At the root of the multiple, diverse and multi-scalar challenges facing the living systems we call cities lies a single enormous knot: figuring out how to live together very differently, in light of climate crisis, pandemics, loss of biodiversity and other life-threatening conditions.

Active transport has an important role to play in showing ways of living better with lower consumption, improving health and, in many contexts, social equality.

This requires more attention to interdisciplinary methodologies, social movements and civil society, and the governance arrangements necessary to facilitate or at least permit significant social change.

**Keywords:** social sustainability; health; planning; human agency; civil society; governance

**Blindspots in active transport practice and research**

At the root of the multiple, diverse and multiscalar challenges facing the living systems we call cities, lies a single enormous knot: figuring out how to live together very differently, in light of climate crisis, pandemics, loss of biodiversity and other life-threatening conditions. We have to change very quickly, a challenge to how we live, but also to how we make decisions, in a world that has struggled and, in many places, failed to achieve working democracies.

Change, particularly paradigmatic change of this scale, is a difficult and extremely painful process, as Marris (1974, 1982) first warned. He studied the experiences of widows in London, and from there developed important insights into both individual and social change, which almost inevitably involve periods of loss and mourning, which can induce reflection, celebration and eventually creative rebuilding and action. No matter how good we think more active transport is for cities and citizens, there are important losses involved in these transitions, and we need to account for them.

Moreover, when we intervene in complex systems, such as the territories and socioenvironmental spaces in which we belong, form identities and daily practices (Moulaert et al., 2010; Shove, Pantzar and Watson, 2012), any attempt to fall back on linear concepts of cause and effect is fraught. In active transport research and practice, much of the discourse has been
dominated by a kind of gung-ho, infrastructure obsessed perspective, summarised by the motto, ‘Build and they will come’.

While there is certainly truth in this perspective, we need to know a lot more to transition toward low-carbon, sustainable and socially just households, neighbourhoods and cities. This is particularly the case in the countries of Latin America, with pronounced, often extreme, inequalities, or Asia, where exclusion from political decision-making and planning creates cities and societies in the service of small, wealthy and extremely privileged elites.

The importance of social movements and imaginaries to social transformation requires much more attention, although there has certainly been important progress in this regard, led by researchers in the UK and the Netherlands and, increasingly, in Latin America. Using active transport as central to leverage major social change has provided some examples of successes, but we would do well to look more closely at the failures.

Sometimes the problem is not ‘the facts’ or ‘the data’ but more often the ‘mono-disciplinary’ approach we use to interpret them, that hampers our efforts to see more clearly, understand more fully and transition more deeply, in a world increasingly weakened by an environment that can no longer sustain human living systems as they have evolved to date (IPCC, 2007). It is all too common, for example, for both quantitative and qualitative research projects to identify a problem, such as transport injustice or sexual harassment on public transport, with great methodological rigour, but then go on to recommend ‘solutions’, which have not been tested and are often rooted in disciplines not represented among the authors of the research. Communications campaigns to change unsustainable consumption are a common example, despite abundant evidence they do not work (Whitmarsh, O’Neill and Lorenzoni, 2011).

In recent years, Latin America has seen numerous social protests triggered by dissatisfaction with transport systems, including a major national revolt against a bus fare increase (Brazil 2013), rising gasoline prices (Ecuador, 2019) and the rise in Metro fares, in Chile (18 October 2019), which sparked a wave of protests that continue as I write, almost 2 years later.

Social unrest, in combination with the effects of Covid19, weather and climate disasters underlines a central lesson: we need mixed methodologies capable of mobilising diverse kinds of practical and ethical knowledge (Flyvbjerg, 2001), including that of citizen organisations and local governments. But we also need to go beyond the what, to generate practical and theoretical knowledge about how to change, through real-world, real-time experiments. These require ethical and rigorous research methods and methodologies, with action research and participatory action research particularly robust for real-world conditions (Bradbury, Waddell and O’Brien, 2019).

