Photo: Calvox & Periche. Reproduced with permission of the photographers.

Master thesis

Whose Streets? Our Streets! Bicibús in Barcelona through a Justice Lens

Anna Aretha Sach (anna.sach@autonoma.cat; NIU: 1662889)

Master's Degree in Interdisciplinary Studies in Environmental, Economic and Social Sustainability – Specialization in Ecological Economics

Supervisor: Jordi Honey-Rosés

City Lab Barcelona, Institut de Ciència i Tecnologia Ambientals (ICTA-UAB), Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Barcelona, Spain

Date of the paper submission: August 28, 2023

Journal: Transportation

UAB
Universitat Autònoma de Barcelona

Table of content

Information about the project: City Lab Barcelona

I conducted my master thesis with the City Lab Barcelona research group at the Institut de Ciència i Tecnologia Ambientals of the Universitat Autònoma de Barcelona. The team studies the impacts of urban projects, policies, and interventions, while engaging in applied research, direct action, and partnerships to learn about city dynamics. The mission is to generate applied knowledge that can accelerate the transition to sustainable urban planning and design.

During the master program I became more and more interested in sustainable mobility, social movements, and Feminist Urban Political Ecology. I am active in the climate justice movement and a cyclist myself, not only for sports or transport, but also as an activist practice, so justice and cycling activism were two passions that I liked to combine. Thus, I decided to conduct an analysis of the Bicibús initiatives in Barcelona through an intersectional justice lens. This research contributes to a bigger PhD project, as Gemma Simón i Mas is conducting research on the Bicibús movement worldwide and the effect of participation on families. Gemma and I supported each other through the research process, sharing literature, providing feedback on each other's proposals and preliminary results, and making our data accessible to each other. Beside the semi-structured interviews, which I conducted, I analyzed and integrated her survey data in my thesis. Searching close collaboration with the Bicibús movement, we attended the International Bike Bus Summit in March 2023. To share our results, the two us of us will present jointly at two conferences in September, i.e. the RGS-IBG Annual International Conference in London and the Cycling & Society Annual Symposium in Dublin.

The research on the justice dimensions of the Bicibús in Barcelona fits in the wider team portfolio through its content and implications. The team studies different aspects of cycling, e.g., activism, parking, bike theft. The embeddedness in the local ecology of actors, the creation of partnerships and focus on situated knowledge are important. In this case, the thesis creates applied knowledge in collaboration with activist from the Bicibús movement in Barcelona. The findings and recommendations can contribute to guiding the pathway to a more just and sustainable urban mobility system. Research and recommendations are situated in the city, but implications from this case can be useful for reflections in different contexts of cycling activism beyond Barcelona.

Information about the journal: Guideline for authors

You can find the guidelines of the Transportation journal here: https://www.springer.com/journal/11116/submission-guidelines#Instructions_for_Authors_Manuscript Submission

Biography

Anna Aretha Sach studied a master's in Interdisciplinary studies in Environmental, Economic and Social Sustainability at the Universitat Autònoma de Barcelona. Previously, she completed a B.Sc. in Psychology at the University of Bonn, in which she focused on pro-environmental behavior and the support for radical climate politics. Her research interests are social movements, activism, and environmental justice.

Statements and Declarations

I report no potential conflict of interest or source of funding. The data collected and analyzed during the current study are not publicly available due to privacy of the interviewees but are available completely anonymized from the corresponding author on reasonable request.

Abstract

Mobility justice considers how power and injustice shape unequal (im)mobility patterns along gendered, class and racialized lines. Previous studies have shown that cycling movements can generate or reinforce inequalities. Even grassroots mobility initiatives from the cycling community may be entangled in systemic inequities and mobility injustice. Bicibús is a growing movement of children, caregivers, and volunteers who go to school together by bikes, skates, or scooters. They occupy the streets for safer and healthier cities. This study analyzes whether and how Bicibús initiatives reflect and reproduce inequalities based on gender, class, or migration in Barcelona. Through interviews with 22 parents, including Bicibús organizers and non-participants, I outline the processes of exclusion in this grassroots cycling activism in Barcelona. While data indicated gender parity, low-income and racialized families were underrepresented among Bicibús organizers and participants, leaving the movement to be dominated by white and middle-class families. The schools that benefited were predominately in higher-income neighborhoods, while no routes connected marginalized students from lower-income schools. Work obligations, materials, confidence and physical abilities, social integration, and logistics were identified as barriers to participation, which more strongly impeded low-income and less integrated families. This analysis adds to an intersectional understanding of children's unequal active mobility to school and biased representation in cycling initiatives. Raising awareness for racist and classist inequalities, creating support structures, and involving schools are recommended to make cycling protests more inclusive and diverse.

Keywords: active school transportation; Bicibús; cycling justice; cycling movement; mobilities of care; mobility justice.

1 Introduction

"*I do argue that the Bicibús is a bit elitist. That's exactly that: [counts with the fingers]: 1. You first need a bicycle. 2. You need the ability to arrange in terms of working hours to be able to participate. 3. And this is also the case with people who have a higher level of education and more money available, so that they can arrange to participate and take the time. 4. And you have to keep the bike in some way maintained. 5. Store it. It's definitely a luxury issue because you need the space for it." [participant]*

1.1 Mobility justice

The notion of mobility justice considers how power and injustice shape unequal (im)mobility patterns, along gendered, class and racialized lines (Sheller, 2018b). Mobility justice addresses differences in access to movements, representation, and individual experience of mobilities (Smeds et al., 2020). Thus, it goes beyond the distribution of benefits and burdens, and includes procedural, recognition, and epistemic aspects of mobility (Pereira et al., 2016; Sheller, 2018b; Smeds et al., 2020; Verlinghieri & Schwanen, 2020). Procedural justice relates to inclusion/exclusion in participatory processes, while recognition involves the acknowledgement of different needs, values, understandings, and customs (Smeds et al., 2020; Verlinghieri & Schwanen, 2020). Epistemic justice addresses knowledge production and ways of knowing (Sheller, 2018a). Scholars and civic voices have made calls to explore the reasons why people chose certain modes of transport and how barriers hinder individuals and communities (Untokening, 2017).

In this study I examine cycling inequities and barriers to cycling in the context of mobility (in)justice. When analyzing cycling behavior, various intersecting forms of discrimination and oppression must be considered (Ravensbergen et al., 2022). Critical velomobilities scholars consider cycling "both a product and producer of unequal power relations and 'mobility justice'" (Scott, 2020, p. 1). This study aims to add to a growing body of literature on cycling injustices (Barajas, 2020; Bierbaum et al., 2021; Ravensbergen, 2022; Stehlin, 2019; Vietinghoff, 2021). These studies demonstrate that cycling is embedded in uneven power relations and connected to gendered, class and racialized axes of difference. Bicycle benefits (e.g., infrastructure, health, accessibility) are unevenly distributed in cities, and do not respond to the needs of vulnerable and marginalized groups (Cunha & Silva, 2022).

First, women of all age groups are underrepresented on bikes in low-cycling cities (Goel et al., 2022; Raser et al., 2018; Sersli et al., 2020). This reflects broader patriarchal inequalities in care work, underrepresentation in urban planning, and lack of separated bikes lanes, which are preferred by women and children (Scott, 2020).

Second, analyzing cycling data disaggregated by income and education provides clues as to the extent of mobility injustice (Goel et al., 2022). Lower class and socioeconomic status are associated with barriers, e.g., costs or lack of storage space (Huang et al., 2018; Vietinghoff, 2021). However, cycling is also a mode for people out of necessity, not choice (Golub et al., 2016; Roberts et al., 2019). Barriers to motor vehicle ownership may make them more dependent on active mobility (Agyeman & Doran, 2021). Often those cyclists are made invisible (Golub et al., 2016). Additionally, low-income populations have limited access to safe and convenient cycling spaces (Doran et al., 2021). Moreover, individuals with tertiary education are more likely to own a bike and cycle regularly (GESOP, 2022; Raser et al., 2018).

For migrants, many factors affect the individual cycling experience and mobility needs, e.g., where they are from, previous cycling experience, cultural norms, current residential location, resource availability, and legal status (Barajas, 2020; Law & Karnilowicz, 2015). Newcomer and refugee cyclists share safety concerns, such as a fear of injury, personal safety, negotiations about road space, sexual harassment, and worries about law enforcement (Lubitow et al., 2019; Ravensbergen, 2022; Ravensbergen, Buliung, & Laliberté, 2020; Ravensbergen et al., 2022).

More research has focused on the connections between gender, race, ethnicity, income, and cycling (Ravensbergen et al., 2022). Such an intersectional analysis is required to understand who is cycling and who is not, to promote more inclusive everyday cycling (Ravensbergen et al., 2019; Vietinghoff, 2021). Justice-oriented cycling practices should (1) ask who benefits from cycling programs, (2) pay attention to the connections between cycling, race, public space, and justice, (3) recognize the diversity of cyclists, and (4) create space for local, non-expert knowledge (Golub et al., 2016). This study applied those principles to analyze cycling practices to school, putting children's everyday mobility at the center.

