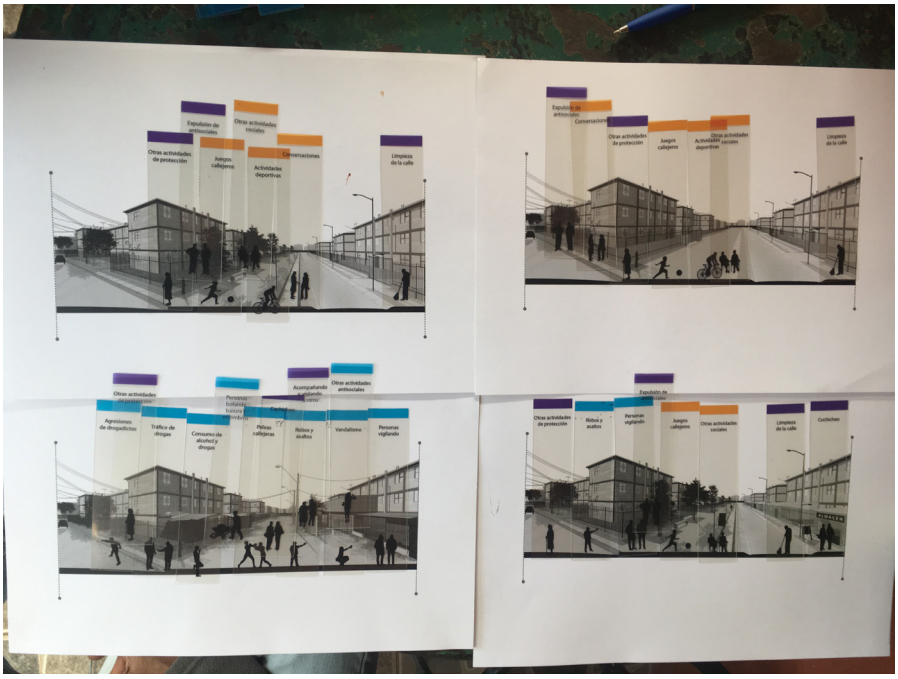
Scenario 3

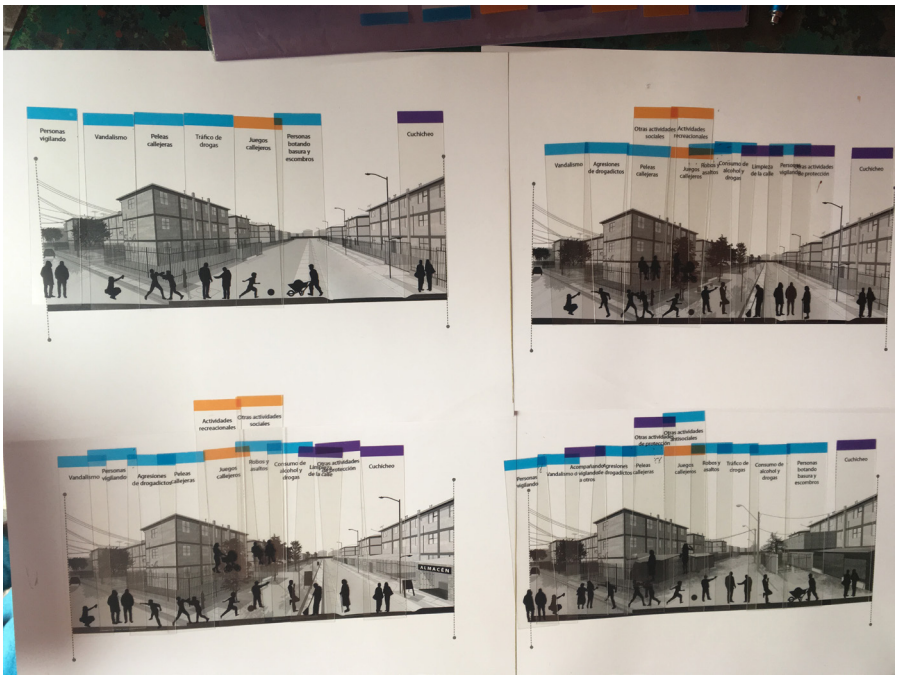
Activities (English key in italics)





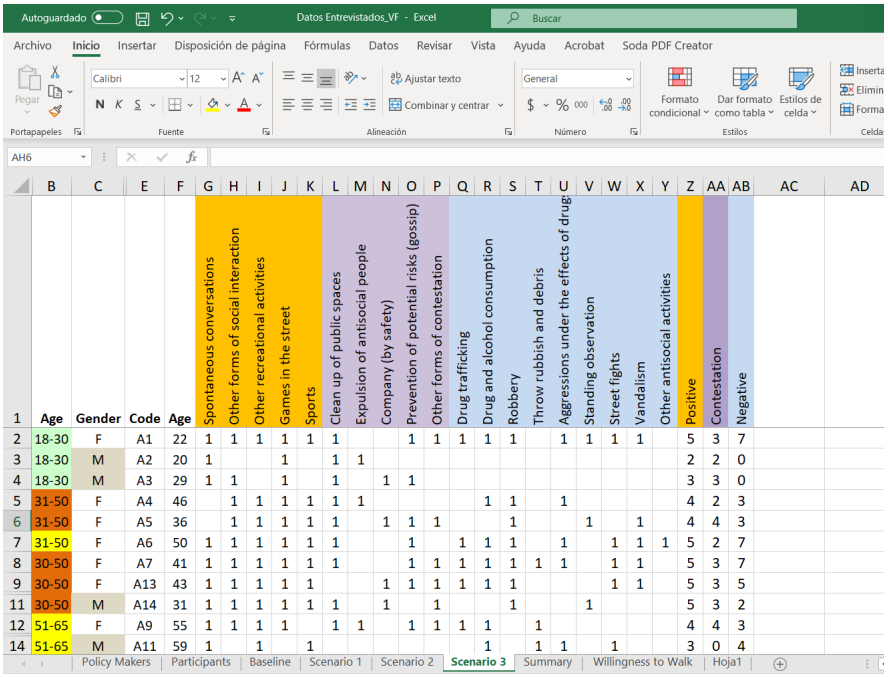
Appendix 5. Photographs taken after completing the activity with fictional scenarios