Cities – ideal ‘living laboratories’

Cities do, in fact, make ideal ‘living laboratories’ (Evans and Karvonen, 2011), offering ample opportunities to go beyond the counting of quantitative methods and the meaningful resonance of qualitative methods, and combine them for greater effect. This kind of research can be applied by students in service learning programs, by civil society leaders in their own organisations and movements, and by researchers too. It typically requires going beyond subject-object research arrangements to genuine partnerships among different disciplines but also with other kinds of actors and their particular knowledge, whether indigenous, as is increasingly important in the Americas, or simply the experiential knowledge so central to successful application of general principles to specific neighbourhoods and people.

We need to focus much more on real-world experiments (Argyris and Schön, 1974; Friedman, 2008; Sagaris and Lanfranco, 2019; Sagaris, Tiznado-Aitken and Berrios, 2020; Larrea, Bradbury and Barandiaran, 2021) if we, as a research community, are to contribute adequately to a world in urgent need of answers that work, not perfectly, but well enough,
and in ways that can help local communities, authorities and other players to surf the wild unpredictable waves that are increasingly the norm within planning.

A recent debate (Nello-Deakin, 2020; Castañeda, 2021) raises the important issue of ‘universalisation’ of results generated in specific contexts within the Global North, particularly the United States, as if they were universal and applicable across all countries, cultures, contexts and circumstances. This is particularly common in quantitative research, where there is an underlying assumption — often indefensible in practice — that if the numbers support a specific conclusion in one place or several places in one country, this applies everywhere.

A similar phenomenon affects much research: using econometric or transport modelling methods, researchers generate excellent findings on issues as diverse as road safety (Sánchez-González et al., 2021) or links between the built environment and active mobility (Frumkin, Frank and Jackson, 2004; Badland and Schofield, 2005; Krizek, Handy and Forsyth, 2009; Cervero et al., 2010). But recommendations for change based on these results typically omit or resort to limited knowledge about human behaviour, identity and community values, human agency, power and politics, more common to other disciplines, or that quintessential interdisciplinary perspective, planning and community development.

As Aldred (2019) points out, by treating interventions as experiments and using different methods to triangulate or control for change, we can identify effective paths to change. These must, however, be well tested and profoundly adapted, if we expect them to work elsewhere.

Gender, particularly gender-based violence that limits women’s access to and comfort in public and active transport, has recently emerged as a particularly rich lens for understanding discrimination and exclusion, but also human agency and collective action, particularly in Latin America (see, e.g., special issues on ‘Transport and Health in Latin America’ in the Journal of Transport and Health (Sagaris et al., 2020a), ‘Transport, Gender, Culture’ in Transportation Research Part A (Pojanis, Sagaris and Papa, 2021), and the recently launched book Urban Mobility and Social Equity in Latin America (Oviedo, Villamizar Duarte and Ardila Pinto, 2021)). A collaboration among researchers located in the Global North and South, this collection reveals the richness afforded by genuinely mixing diverse methods and applying specific lenses to better understand social exclusion, justice and agency issues, as illustrated by chapters comparing women cyclists’ experiences in several countries (Mella, 2021), women walking (Sagaris and Tiznado-Aitken, 2021) and ‘play-ability’ (Peña-Rivera and López-Navarrete, 2021).

**A promising shift that could be reinforced**

Innovation in this tendency to universalise the experience of specific power centres in the United States and the UK is beginning to emerge, and could be more consciously pursued. The latest edition of City Cycling (Buehler and Pucher, 2021) includes extensive chapters on many of the issues that we all use as foundational and central for our own work, whether as academics, planners or advocates. It goes beyond the original edition (Pucher and Buehler, 2012) to consider the importance of advocacy by sophisticated civil society conglomerates, which is behind the paradigmatic modal shifts in the Netherlands, Denmark and Germany. It also considers very different contexts in the Global South, particularly India and Latin America.