1.2 Active mobility to school

Public health and transport scientists have explored children's mobilities to school, focusing mostly on the health and environmental benefits of active transportation and barriers to integrating it into the everyday life of children. Active mobility to school, also called active school transportation or active commute to school, includes walking or cycling to school and back. While children's freedom to move in public space is decreasing in the Global North (Holloway & Pimlott-Wilson, 2014), active mobility to school has a valuable impact, such as daily physical activity (Mendoza et al., 2017). Cycling is associated with even more health benefits than walking (Aranda-Balboa et al., 2020; Chillón et al., 2013). In addition, active mobility to school provides social, environmental, and safety benefits (Aranda-Balboa et al., 2020; Rutberg & Lindqvist, 2019).

Scholars who have studied active mobility to school have emphasized the importance of contextualizing mode choices with parents and the family environment. Parents/caregivers' attitudes and behaviors are crucial for active mobility to school (Rutberg & Lindqvist, 2019). When caregivers are active commuters themselves, the probability of the children to do alike is higher (Panter et al., 2010). Children prefer active mobility to school (Larouche et al., 2016). When they are involved in the decision, active mobility to school is more likely chosen (Egli et al., 2018). However, caregivers are "gatekeepers" to children's travel mode (Egli et al., 2018, p. 116). Thus, "parents' views, capacities, and constraints" need to be assessed to contextualize children's mobility (Holloway & Pimlott-Wilson, 2014, p. 624). Caregivers reported barriers such as safety, built environment, distance, time, competences, and self-efficacy beliefs (Aranda-Balboa et al., 2020; Jurak et al., 2021; Rutberg & Lindqvist, 2019; Sersli et al., 2020). Additionally, culturally specific challenges and norms (e.g., a "good" parent as a chauffeur) influence travel behavior (Barajas, 2020; Bonham & Wilson, 2012; Egli et al., 2018). Positive emotions like fun, autonomy, and friendships were outlined as the most important drivers for cycling with children (Conticelli et al., 2018; Silonsaari et al., 2022).

Children's commutes accompanied by caregivers are "micro-mobilities of care" or "local care loops" (Isaksen & Näre, 2019, p. 593). These are interlinked with a gendered distribution of care work (Ravensbergen, Buliung, & Sersli, 2020). Women carry the disproportionate share of escorting children (Sersli et al., 2020). By now, research has paid little attention to local organization of everyday care mobilities (Isaksen & Näre, 2019), and even less assessing privileges and forms of discrimination affecting those.

Gender, class, and migration background are associated with active mobility to school (Børrestad et al., 2011; Kobel et al., 2019; Reimers et al., 2021). Varying patterns between walking and cycling are shown. For example, girls are more likely to walk than boys, but less likely to cycle in Spain (Chillón et al., 2009), Norway (Børrestad et al., 2011), and Sweden (Johansson et al., 2012). Also in Catalonia, girls (<1%[1]) cycle less than boys (1-3%) (ESCA, 2023a). These gender differences depending on mode of transport were found across different continents with few exceptions (Chillón et al., 2009).

Children of lower socioeconomic status are more likely to use active mobility to school than those of high socioeconomic status (Babey et al., 2009; Chillón et al., 2009; Johansson et al., 2012; Schiaffino & Medina, 2023). For example, in Catalonia, 72% of lower-class children commute actively in contrast to 63% of middle- and upper-class peers (Schiaffino & Medina, 2023). However, in Sweden, this association was found only in urban areas, not in rural (Johansson et al., 2012). In Germany, upper-class children used to commute less active than lower and middle-class children, but this trend reversed in the last decade (Kobel et al., 2019; Reimers et al., 2021). Also, students at private schools commute less actively than at public schools in Spanish cities (Chillón et al., 2009) and California (Babey et al., 2009). In Catalonia, children with lowest parental education (84%) commute more actively than those whose parents graduated secondary (70%) or university education (61%; Schiaffino & Medina, 2023).

[1] For ease of reading, all percentages were rounded off to whole numbers hereafter if not indicated otherwise.

Contrary, parental university education is connected with more active mobility to school than parental non-university education in Germany (Kobel et al., 2019).

Differentiating walking and cycling, higher socioeconomic class (ESCA, 2023a; Reimers et al., 2021) and parental university education (Børrestad et al., 2011) correspond to more bike travel of their children; whereas walking to school is most common in the lowest socioeconomic class in Catalonia (ESCA, 2023a). The higher the socioeconomic class, the more likely is cycling for children and adults there (ESCA, 2023a, 2023b). Boys and girls in Spain and Germany indicated different patterns between socioeconomic groups in the likelihoods to cycle or walk, e.g., middle-class boys walked less than their lower- or upper-class male peers, which does not apply to girls (ESCA, 2023a; Reimers et al., 2021).

Migrant children tend to be active commuters (Babey et al., 2009; Kobel et al., 2019; Reimers et al., 2021). Other studies showed the opposite in the US (Mendoza et al., 2014) or no effect when data analysis was adjusted for car ownership and urbanicity of the area in Sweden (Johansson et al., 2012). Migrant children are more likely to walk than non-migrant peers (Børrestad et al., 2011; Reimers et al., 2021) and less likely to prefer cycling (Larouche et al., 2016).

Summing up, active mobility to school is common among girls, low-income, and migrant families who rather walk than cycle. On the contrary, boys, children with high socioeconomic background, parental university education, or no migration biographies are more likely to cycle to school. Consequently, cycling justice research needs to address differences in children's active mobility to school between gender, socioeconomic classes and migration biographies (Bierbaum et al., 2021). I assumed that those differences also affect participation in activism around cycling to school.

1.3 Cycling advocacy and activism

Cycling advocates aim to make cities more bikeable and in this way, address the historic unjust allocation of road space that has prioritized private motorized vehicles (Trujillo & Wilson, 2019; Verlinghieri & Schwanen, 2020). Justice arguments are a central part of cycling advocacy and activism, which aim to redress and mitigate the safety, environmental, and health impacts of car-centric urban planning and design (Leyendecker & Cox, 2022; Stehlin, 2019).

Cycling activism and organizations aim to contribute to mobility justice, but they emerge from particular communities, with particular ideologies, and are connected to certain privileges, means, power, and political ideas (Castañeda, 2020; Golub et al., 2016; Waitt & Buchanan, 2023). Immigrants, racialized people, and refugees are often overlooked in cycling advocacy (Doran et al., 2021), and may not participate in cycling promotion (Golub et al., 2016). Cycling movements have been largely silent "on questions of difference" (Stehlin, 2019, p. 7), often driven by male, *white*[2], young bike advocates (Stehlin & Tarr, 2017). As cycling is used as "political instrument", parts of the population are left out in this struggle of "who is the city for" (Castañeda, 2020, p. 66). Therefore, cycling initiatives risk generating or reinforcing inequalities (Castañeda, 2020).

Feelings of entitlement, belonging, and other emotions draw boundaries of participation in cycling protests (Castañeda, 2020; Furness, 2007). Entitlement to take public space differs between social groups (Egan & Philbin, 2021; Waitt & Buchanan, 2023). Discrimination experiences influence non-Western migrants' sense of belonging and identification with the society in Catalonia (Hellgren & Gabrielli, 2021). The experience of participating in a cycling movement creates a reinforcing sense of empowerment and collective self-esteem (Castañeda, 2020). Thus, protests can uphold inclusion and exclusion because the participants feel empowered to take the streets again, while others do not experience this "embodied engagement" and positive affect that would make them join (Castañeda, 2020, p. 14). A cycling movement that became famous for its fun and joy is the Bicibús (Honey-Rosés, 2023; Keeley, 2021).

[2] I capitalize Black, as critical scholars and Black activists suggested for decades to emphasize that is does not refer to skin color or ascribed ethnical group, but a social-political construct that positions in power relations (Foster, 2003). Many publishers discussed and adopted this in style guides since 2020 (APA Style, 2022). Same applies for *whiteness*. However, to name it and draw attention on ongoing power positions on the one hand, while distancing myself from *white* supremacists on the other hand, who often capitalize *white* to demonstrate dominance (Thúy Nguyễn & Pendleton, 2020), I decided to write *white* in italic lower-case, which is often done in scientific writing (NdM-Glossar, n.d.).

1.4 Bicibús

Bicibús initiatives aim to rethink road security, mobility, and public space policies (Avellaneda & Anaya, 2013). They claim recognition of children as mobility users, and more space for cyclists of all ages (Xarxa de Bicibús, 2022). A Bicibús, also called bike bus, bicycle train or cycle bus, is a group of students cycling to school together with adult volunteers along predefined paths (Conticelli et al., 2018). Most participants of the Bicibús cycle or are carried on bikes, others use scooters, skates, or run. They meet at a certain time to pick up and drop of participants along designated stops (Huang et al., 2018). Bicibús initiatives exist in many countries, with an exponential growth since 2020 (Simón i Mas, 2023). Currently, Bicibús research is limited (Hidalgo et al., 2016; Huang et al., 2018; Larouche & Mendoza, 2018).

Bicibús initiatives are beneficial for children, caregivers, schools, and communities (Larouche & Mendoza, 2018). The group improves safety (Egli et al., 2018), physical activity, health (Mendoza et al., 2017), and attitudes towards cycling and themselves (Conticelli et al., 2018; Huang et al., 2018). Positive long-term effects on travel behavior are expected (Hidalgo et al., 2016). Further, Bicibús enhances social skills and cohesion (Egli et al., 2018; Sagaris & Lanfranco, 2019). Participation provides educational value (Avellaneda & Anaya, 2013) and an opportunity for habit discontinuity to change routine mobility (Marechal, 2018; Verplanken et al., 2008). But who takes advantage of these benefits?