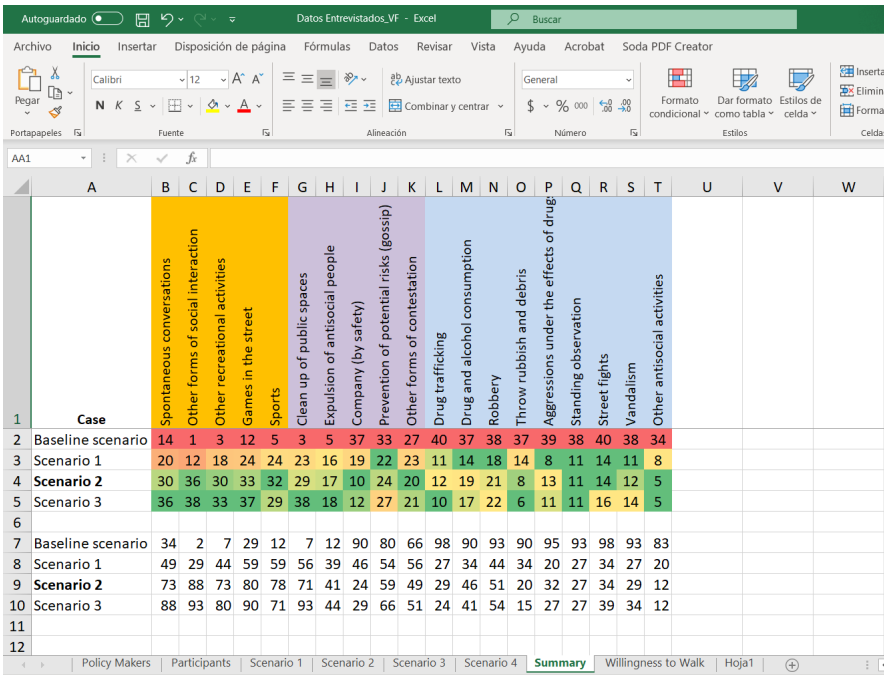
Appendix 6. Systematisation of the data obtained from the activity involving fictional scenarios (examples)

Activities placed in Scenario 3



Age	Gender	Code	Age	Spontaneous conversations	Other forms of social interaction	Other recreational activities	Games in the street	Sports	Clean up of public spaces	Expulsion of antisocial people	Company (by safety)	Prevention of potential risks (gossip)	Other forms of contestation	Drug trafficking	Drug and alcohol consumption	Robbery	Throw rubbish and debris	Aggressions under the effects of drug	Standing observation	Street fights	Vandalism	Other antisocial activities	Positive	Contestation	Negative
18-30	F	A1	22	1	1	1	1	1	1			1	1	1	1	1		1	1	1	1		5	3	7
18-30	M	A2	20	1			1		1	1													2	2	0
18-30	M	A3	29	1	1		1		1		1	1											3	3	0
31-50	F	A4	46		1	1	1	1	1						1	1		1					4	2	3
31-50	F	A5	36		1	1	1	1		1	1	1				1			1		1		4	4	3
31-50	F	A6	50	1	1	1	1	1	1			1		1	1	1		1		1	1	1	5	2	7
30-50	F	A7	41	1	1	1	1	1	1			1	1	1	1	1	1	1		1	1		5	3	7
30-50	F	A13	43	1	1	1	1	1			1	1	1	1	1	1				1	1		5	3	5
30-50	M	A14	31	1	1	1	1	1	1		1		1			1			1				5	3	2
51-65	F	A9	55	1	1	1	1		1	1		1	1	1	1		1						4	4	3
51-65	M	A11	59	1		1		1							1		1	1		1			3	0	4

Activities placed in all the scenarios



Case	Spontaneous conversations	Other forms of social interaction	Other recreational activities	Games in the street	Sports	Clean up of public spaces	Expulsion of antisocial people	Company (by safety)	Prevention of potential risks (gossip)	Other forms of contestation	Drug trafficking	Drug and alcohol consumption	Robbery	Throw rubbish and debris	Aggressions under the effects of drug	Standing observation	Street fights	Vandalism	Other antisocial activities
Baseline scenario	14	1	3	12	5	3	5	37	33	27	40	37	38	37	39	38	40	38	34
Scenario 1	20	12	18	24	24	23	16	19	22	23	11	14	18	14	8	11	14	11	8
Scenario 2	30	36	30	33	32	29	17	10	24	20	12	19	21	8	13	11	14	12	5
Scenario 3	36	38	33	37	29	38	18	12	27	21	10	17	22	6	11	11	16	14	5
Baseline scenario	34	2	7	29	12	7	12	90	80	66	98	90	93	90	95	93	98	93	83
Scenario 1	49	29	44	59	59	56	39	46	54	56	27	34	44	34	20	27	34	27	20
Scenario 2	73	88	73	80	78	71	41	24	59	49	29	46	51	20	32	27	34	29	12
Scenario 3	88	93	80	90	71	93	44	29	66	51	24	41	54	15	27	27	39	34	12