Similarly, Marques’ recent edition in English (Marqués Sillero, 2020) of his Spanish-language book (Marqués Sillero, 2017) highlights the extraordinary experiment of applying a comprehensive plan for cycle-inclusion in Seville, Spain, which in a few short years boosted the use of cycling for transport from virtually zero to more than 6%. Already a fundamental text for my Chilean university courses on planning for cycle inclusion, these books and the Seville experience merit more attention. Unlike many less successful experiments in the United States, Canada or the UK, those responsible worked from an integral social and technical perspective,
starting from participation with neighbourhood associations and building in both gender and economic stimuli, to complement the new infrastructure network with important social and financial elements, which ultimately contributed to the noteworthy uptake of cycling, bikeshare, cycle tourism and other related activities.

The Seville experience highlights the often neglected role of governance, institutions and the rules of engagement for civil society (organised citizen) and governmental collaborations. Even today, with 40 years of rich experiences from the Netherlands, practitioners, researchers and advocates alike still tend to focus on the most visible, physical aspects of infrastructure and design, neglecting the political will and empowerment necessary for successful long-term implementation.

In Seville, London, Bogotá, Paris or Montreal, local governments have steadily accumulated sufficient power to make important changes to roads and sidewalks, usually with strong support from local citizen organisations. But Toronto, Santiago or other cities may lack sufficient authority over their own roads or enter into conflicts with provincial or national governments on which they depend for permissions or funding. I know this, however, from field work rather than scientific studies about the governance of active travel innovations. Interest in ‘bikelash’ (Duarte, Procopiuck and Fujioka, 2014; Wild et al., 2017) has helped to change this, but we need much more on the messy, conflictual power struggles involved. This requires going beyond simplistic readings, such as ‘Bikes vs. Car’. These can be useful starting points. To understand the whole story often involves studying power (politicians and economic interests committed to a car-centred city, or who simply cannot imagine anything else) and those without both power and cars, the often low-income people who rely on walking, cycling and public transport for limited mobility.

In the Global North, at least, we see an interesting shift toward interdisciplinary researchers, sometimes with more global outlooks emerging in recent years in the UK (Batterbury, 2003; Horton, 2009; Aldred, 2010, 2013; Cox, 2010). They are expanding knowledge with and beyond engineering and design to consider ‘fear of cycling’ and other social phenomena. Health and transport researchers too have helped to expand our understanding of cycling’s social ramifications (Robinson, 2005; Reynolds, Harris and Teschke, 2009; Teschke, Reynolds and Ries, 2012; Rissel et al., 2016; Mindell, 2018) in Australia, Canada and the UK.

More recently, contributions relating to age (Musselwhite, Walker and Holland, 2015), gender (Garrard, Rose and Lo, 2008; Aldred, Elliott and Woodcock, 2017), racial (Zavestoski and Agyeman, 2015) and other (Umemoto, 2001) perspectives have emerged, although contributions from the ‘developing’ world remain exceptional (Mohen and Tiwari, 1999; Anand and Tiwari, 2006; Mohan and Tiwari, 2010; Various, 2019) rather than central to knowledge production.

Next up?
Although a new round of research is just beginning to come in, experiences with Covid19 and its impacts on human living and mobility systems suggest these blindspots require urgent correction, with a renewed and expanded focus on human agency, practice and governance, as the missing piece in a puzzle requiring urgent solutions. Safe Routes to Schools programs, as developed in the global north, seem to have become locked into formulaic applications, which need to be uncapped, reorganised and radically redrawn to get more out of them.

In Chile, when schools closed due to Covid19, we experimented with moving our “Kool Routes” program to mixed and low-income neighbourhoods. Originally applied as part of school-centred programs, when schools closed we set up tables for art, workshops for bike repairs and courses for learning to cycle on neighbourhood streets and squares. They became a major success, indeed a ‘life raft’ for children and parents who enjoyed the deckchairs provided for suitably distanced chats, sorely missed during the long months of lockdowns.
From this first round of experimentation, we concluded that the program would be far more effective if we added cycle taxis for older adults, an adaptation of the Danish program, Cycling Without Age (cyclingwithoutage.org). Developing appropriate cycle taxis, however, requires major innovation in the tiny, emerging sector that produces these kinds of vehicles. They are too costly for developing economies to import and may be too complex for local development, although there are many exceptions to this observation, particularly in India and Asia where cycle rickshaws and similar service vehicles are a longstanding part of the streetscape.