As it is the case for many grassroots cycling movements, the justice aspects of Bicibús initiatives remain unexplored, analyzing which students, schools, and neighborhoods gain, who loses, and if patterns of exclusion are reproduced (Collins & Kearns, 2005; Heynen et al., 2006). A Bicibús that provided bikes, equipment, and riding safety courses demonstrated to increase the physical activity of randomly selected low-income students by 22 min/day (Mendoza et al., 2017). Yet, ways to provide equitable participation in low-income communities and the social sustainability of Bicibús initiatives need to be assessed (Huang et al., 2018). If successful, safe cycling to schools and cycling-friendly neighborhoods have the potential to enhance cycling representation across different social groups (Goel et al., 2022).

To fill that research gap, this thesis analyzes the Bicibús initiatives in the city of Barcelona through a justice perspective. I asked the overarching research question: *To what extent does cycling activism for more child-friendly cities include low-income and racialized families?* To answer that, I addressed the following sub-questions:

1. In which neighborhoods in Barcelona are Bicibús initiatives organized and in which not? What characterizes those neighborhoods?
2. Who participates in and benefits from the Bicibús?
3. How do Bicibús initiatives reflect and reproduce social injustices regarding gender, class, racialization, and their intersections?
4. What are the barriers for low-income, migrant, and racialized families to participate in a Bicibús?
5. How do a sense of belonging, felt entitlement and emotions influence participation in a Bicibús as a political action?
6. How do Bicibús initiatives contribute to the creation of more just and sustainable mobilities in Barcelona?

2 Methods

2.1 Study setting

Barcelona is the city with most Bicibús routes that are self-organized and led by parents worldwide (Simón i Mas, 2023). The first route in Barcelona started in March 2021 in the neighborhood of Sarrià, and spread from there across the city, and from Barcelona around the world (Buehler & Pucher, 2022). Currently, 18 routes operate with different frequencies (daily to occasional), with most routes in the districts Eixample and Sarrià-Sant Gervasi, and none in three districts (Figure 1 and Table 1).

Barcelona is a dense metropole with high volume of motor vehicle traffic (Minguillón et al., 2015) and air pollution (Martori et al., 2022). Lack of physical activity is estimated to cause more than 1,100 premature deaths per year in Barcelona (Mueller et al., 2017). Being the highest excess mortality, this shows the urgent need to integrate more physical activity in daily routines (Mueller et al., 2017). Furthermore, Sunyer et al. (2015) demonstrated that high levels of traffic-related air pollution impaired the cognitive development of primary school children in Barcelona. Thus, health experts recommended policies to reduce traffic intensities around schools (Rivas et al., 2016).

Notwithstanding, Barcelona is also a city of pedestrians. On a working day, 62% of the internal trips within the city are active mobility, followed by public transit (23%) and private vehicle use (15%) (iermB, 2022). Most of the active trips are made on foot (58%), while only 3% are made by bikes (iermB, 2022). Similarly, the majority (76%) of children between 3- and 14-years-old walk or cycle to school, while 14% use public transport (Schiaffino & Medina, 2023).

However, cycling habits are not evenly distributed across city residents. Almost 30% of the households in Barcelona have no bike, which is more than in other Spanish cities (GESOP, 2022). The city’s cycle network and bike-sharing system fail to reach the poorest, most deprived areas (Anaya-Boig et al., 2022). People with higher education cycle significantly more than people with elementary or no education, showing a “class and/or educational gap” in Barcelona (Codina et al., 2022, p. 7). Furthermore, only 35% of observed cyclists are women (Col·lectiu Punt 6, 2021). Transporting children to/from school additionally hindered women from everyday cycling (Curto et al., 2016).

Only 19% of the interviewed female and non-binary cyclists in Barcelona agreed that cycling allows them to fulfil care tasks (Col·lectiu Punt 6, 2021).

In the last years streets and school environments were transformed. The progressive city government led by Barcelona en Comú (2015-2023) pushed changes advancing climate action, greening, sustainable mobility, use of public space, and citizen participation (Anguelovski et al., 2022). Cycling was promoted: e.g., bicycle lane kilometers doubled from 2015 to 2019, half of all city streets have speed limits of 30km/h (Buehler & Pucher, 2022). After the death of the five-year-old Hugo playing in front of his school, the campaign “Protegim les Escoles” (Protect the schools; 2020-2023) made more than 200 school surroundings safer and healthier through micro-interventions (Ferrer-Fons et al., 2023; Honey-Rosés et al., 2023; Saura, 2020).

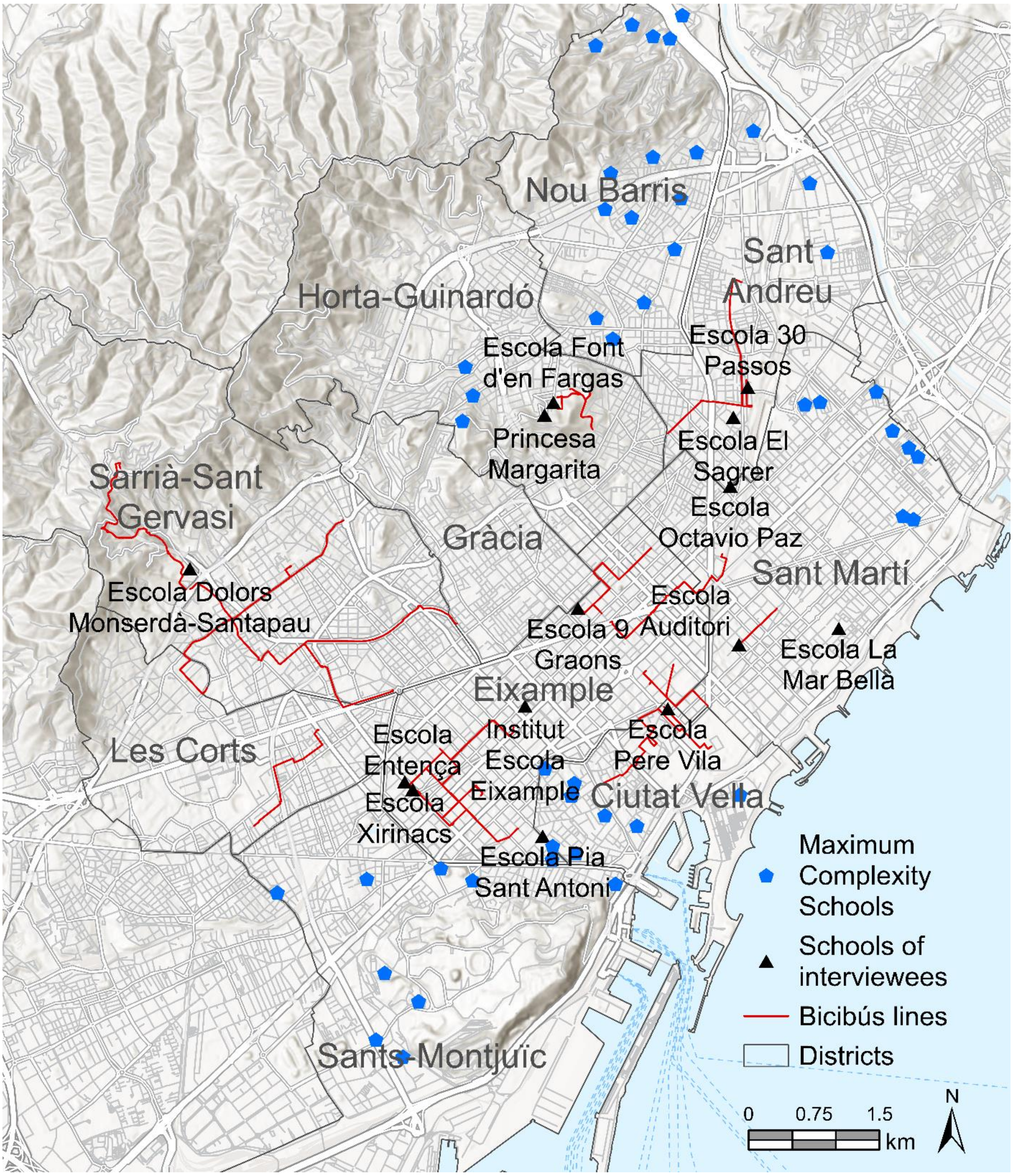
Barcelona is characterized by high socioeconomic disparities between inhabitants and neighborhoods (Cornado et al., 2017; Iungman et al., 2021). This impacts the social composition of schools. Families tend to enroll their children in neighborhoods with higher income and more positive image, which is reflected and reinforced by inequal school performances (Gomà Garcia & Muñoz Aranda, 2018). Even though Barcelona’s school admission system is based on proximity, a reform extended school choices in 2012 (Bonal et al., 2021). According to the authors, many schools in the wealthier districts provide families more options there on the one hand. On the other hand, there are opportunities to opt out of proximity schools, which are mostly used by privileged students. In contrast, they showed that disadvantaged students are more likely to attend the nearest school. Thus, school segregation was greater than residential segregation (Bayona-i-Carrasco & Domingo, 2021; Bonal et al., 2021). It separates children from different social classes and migration biographies (Bayona-i-Carrasco & Domingo, 2021; Gomà Garcia & Muñoz Aranda, 2018).