In Latin America, cargo bikes of all shapes and sizes are increasingly attracting attention, categorisation and study for their enormous potential to a more sustainable logistics chain. Designing attractive, comfortable, fully functional cycle taxis remains a difficult challenge for many, however, even a large Metropolitan Region such as Santiago. These observations underline the importance of paying more attention to an active travel economy, since shifting from car-centred to active and public transport–centred transport systems will have important impacts on millions of spinoff jobs, which involve patching tires, mending upholstery and performing specific services that provide a significant income for otherwise impoverished families (Figure 1).

In 2015, reviewing both the international literature and 15 years of significant progress toward cycle-inclusion in Santiago Chile, I found that rather than simply listing urban or engineering measures and designs, it was important to consider the interactions between urban design and rules (speed being the main rule of interest); education and cultural changes necessary to influence behaviour, but also policy and politics; and the cycling economy (Sagaris, 2015, Figure 1). Published in a journal focusing on global development, this went unnoticed by researchers in the Global North, although it seems to have attracted more attention, more recently.

Figure 1: Interactions, urban measures, behavioural change and cycling economy.
In Chile and most of Latin America, traffic calming, which is by far more powerful and more spatial a strategy than the linear approaches of cycle lanes, receives little attention, particularly woonerf-style approaches that seamlessly integrate the reduction of flows and speeds of motor vehicles with active local participation of people on the streets in transformation. Indeed, woonerfs are extensively treated from the perspective of design, rather than as a spatial or social strategy for urban change.

Similarly, with some exceptions, the importance of generating an active travel economy is mostly neglected, in practice and in research. The Seville case is a very interesting exception (Sagaris, 2021). In an automated world, where the jobs that feed the most vulnerable are disappearing, we need to think more about how active travel can generate jobs, preferably from a gender perspective. This is particularly important in Latin America, where in countries such as Chile the vast majority of jobs are provided by small, often semi-legal enterprises.

All three categories of action seem necessary to improve walkability and cycle-inclusion, but in a small town urban measures might better focus on traffic calming and active travel areas, rather than extensive networks of specialised infrastructure for cycling. Similarly, the local market must offer diverse kinds of vehicles: hand-pedaled or electric-assisted bikes for people living in hilly terrain or with mobility disabilities, an emerging theme in the UK (Andrews, Clement and Aldred, 2018). Without step-through bikes, women, because of their clothes, and parents, because of the need for children’s seats, are unlikely to take up cycling, no matter how attractive the infrastructure. Achieving the right balance between these three spheres is probably more important than dozens of dazzling designs or state-of-the-art cycle parking facilities.

These examples underline the relevance of governance and planning, to get the right balance of factors into play to shift political culture and human habits in diverse contexts.

**Crises as drivers of change? Which crises? Positive or Negative Change?**

It is well established that crises can stimulate significant change (Rose, 1993; De Jong, 1999). Indeed, if we review the cases that have leapt to the fore in 2020, we can see that cities as diverse as Paris, Montreal and Bogotá have used the opportunities and emergencies of Covid19 to expand active travel options on city streets.

Many more cities have not, however. Or have confronted even worse debates, barriers and soaring rates of deaths among cyclists, run over by speeding cars and buses.

Chile provides an interesting example. As occurred in the Netherlands (Godefrooij, 2010), in the mid 2000s, citizen organisations led a drive for greater cycle inclusion, brokering a 3-year training and advisory process between the Metropolitan Santiago Regional Government and a global NGO, Interface for Cycling Expertise, from 2007 to 2010. During that period, planning, design and advocacy skills improved enormously, and this combined effort achieved sufficient funding to quadruple cycling infrastructure, generate a women’s cycling school and organisation, and bring together local neighbourhood, arts, environmental and other organisations. These efforts first doubled modal share from 2% in 2001 to 4% in 2010, then tripled it by 2013 (Sagaris, 2015).