There is a “double spatial inequality” (Scandurra et al., 2022, p. 13), of unequal educational offer and unequal mobility capital. Schools with many parents without tertiary education tend to have higher shares of low-income and migrant students. Many children have migration biographies, as 22% of the city’s residents are born in another country (Ajuntament de Barcelona, 2022). School choice contributes to social inequalities since families have different resources and strategies (Àngel Alegre, 2017).

Socially advantaged children travel on average longer distance (Scandurra et al., 2022) and more often by private motorized vehicles than students from lower socioeconomic status (Schiaffino & Medina, 2023). In this context of inequalities, it is necessary to analyze whether school segregation by class and migration is reflected and reproduced in and by the Bicibús.

Figure 1

Districts, Bicibús routes, maximum complexity schools, and the schools of interviewees in the city of Barcelona



Note. Routes based on participatory online mapping (as of July 2023). Of the 14 schools, 12 are public and 2 subsidized private (Princesa Margarita and Escola Pia Sant Antoni). Source: Own elaboration.

Table 1

Overview of 18 Bicibús routes by districts in the city of Barcelona 2021-2023

District	Name	Since	Distance (km)	Time (min)	Frequency	No. of schools	No. of participants	Gender adult	Gender child
Ciutat Vella	**Ciutat Vella**	2022	2.7	26	Weekly	2 (potentially 3)	40	E	M
Eixample	**Eixample – Sagrada Família**	2022	1.75	15	Weekly	3-4	40	E	E
	Eixample – Diagonal	2022	1.1	n.d.	Weekly	4	30-35	M	F
	Eixample – Letamendi	2022	1.9	25	Weekly	7	50	E	M
	Eixample – Sant Antoni	2021 (2022)	2	20 (17.5)	Daily since 2022	4 (mainly 2)	150 (35-40)	F	M
	Eixample – Consell de Cent	2021	1.75	22.5	Weekly	4	30	E	E
	Fort Pienc[a]	2022	1.3 – 2	10 – 19	Weekly	3	17	M	E
Sants-Montjuïc	//								
Les Corts	Les Corts	2021	2.8	25	Weekly	4	41	E	E
	Pedralbes	n.d.	n.d.	n.d.	Occasional	n.d.	n.d.	n.d.	n.d.
Sarrià-Sant Gervasi	Sarrià – Bonanova	2021	3.44	30	Twice a week	> 13	15	E	E
	Sarrià – Tres Torres	2022	3.6	35	Twice a week	> 13	5	E	M
	Sarrià – Via Augusta	2021	4.8	50	Twice a week	11	100	M	M
	Vallvidrera	2022	2.4	20	Occasional	mainly 2	8	F	E
Gràcia	//								
Horta-Guinardó	**Guinardó**	2023	1.2	n.d.	Weekly	3-4	9	E	M
Nou Barris	//								
Sant Andreu	**Sant Andreu – La Sagrera**	2022	1.98	20	Weekly	2-3	55	E	M
	Els Indians – La Sagrera	2023	1.2	24	Weekly	3	30	M	M
Sant Martí	El Clot	2021	1	10	Weekly	1 (potentially 3)	7	E	F
	Auditori	n.d.	n.d.	n.d.	Occasional	1	n.d.	n.d.	n.d.
Average			2.2	25.45		5	34	M (-0.13)[b]	M (-0.38)[b]

Note. Routes represented in the sample are marked in bold. [a] Eixample from name but starts in Sant Marti and one school is in Ciutat Vella. F = more female participants, M = more male participants, E = equal. [b] Average calculated with E = 0, F = 1, M = -1.

2.2 Sample and data collection

Qualitative methods allowed in-depth data about families' situated experiences and perceptions. I conducted semi-structured interviews with 22 parents from 14 schools (Figure 1) between March and May 2023. Half of them were Bicibús participants and half non-participants. The interviews took place at locations and times proposed by the interviewees. In five cases a child was partly present during the interview. The interviews were held in Spanish, Catalan, English, or German according to the interviewees' preferences. Arabic was offered, but not requested. At the end, interviewees filled out a one-page survey about their socio-demographics (including gender, country of birth, and education level) as well as their discrimination experience (Table 2). I did not ask for income level, but the subjective financial situation.

I recruited participants through messenger groups, communication channels of social movements and organizations, posters in social centers, and direct contacts. Each interviewee received a 15€ gift card for a sustainable cooperative for educational material. I used a purposive sampling through a snowballing principle. The only inclusion criterium was to be a parent of a primary school child. I aimed to integrate low-income, non-European, and racialized families, as their voices are often ignored, dismissed or discounted (Kotsila et al., 2023).

Through the process I reflected on my positionality, power, and privileges that I carry as a *white* cis-female student and feminist activist from a European country, with university education and early family support for cycling, who has no experience as a parent. This positionality influenced not only the relationships with interviewees, but also the framing, literature review, and data analysis of the study. To get to know the movement, build confidence, and understand the dynamics, I participated almost weekly (20 times over seven months) in various Bicibús routes.

Detailed descriptive information about the sample is summarized in Table 2. The 11 non-participants had diverse profiles, some wealthy with two cars, others having financial difficulties, or being undocumented migrants. Seven of them were migrants born in the Global South (Argentina, Brazil, Mexico, Morocco, Syria, Peru), four reported discriminations of origin. One current non-participant has previously participated, giving insights on drop-out reasons. From the 11 participants of Bicibús routes, six parents are currently organizers, and one parent was a former organizer. Organizers were chosen as key informants about the creation of routes, communication, barriers, and patterns of participation.

Table 2

Interviewee characteristics

		Overall	Non-participants	Participants
N		22[a]	11	11
Bicibús organizers (females)		6[b] (2)	0	6 (2)
Gender	female	14	8	6
	male	8	3	5
No. of children total (average)		39 (1.8)	20 (1.8)	19 (1.7)
Gender child	male	25	11	14
	female	14	9	5
Average age children (range)		6.2 (1-13)	6.3 (1-13)	6.1 (1-9)
No voluntary school choice		5	4	1
Private School		3	3	0
Born in the country		9	3	6
Born in other European country		5	1	4
Born in Global South		8	7	1
Average years in country if foreigner		11.15	12.15	9.7
Partnership	together	16	8	8
	separated	6	3	3
Education level	secondary	2	2	0
	professional formation	2	1	1
	university	18	8	10
Formal or self employed		18	8	10
Average working hours		33.65	33.85	33.45
Financial situation	comfortably	9	3	6
	sufficient	4	2	2
	difficult	7	4	3
	changes	2	2	0
Household	without car	10	6	4
	with one car	10[c]	3	7[c]
	with two cars	2	2	0
Experienced discrimination of	origin	5	4	1
	skin color	1	1	0
	religion	1	1	0
	education	0	0	0
	income	1	1	0
	gender	7	2	5
	other	2	0	2

Note. [a] One current non-participant had previously participated in the Bicibús. [b] One participant was previously an organizer. [c] A participant family had a shared car with two other households.

All interviews were recorded and transcribed. Nvivo was used for the data analysis that was guided by the research questions. An initial inductive coding with some in-vivo-codes was selected for the first cycle coding (Saldaña, 2009). Then, codes were grouped during focused and pattern coding into higher level themes (Saldaña, 2009). Additional quantitative data about the Bicibús routes in Barcelona (Table 1) was drawn from an online survey that organizers answered to map bike buses globally between May 30, 2022 and April 21, 2023 (Simón i Mas, 2023).

.

3 Results

3.1 Bicibús in privileged districts leaving out more marginalized families

Wealthier districts have most routes

Since its inception, Bicibús emerged in neighborhoods known for their high social standing. The districts with most Bicibús routes, Eixample and Sarrià-Sant Gervasi (Table 1), were two of the three districts with highest average income (Ajuntament de Barcelona, 2022). In contrast, two districts with high poverty, Nou Barris and Sants-Montjuïc (Ajuntament de Barcelona, 2022), had no routes.

Different reasons explain why the Eixample and Sarrià districts have the most Bicibús routes (Table 1). The hostile urban and environmental conditions in the Eixample created a strong demand for a child-friendly active travel to school program such as Bicibús. Massive daily car traffic in that district causes accidentality, noise, and air pollution (Aiash & Robusté, 2022), whereas in more walk- or bikeable neighborhoods such as Poblenou (in the district of Sant Martí) and Gràcia, there was lower demand for a Bicibús. For instance, a cycling parent in Poblenou pointed out that the bike lanes and pacified areas there make a Bicibús less urgent because they can safely cycle to school alone as a family. This could also explain the absence of a Bicibús in Gràcia.

Sarrià has the particularity that it concentrates a large number of private schools that pull in families and children from outside the neighborhood (Gomà Garcia & Muñoz Aranda, 2018). Therefore, families who take their children to schools in Sarrià tend to commute larger distances. Students are often driven by car, in some schools up to 85% of students (Minguillón et al., 2015). Interviewees emphasized that Sarrià had a "a big division" [participant from Sarrià] between progressive and conservative parents and was "a world apart" [organizer from Eixample] with a lot of economic capital. Thus, the hostile car traffic in Eixample respectively the long ways to schools in Sarrià created the high demand for Bicibús in those districts.

Reproduction of injustice as Bicibús excludes marginalized children

I find that children living in marginalized neighborhoods do not have the opportunity to participate in a Bicibús. None of the 18 Bicibús routes in Barcelona are connected to any of the 49 maximum complexity schools[3] with most marginalized students (Figure 1). Furthermore, the two districts with highest number of marginalized schools, Nou Barris and Sants-Montjuïc (Gomà Garcia & Muñoz Aranda, 2018), do not have any Bicibús. The degree of marginalization and mobility injustice in these districts can be appreciated with other indicators as well. They are the districts with least access (29%, respectively 32%) to bikes in the households and highest share of households (20%, respectively 17%) with difficulties to attend the children's needs after Ciutat Vella (22%; Ajuntament de Barcelona, 2022). We clearly observe that the Bicibús movement has not succeeded in providing access to children from disadvantaged schools and neighborhoods, but instead has predominately emerged from families, schools, and neighborhoods of privilege. The spatial patterns of operation show that Bicibús routes reproduce existing inequalities and reinforce existing divisions of spatial (mobility) injustice.

3.2 Boundaries of participation along class and racialization, but not gender

Most Bicibús participants are from middle-class families with university education

Low-income families rarely participated in most Bicibús routes in Barcelona. Participants tend to live with financial security and have university degrees, placing themselves among the 45% of Barcelona's residents over the age of 16 with university education (Ajuntament de Barcelona, 2022). Three women described difficult economic situations, showing an intersection of gender and socioeconomic status. Still, one of them characterized the movement as "a lot of middle class, well, people like us pushed into precarity, but [...] not super precarious" [organizer].

Even though almost all schools with Bicibús were public schools, so theoretically open for everyone, there were only few families with financial difficulties at those schools: "I identify few families as very low-income. I think there are only a few. But basically, because they have been excluded from the neighborhood" [non-participant]. Gentrification pushed out low-income families from the wealthier neighborhoods. However,

---

[3] Definition based on parental education level, low-skilled jobs or unemployment, recipients of guaranteed minimum income, specific educational needs, and share of immigrants (Gomà Garcia & Muñoz Aranda, 2018).

also some families who moved because of rising prices decided not to change schools. So, those bear the effort to have longer routes to school and continue to participate in the Bicibús: “we had to move, we could no longer afford the rent in Sarrià and then moved down to the center. And now we consequently have a relatively long way to school” [participant].

Migrants from Global South are underrepresented in Barcelona’s Bicibús movement

Most routes were organized by Catalan or Spanish parents and included only few participants from the Global South. Interviewed migrant (ex-)participants were from France, Germany, Scotland, Portugal, and Argentina. The only interviewed participant from the Global South was among the three participants with difficult economic situations, being the only participant without university degree and unemployed. However, these aspects did not come up as difficulties in that interview.

An exceptional route was Ciutat Vella with more migrant representation, but still the majority were “*white*, middle-class Europeans”. These migrants were “professionals with higher level of studies” [organizer], demonstrating the interplay of racialization, legal status, and education. This profile is representative for that school, but not for the whole district since Ciutat Vella has highest poverty rates (Ajuntament de Barcelona, 2022) and the highest percentage of migrant school children (43%; Rodríguez et al., 2019). It is the district with strongest segregation patterns related to migration (Rodríguez et al., 2019). Thus, segregation there also affected who participated in the Bicibús route in Ciutat Vella which mainly served two schools in the north-east of the district, not the many maximum complexity schools in the south-western neighborhood Raval (Figure 1).

Gender balance

Regarding gender, the Bicibús in Barcelona is mostly balanced between female and male attendees. Among children, the routes had either gender parity or more boys than girls (Table 1). On average across all routes, 43% of children are girls. An organizer explained that he had spoken more to parents with boys while the sons played football in the park. Almost all (five current and one former) interviewed organizers had only sons, except one organizer with two daughters. Likewise for parents, gender balance was reported in 10 of 16 surveyed routes, plus four rather male routes and two rather female routes (Table 1). A homosexual parent emphasized diverse representation, also of LGBTQ* people, at the first Bicibús. No person with other gender identity than male or female was interviewed or mentioned.

Women were very present as organizers and “demonstrating that you as a woman can take the public space with your children and the bike” [female organizer]. Without the Bicibús (slightly) more women escorted the children to school. The Bicibús attracted more fathers, which resulted in an overall more equal distribution of care tasks on those days through the Bicibús. Two gendered meanings crossed in the Bicibús: “it is indeed care work because you take your child to school, but you go by bike occupying the street. So, they intersect.” [female organizer].

3.3 School choice and self-selection explain the reflection and reproduction of inequalities

Why do we see this distribution of routes and profile of participants? Engaged parental networks at certain types of schools started the Bicibús routes in Barcelona, often inspired by social media. An exception is the first Bicibús that was started by a teacher in Sarrià. All other Barcelona routes were created upon the initiative of a group or a single motivated parent(s). In many cases, these parents had been already active in parental associations or other groups. Even though there was no coordination, a pattern emerged on school level.

Founders were often parents at (new) public primary schools with an innovative pedagogy. Those schools attracted “a certain type of population” [participant], which was likely to join the cycling protest: “the target group of parents is also exactly the target group that jumps on something like the Bicibús” [participant]. Thus, there was a “self-selection” [organizer] of likeminded families which chose a new educational project, especially as this implied uncertain conditions, e.g., temporary structures.

Strong social networks at those schools facilitated the creation of a Bicibús route. Parents knew each other because of multiple reasons: a) New schools were small at the beginning; b) some parents aimed for these newer schools because they saw more possibilities to build up the school community; c) it was often their first child to be enrolled, so they tend to engage strongly in their school; and d) they enrolled some years before the Covid pandemic.

New schools were often at temporary sites, perhaps further away. Participants deemed the choice of the pedagogical project more relevant than longer distances. Those distances did not matter that much for families who could use bikes/scooters. Thus, strong social ties and bikeable distances created the perfect conditions in which parents started a Bicibús.

School choice reflects and reproduces inequalities. Going to a specific school further away, even a public one, is a privileged decision because on the one hand, knowledge and effort are required for the application procedure. On the other hand, neighborhood, housing opportunities, lack of modes of transport, and parental time constraints limit which schools are accessible. For example, a wealthy family moved to more child- and cycling-friendly area in the search for a good school. A non-participant from the Global South criticized the school choice process as: “crazy, a lot of tension, and in the end, it also results in the generation of differences”. Whereas some families selected a certain educational program further away, other families, non-participants, opted for closer convenient schools, and five families could not even enroll at one of their preferred schools (Table 2). Bayona-i-Carrasco and Domingo (2021) argue that it is easier for non-migrant families, which tend to have more information about the characteristics of and differences between schools, to navigate the "progressive diversification of educational projects” (p. 3). Furthermore, a non-participant from the Global South highlighted that at their school after the change towards a more attractive school program less migrants were enrolled at the school than before. She emphasized that when the Bicibús network met with the Mayor, it was important to claim improvements “for all, not only for the children of the parents who are represented there”.

3.4 Barriers strong for low-income and less integrated families

Families who attended a school served by a Bicibús route still faced some family-level barriers to participation. Five interwoven themes were identified: a) work obligations, b) material conditions, c) confidence and physical abilities, d) social integration, and e) logistics. Although these barriers could potentially affect anyone, it was noted that except c) they are particularly pronounced for families with low incomes and who are less integrated. Consequently, the Bicibús can only be an "equalizer [...] as long as many factors add up" [non-participant] because these barriers served as "brake[s]" [former participant] especially when combined.

a) Work obligations

Class divisions regarding wage labor determine which parents can be involved in the Bicibús. Differences of "Who has to be at work and when?" [participant] affected participation. Despite critiques on Twitter "that these people do not seem to work" [participant], most participants were formally or self-employed (Table 2). However, the participants often had flexibility when and where to work: "there are more people in high-skilled jobs that allow you to work remotely, which allows you to go home" [organizer]. Parents without flexible work conditions had fewer opportunities to participate.

Time obligations of work made participation impossible for parents who drop their children earlier at school: "I pay the service of childcare at school, and between this and the reduced working hours and so on I can manage. I can't participate because of that either" [non-participant in difficult economic situation]. For this reason, an organizer explained that occasional group rides in the afternoon (called Volta Canalla) were more diverse and better attended. Dealing with work obligations was easier for parents with other family members in town, e.g., grandparents escorting children, or strong social ties (see section d).