Part of increasingly sophisticated pro-cycling movements in Latin America, expressed in an annual global gathering that has consolidated over the past decade, el Foro Mundial de la Bicicleta, Chilean pro-cycling groups increasingly mobilise well informed advocacy by technical experts, researchers and their own leadership, some now studying advanced degrees. They also mobilise locally, a significant innovation, working with other community organisations in small towns and large cities.
Protests have become even more massive too, reflecting the general wave of social protest and movements for change across the continent. Cycle protests, once modelled on the Critical Mass movements of the United States, increasingly follow their own, more Latin American itinerary. Revolución Pedal, for example, repeatedly mobilises tens of thousands of cyclists, since massive unrest became public protests from 18 October 2019 on. But member groups have also mobilised bike messengers to deliver supplies to Soup Kitchens that sprang up in response to the surge in poverty that has accompanied Covid19. Or led campaigns to replant barren hills with trees. Counts by university researchers have documented an exponential rise in city cycling, a consequence of both massive social protests (2019) and Covid19 (2020).

Notwithstanding, even plans for emergency cycle lanes have gone to pieces amidst the reefs of a governance system and institutions designed by the former military regime to prevent change. Today, local governments are required to submit plans for even the simplest cycle ways on small residential streets to the national ministry of transport, a huge step backward, even amidst rhetoric embracing the need for quick, emergency responses. One NGO, Mapo8, has teamed up with corporate sponsors to sponsor emergency cycle paths, in an attempt to overcome the inertia, as has a local neighbourhood association in the Bellavista arts neighbourhood in Providencia (Metropolitan Santiago). Trained by Dutch experts (2006–2009), the Providencia staff once pioneered major innovations in cycling infrastructure, but today important designs and innovations are sidetracked, or seriously changed by national ministry staff, with no qualifications related to cycling. Thus, what look like ‘design errors’ actually reflect serious, mostly invisible, institutional challenges.

**Looking more closely at governance**

Is it a coincidence that cycle inclusion and more participatory urban planning has rooted itself most strongly in two of the most democratic and egalitarian cultures in the world, the Netherlands and Denmark? Which came first, or were they mutually co-constituting, as studies by a brilliant collection of researchers in the 1970s seem to suggest (Susskind and Elliott, 1983)?

At first, this seemingly idle question arose as a passing doubt during field visits between 2009 and 2016. In the past 4 years, however, it has become an active concern.

In Canada, where I grew up, and in the other European countries, where I have been involved in many field visits, local authorities have sometimes supported and sometimes opposed greater cycle inclusion, but there have also been sufficient periods of acute socio-technical apprenticeship that significantly democratised decision-making around mobility and other issues. This has occasionally been well documented, as occurred during anti-highway battles over urban space and identities in North American and Europe during the 1970s and 1980s (Appleyard, 1983; Susskind and Elliott, 1983; Sewell, 1993; De Souza Briggs, 2008; Ladd, 2008).

Stories and conference presentations by leaders of the Dutch and Danish cycling federations reveal how movement leaders often join innovative governmental staff; local innovation shifts scales upward to become national policies, programs and funding that can eventually reach out to most or all of the country.

Something similar has happened in Chile, although on a much more interrupted and limited basis so far. Like many Latin American cities, we are already 20 years into a process that took the Dutch around 30 years. We seem to be lagging much further behind, perhaps because of the tremendous rigidity of governance (Sagaris et al., 2020b).

All too often, in our work on active travel, we focus too much on the infrastructure; think too much in terms of cycle-lanes or cycleways, rather than ‘cycle-inclusion’; and neglect the
very real, radical importance of the many different institutional and governance systems that define outcomes.

This ‘nose-in-the-asphalt’ rather than the ivory tower approach is at once refreshing, within university research, and all too limiting, when it comes to nourishing the processes of social transformation essential for active transport to fulfil its promise in all the equity, health, safety, economic and environmental dimensions that must increasingly become the measures for success. Human agency, institutions and bureaucracies, the role of social movements and citizen organisations, the how-to of political change; all merit, and require, a much deeper engagement from this increasingly global community of inspired and committed researchers.

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The author has no competing interests to declare.

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