Furthermore, the type of work activity put brakes on parents. On the one hand, the dress code (e.g., suits) or sweating hindered participation. On the other hand, unlike parents doing home office, one non-participant in difficult economic situation with a very physically demanding work avoided active mobility to school: "I work [...] walking all fucking day. I mean, let's say that doing sport is what I feel like doing the least, giving more to my legs."

b) Material conditions

For a family to be able to participate in Bicibús, they need access to fundamental materials such as bike/scooter/skates, parking space, and bikeable streets. First, you need to have a bike or other equipment. Even though both participants and non-participants said that buying a bike, especially a second-hand bike, was feasible, this might be harder for households with more strained budgets. Moreover, maintenance and additional materials (e.g., helmets) add costs. Some interviewees in difficult financial situations mentioned that they started cycling themselves or their children when friends or organizations gave them a bike or gift card, which they used to buy a bike. Second, accessible parking space was needed at home and the destinations (school and work). That is difficult at home in a city with a housing crisis (D'Adda, 2021). For instance, one interviewee was living in a temporary shelter after eviction, sharing one room with the whole family, so they did not have space to store a bike. Generally, bike theft was raised as a concern that hindered to park the bikes on the street. Replacing a stolen bike was harder for more tense financial situations. Alternative modes of active transport were more accessible, as they solved the financial and parking problematics. It was "cheaper to have skates or a scooter than a bike or it fits you more at home" [participant]. Finally, safe bike lanes or children- and bike-friendly environments were needed a) to access the starting point, b) the way back), and c) in case the family arrives too late to the route and must go to school without the Bicibús. A recent study demonstrated that Barcelona's lower-income areas have significantly less access to the bike lane network (Anaya-Boig et al., 2022). This makes it more difficult for families there to cycle to school and creates a higher need to claim space for cyclists.

c) Confidence and physical abilities

Fear was raised as a big barrier, so cycling to school required a lot of confidence. Parental confidence was influenced by personality, cycling abilities and experience, built environment, behavior of other traffic users, and children's abilities. A participant acknowledged that given the "fact that not everyone knows how to ride a bicycle or has the security to ride a bicycle, it is a privilege, but a small one". The group can compensate for this, as it creates confidence and protection: "It creates a mobile safe environment that accompanies you from one point to the schools." [former participant]. This allows children autonomy, and caregivers tranquility. However, parents without confidence for cycling are left out and discouraged from participating. A non-participant from the Global South who is learning to cycle asked in a Bicibús group: "'I don't know how to ride a bike, can I come?' – 'No, no, that is for those who know.'"

Furthermore, physical abilities restrained participation. For instance, a non-participant with visual impairment on one eye said: "for me the bike feels a bit more dangerous than for the rest of people". Although there were opportunities to transport children who usually use wheelchairs, this support did not seem to be taken up by families for a normal morning. On the contrary, children with wheelchairs attended the annual Kidical Mass cycling protest in rickshaws.

d) Social integration

Having little access to social networks made participation more difficult, while social integration facilitated participation. First, knowledge about the existence of the Bicibús is needed. Communication on social media and mouth-to-mouth did not reach all families. Especially involving other schools was difficult. The organizers tried to get neighboring schools on board. But most participants remained from the founders' school. That demonstrated how important a "social fabric" [non-participant] is to integrate families. New participants were drawn in through others, described as "effect of contagion" [participant]. Thus, the participants resembled the organizers because "it's on a social level these – they were the people that I had access to most" [organizer]. Friendships with organizers made families join who were the only ones from their schools. However, one of them stopped, the other felt less seen and that she did not belong, which confirmed what an organizer assumed: "Possibly people who have migrated or from other schools do not have such a bond."

Social bonds could help to overcome barriers because they provide access to support. For instance, some parents who could not participate brought their child to the starting point of the Bicibús and let them join under the supervision of a befriended parent. Having this as an organized structure supports families who are currently left out: "There are possibly children who, due to family contexts or poverty, are unable to come, so it would be ideal if the Bicibús could also take them in and children could join without the person in charge" [organizer]. By now, legal issues hindered formal authorization or coordination. Hence, it currently depends on the ties between parents.

So, support networks can also be exclusive. The supervision example underlines what a non-participant said: "in the end, mutual support networks can also help. [But] it also depends on the possibility of socialization that you have within the families. Because some people may not participate as much because of language or so on". Further, shame and other feelings might hold back from using this support, as a Moroccan parent, who wants to join and is recently learning to cycle, emphasized: “They [my friends] offer me, but I cannot ask every time: ‘Give me your bike, give me!’, no!”.

e) Logistics

Those parents who could theoretically join the Bicibús because they had a route and equipment available, flexible working conditions, and knew about it, still faced logistical challenges. While it is already challenging for parents with some privileges, additional stress and time might constitute an unbearable barrier for marginalized families:

> “lower socioeconomic levels have less time, maybe less money to buy a bike and to maintain it, but also less time to and less margin – and very often also less emotional margin – to add a new constraint to their daily logistics*”* [organizer in comfortable financial situation]

First, logistics meant a “mess” [non-participant in difficult financial situation] and “a huge act” [participant in sufficient financial situation]. A parent in difficult financial situation who participates in an occasional route therefore planed ahead: “When there is a Bicibús, I also try like, well, prepare things before, so I can leave on time and enjoy it”. Interviewees mentioned not only the logistics of preparing children, bikes, and backpacks, taking them down on the street, and arriving on time, but also locking bikes and the way back with child/ren and bike/s. Parents with multiple and younger children faced bigger difficulties with this coordination.

Second, the Bicibús provided a fixed “deadline” [participant] which parents reported as difficult with children, and participation required more time than going independently. Many families got out of the house earlier as usual (15-30min, but up to an hour). If the route was very convenient and the family routinized (like in the daily route Eixample-Sant Antoni), these constraints diminished. It interacted with the distance and whether it was a detour. For a short distance, it might be “a too big mess” [participant], whereas it is possibly timesaving for families with long ways to school. For most parents, the Bicibús is additional effort and “means a cost [...] unless you are one of those families who always go by bike because they live farther away” [organizer].

Motivation, ideological conviction, and the benefits of participation could overweight those costs: “There are many parents who would arrive before on foot, but they go on the Bicibús to do activism” [participant]. However, time and logistics could hinder even them: “Because if it’s 8:35 a.m. and nobody has put on their shoes yet, there is a moment when reality is stronger than ideas” [participant].

3.5 *Families come for activism and fun*

How did feelings, such as belonging or entitlement, influence participation? As described in the previous section, lack of belonging and fear were barriers. For motivators, interviewees emphasized that two groups mixed in the Bicibús who come rather for activism or were attracted by fun.

On the one hand, organizers and a large share of participants wanted to do activism. They were motivated to claim space for cyclists and children. To achieve that, they felt entitled to take the streets: “If we don’t go there, then the group is smaller, and our interests are not represented” [participant]. The experience in the Bicibús was said to be politicizing: “For me it is also a school of activism ... see that rights are achieved by exercising and claiming them” [participant].

My hypothesis that migrant parents would feel less entitled to demand changes did not hold. Most of the interviewed migrant non-participants, who were mainly from the Global South (Table 2), were activists in or even founders of other groups, e.g., (feminist) migrant, anti-eviction, or parental associations at school. Thus, it seemed that they had other political priorities than the Bicibús demands, but nonetheless were collectively organized. However, the sample might be biased as the most engaged and integrated people tend to volunteer for an interview.

On the other hand, fun attracted more non-activist families. They joined over time: “I think for the majority of us who are there now, it is protest and it’s activism. But with the format we’ve done, I think we’ve also attracted families who maybe weren’t so activist, but they love it” [organizer]. So, fun drew in new participants that otherwise would not come and motivated the organizers to keep up their activism.

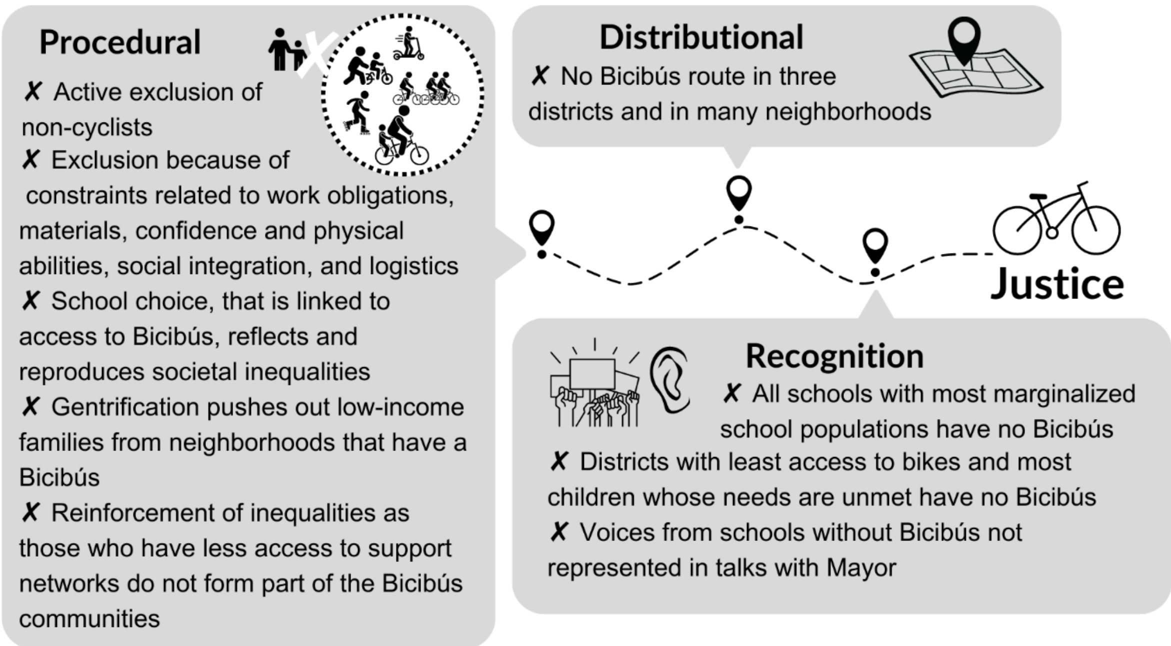
Also, children were central motivators, as they demanded to occupy the streets: "It's like the children have been really promoters, I believe, without knowing the politics of it, and they've sort of dragged their families along" [organizer]. Nonetheless, parents often held back because of the barriers described above, gatekeeping their children's mobility.

3.6 Bicibús as a vehicle of change towards just sustainable cities

Interviews with Bicibús participants and non-participants revealed multiple dimensions of injustice. Beyond the uneven spatial distribution of routes, I also find patterns of procedural and recognitional injustices that I described in the previous sections and summarize in Figure 2.

Figure 2

Different dimensions of injustices assessing the Bicibús initiatives in Barcelona



Note. Findings based on interviews with 22 parents (participants and non-participants). The classification is indicative, as findings are overlapping and interconnected. Source: Own elaboration.

The Bicibús creates a “bubble of peace, tranquility and sustainability” [organizer], but only some families can currently join, benefit, and demand change. These injustices limit the Bicibús to claim a more just and inclusive city for everyone because families are excluded, social inequalities reinforced, and their needs and perspectives not recognized. The movement needs to overcome those injustices to pave the way towards more just initiatives. As Sheller (2018a) emphasizes, justice is not a state or abstract conditions, but relational processes.

Even though the Bicibús initiatives in Barcelona currently fall short on including low-income and racialized families (as described in sections 3.1 -3.4), on other dimensions they contribute towards a more just city. First, by claiming that “space must be for everyone, not just for cars” [participant], the movement stands up for more spatial justice. Second, putting children’s mobility in the center and making them protagonists, they demand child-friendly cities and fairer recognition of different age-groups. Third, as described above, the Bicibús diminished gender gaps in cycling and care work. The movement focuses on care mobilities and has brought them into the political discourse: “It is politicizing. Everyday care. Empowering.” [organizer]. The “everyday factor” [organizer] of embodied activism was highlighted as something strong and positive: “You put your body to make the city more breathable, livable, and comfortable.” [organizer]. Fourth, these positive impacts do not only benefit participants and their school communities, but Bicibús also provides improvements for all city residents: “What we are doing is massive: for them self-esteem, health, non-pollution, the recovery of public spaces” [organizer]. Lastly, focusing on care, education, and community is crucial to overcome exclusive individualistic and productivist understandings of mobility: “The idea was really to collectivize and make visible this way of moving around the city and to put it in the center of the city” [organizer].

4 Discussion

First, this chapter summarizes the main findings of this study. Second, I analyze how Bicibús initiatives reflect and reproduce inequalities, but why, nevertheless, I do not consider them elitist. Third, I argue why the Bicibús needs to be more inclusive. Fourth, I explain how this study contributes to the existing literature and I compare findings with previous studies. Subsequently, I present recommendations, that are derived from the findings, on how to tackle injustices within the Bicibús movement. Finally, I lay out limitations and give an outlook on possible future research before I conclude.

This study finds that the Bicibús movement is a vehicle for change for more just cities, and yet as a movement, it is not able to escape entrenched social inequities and patterns of exclusion. Bicibús activists aim to create more inclusive safe, healthy, and sustainable cities, while putting people, care, health, community, and wellbeing at the center. They demand more just cities, calling for the recognition of children and cyclists. However, they are not meeting the needs of all children, but mostly of privileged children. Currently, participants and organizers in Barcelona are mainly *white*, middle-class, well-connected families. Participating parents had high education level and flexible working conditions. Likeminded parents came together and created Bicibús routes in newer schools. In contrast, schools with marginalized children are left out in the geographical distribution of the current routes. I identified additional barriers to participation for those families who have a Bicibús on their way to school. Those were work obligations, materials, confidence and physical abilities, social integration, and logistics. These barriers tend to hinder low-income and less integrated families more strongly.

Because of those barriers and the uneven landscapes of schools and neighborhoods, the experience of a Bicibús and the connected benefits are mostly accessible to a small, privileged group of parents and children. Thus, it reflects social inequalities, and participation is a “product” of unequal power relations (Scott, 2020, p. 1). Moreover, it reinforces inequalities. Families from better schools, higher incomes, and who feel more comfortable with cycling, are more likely to benefit from the collective active mobility experience. They enjoy the safe space of experimentation, fun, trust, and mutual motivation. In this way, they consolidate who participates and stays inside, and who is left out. The privileged participants build community in their school and neighborhood, support each other, have fun, demand change, and create political representation, whereas more marginalized families cannot enjoy this community, feelings and support, and their voices remain less heard. Thus, it is also a "producer of unequal power relations and 'mobility injustice'" (Scott, 2020, p. 1).

Nevertheless, I argue that the Bicibús is not an elitist movement, as is suggested in the opening quote. Indeed, it brings advantages for mainly wealthy and powerful people. However, activists do not feel superior, and they do not deem others as inferior because these others lack power, status, or wealth. Thus, it does not comply with the dictionary meanings of "elitist" (Merriam-Webster, n.d.). Furthermore, many people within the movement are interested in reflecting on injustices and making the movement more inclusive.

There are several perspectives on why the Bicibús movement should become more inclusive. A justice-oriented Bicibús needs to integrate (high-income) car users on the one hand and must be accessible to marginalized people on the other hand. From an environmental justice perspective, it is important that families switch to active mobility to school who usually take private motorized vehicles. This diminishes injustices that this destructive mode of transport causes in the city through pollution, accidentality, and waste of public space. From a social justice perspective, which is also fundamental for environmental justice, equitable opportunities and accessibility are necessary (Agyeman & Doran, 2021; Pereira et al., 2016). The rationale is not to discourage marginalized parents from walking or public transport to school, or to impose cycling on them (Vietinghoff, 2021). Instead, all families should have the opportunity to join and benefit from the Bicibús, aiming for "equality of opportunity", not equal use (Schwanen, 2021, p. 686). Consequently, they can choose according to their preferences but are not constrained by structural inequalities (Pereira et al., 2016). This contributes to democratizing cycling (Leyendecker & Cox, 2022). Analyzing unequal cycling opportunities, this thesis provides new insights on making cycling more accessible.

The results of this study add to the bodies of urban mobility and cycling justice scholarship (Barajas, 2020; Sheller, 2018b) by addressing three gaps. First, hitherto, it is the first research on unequitable participation in cycling activism of families and children. Second, it brings together two disconnected strands of justice literature - school travel/school choice and transport equity - filling the gap on equity in student travel (Bierbaum et al., 2021). Third, to my knowledge, it is the first case analysis of the growing Bicibús movement. For this purpose, the study built upon previous theoretical considerations and empirical findings on mobility justice, which I will discuss in the next paragraphs.

The overarching theoretical concept of mobility justice was applied to assess urban cycling activism to school. Mobility justice covers many scales from the body to the global (Sheller, 2018a). I applied this framework to the rather classical focus on transport and the urban scale (Sheller, 2018b). Social movements and activism were at the center, which reflects a recent development in mobility justice research (Verlinghieri & Schwanen, 2020). I shed light on the understudied intersection of uneven mobilities to school and cycling activism through a mobility justice lens. A segregated school landscape and unequal mobility capital in Barcelona were shown to affect the cycling movement (Gomà Garcia & Muñoz Aranda, 2018; Scandurra et al., 2022).

The framework of mobility justice encourages critical analyses and identification of the root causes of inequities (Bierbaum et al., 2021). Through this critical lens, uneven patterns of inclusion were identified in line with previous literature that demonstrated how parts of the population were excluded from claiming space in the neighborhood, which was intensified through gentrification (Agyeman & Doran, 2021; Fraser, 2004; Stehlin, 2019). As Golub et al. (2016) demonstrated in their volume with different case studies, people from different socioeconomic status, racialization experiences, and migration biographies do not have equitable access to active mobility possibilities and political representation. Privileges and injustices regarding housing, work, education, and school choice shape unequal mobility patterns. The classist and racist structures nowadays are historically rooted in capitalism and colonialism (Sheller, 2018a), but these origins were beyond the scope of the conducted interviews.

This study showed that those patterns of inclusion and exclusion found elsewhere are also present in activism around children’s mobility to school. Cycling movements reinforce existing inequalities, as shown similarly in Bogotá and San Francisco (Castañeda, 2020; Stehlin, 2015). Like in Bogotá, people need the means to join:

“bicycle, leisure time, an able body, confidence and competence riding in a group, and the capacity to reach the meeting points” (Castañeda, 2020, p. 73). Activists there were mostly male, young adults, differently from the Bicibús in Barcelona. Similarly, Stehlin (2019) showed that low-income populations were excluded from cycling advocacy and emphasized housing struggles and gentrification. However, he delved more into the capitalist investments and growth paradigm underlying those processes. Setting *white* middle-class people as the norm, cycling advocates limit the ability to create conditions that enhance biking for all (Golub et al., 2016). Bicibús also operates mostly in advantaged, wealthier areas of the city, as demonstrated in different contexts in a global literature review on bicycle-related benefits (Cunha & Silva, 2022). Scholars have argued that cycling advocates need to acknowledge structural racism and classism (Stehlin & Tarr, 2017), and stand up for a just city (Leyendecker & Cox, 2022). Otherwise, activists risk to be performative rather than transformative (Stehlin & Tarr, 2017).

The findings concurred with barriers to cycling and to active mobility to school from previous studies. Vietinghoff (2021) identified financial precarity, lack of accessible information, spatial inequalities and racism as barriers for disadvantaged groups in Grenoble, which also apply to Barcelona. She highlighted how intersectional cycling promotion “cannot be separated from the broader context of social exclusion (Vietinghoff, 2021, p. 5). Further, I replicated (i.e. time, distance, environment, confidence) and expanded previous findings (i.e. social integration, emotional capacities) about barriers to active mobility to school (Aranda-Balboa et al., 2020; Rutberg & Lindqvist, 2019). As indicated by the results in Barcelona, social mechanisms and fun are crucial for cycling promotion (Barajas, 2020; Perchoux et al., 2017; Silonsaari et al., 2022). Community and social rides encourage people to take up cycling, while feeling protected through the group. Through this, Bicibús initiatives create social change.

This form of grassroot cycling protest can be transformative. The Bicibús has the potential to gather families towards a “vélotopia where ‘everyone’ can participate” (Castañeda, 2020, p. 73) because it provides a “critical form of human infrastructure” (Barajas, 2020, p. 1266). This can supplement physical infrastructure which often lacks in historically marginalized communities (Anaya-Boig et al., 2022; Barajas, 2020). Unique about the Bicibús initiatives is that velomobilities of care are combined with a political claim to take the streets and visibilize those (Ravensbergen, Buliung, & Sersli, 2020). Other movements can learn from this strength. Through this, it closes societal gender gaps (of cycling and care mobilities) within its movement. The gender balance was unexpected since female cyclists across all ages are a minority in low-cycling cities (Goel et al., 2022). This demonstrates promisingly that social inequities can be countered within the movement. This would allow it to be a transformative “niche” (Wullenkord & Hamann, 2021, p. 4). Niches describe micro-scale groups in which socio-ecological changes occur fast and in the first place, which then influence bigger scales (Wullenkord & Hamann, 2021). First, more just social relations can be lived within them. Second, niches might set the creation of more sustainable and inclusive mobility systems in motion that benefit all. To really be inclusive and mobilize its transformative potential, the initiatives should pay more attention to the shortfalls of reproducing exclusion of low-income and racialized families. For this purpose, I propose recommendations based on my findings to achieve more just cycling activism.

4.1 Recommendations

Classist and racist injustices are embedded in a broader capitalist system (especially housing and work), in which wage labor limits the time that is available for family and community activities. Nevertheless, Bicibús activists can counter these injustices within their sphere of influence. Thus, recommendations focus on the tangible local Bicibús and school level and do not target the systemic level, e.g., reduction of working hours, school admission reforms targeting segregation (Holloway & Pimlott-Wilson, 2014). This should not underplay the importance of addressing the root causes of inequities (Bierbaum et al., 2021; Sheller, 2018b). The recommendations come from realities situated in Barcelona but are potentially useful for cycling protest in other geographies as well. For example, bike bus activists in the US are aware that they also exist mostly in *white* and wealthy neighborhoods (Surico, 2023).

First, the Bicibús movement should raise awareness for injustices and create alliances with anti-racist and anti-eviction movements (Kotsila et al., 2023; Stehlin, 2019). This means to initiate a learning and reflection process within the movement and address urban injustices jointly. Second, there is a need to make participation easier and more feasible for families in more difficult circumstances. Support systems can make the Bicibús more accessible, e.g., a) second-hand exchange of material, b) free maintenance opportunities, and c) coordination and authorization to allow children autonomous participation under another caregiver's supervision, even though the shared experience of children and their caregivers should not be diminished (e.g., through better reconciliation of work and family life). Third, activists should facilitate the creation of mutual support groups for underrepresented groups (Edwards, 2022). Inspiration can be taken from the Hijabi riders group (https://womenonwheels.org.uk) in Glasgow. The Bicibús movement can learn from a recent guide that provides concrete recommendations, like lending bikes, promotion for diversity, diverse imaginary and personal introductions at the meeting point (CycleSisters, 2023). Fourth, new routes should be established in schools and neighborhoods with high percentage of underprivileged population groups and prioritize maximum complexity schools (Pereira et al., 2016). When needed, public institutions should support the creation (Larouche & Mendoza, 2018; Xarxa de Bicibús, 2022). Lastly, the use of school communication channels and teacher involvement would ensure that information reaches all families. Integrating sustainable mobility in curricula and school activities (e.g., cycling class) compensates different family contexts because it allows all children to learn basic skills and experience cycling benefits, independently of parents' material, financial, time capacities, and skills. Parents expressed that wish (but without institutionalizing the grassroot movement), because it would make cycling less exclusive, support the movement, and decrease the barriers to active mobility to school.

4.2 Limitations and further research

This study is subject to limitations, such as the general constraints of interviews, e.g., social desirable answers (Bergen & Labonté, 2020). Additionally, the sample fell short in integrating Black interviewees and non-binary gender identities. This would account for their individual realities and potential experienced forms of discrimination. Further, interviewing caregivers who participate on foot in the Bicibús would allow to understand the motives for this demanding form of participation. Further research should collect representative quantitative data for the Bicibús. Besides disaggregated data for racialization, migration biographies, and socioeconomic status, the survey should include participants' political orientation. Studies should accompany setting up new routes in marginalized schools with a participatory empowering approach, which is sensible for the power relations in place.

4.3 Conclusions

Interviews with 22 parents of primary school students disclosed the limitations to integrate low-income and racialized families in the Bicibús initiatives in Barcelona. The movement reflects and reproduces social injustices of school selection and neighborhood gentrification. The initiatives do not serve any school with highly marginalized population. Barriers to participation were named that hinder low-income and less-integrated people more strongly: work obligations, materials, confidence and physical abilities, social integration, and logistics. While the core of the movement is activism, fun further attracted non-activist families. Recommendations are given to overcome the reproduction of racist and classist inequalities on a local level: Raising awareness, creating support structures, and involving schools (especially maximum complexity schools). This analysis contributes to a deeper intersectional understanding of children's unequal active mobility opportunities. It demonstrates that grassroots cycling activism is not exempt from social injustices and can unintendedly reproduce them. Paying attention to this is necessary to identify and overcome barriers and exclusionary patterns. Subsequently, the movement can unfold its potential to create more just and sustainable mobilities, while politicizing routine micro-mobilities of care. Experiencing a Bicibús is a glimpse of what another city - more sustainable, safer, healthier, and enjoyable - could look like. Activists need to gear up and pave the way, so that all families have the opportunity to participate in these cycling protests.

References

Agyeman, J., & Doran, A. (2021). “You want protected bike lanes, I want protected Black children. Let’s link”: Equity, justice, and the barriers to active transportation in North America. *Local Environment*, *26*(12), 1480–1497. https://doi.org/10.1080/13549839.2021.1978412

Aiash, A., & Robusté, F. (2022). Traffic Crash Injuries Occurence Varieties across Barcelona Districts. *Revista Internacional de Desastres Naturales, Accidentes e Infraestructura Civil*, *22*(1), 105.

Ajuntament de Barcelona. (2022). *Enquesta Sociodemogràfica de Barcelona (ESDB) 2020: Informe de Resultats [Barcelona Sociodemographic Survey (ESDB) 2020: Results Report]*. Oficina Municipal de Dades. Departament d’Estudis d’Opinió. https://ajuntament.barcelona.cat/premsa/wp-content/uploads/2022/04/6001791a-6cb1-43ef-b964-da7f968b04c0-1.pdf

Anaya-Boig, E., Cebollada, À., & Castelló Bueno, M. (2022). Measuring spatial inequalities in the access to station-based bike-sharing in Barcelona using an Adapted Affordability Index. *Journal of Transport Geography*, *98*, 103267. https://doi.org/10.1016/j.jtrangeo.2021.103267

Àngel Alegre, M. (2017). *Polítiques de tria i assignació d’escola: Quins efectes tenen sobre la segregació escolar? [School choice and assignment policies: What effects do they have on school segregation?]*. Fundació Jaume Bofill, ivàlua. https://ivalua.cat/sites/default/files/2019-11/30_10_2017_12_11_38_Que_funciona_07_segregracioescolar_301017.pdf

Anguelovski, I., Zografos, C., Klause, K. A., & Connolly, J. J. T. (2022). Urban Transformational Adaptation: Contestation and Struggles for Authority in the Pilot Barcelona Superblock of Poblenou. In I. Ruiz-Mallén, H. March, & M. Satorras (Eds.), *Urban Resilience to the Climate Emergency: Unravelling the transformative potential of institutional and grassroots initiatives* (pp. 65–92). Springer International Publishing. https://link.springer.com/10.1007/978-3-031-07301-4

APA Style. (2022, July). *Racial and Ethnic Identity*. https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/racial-ethnic-minorities

Aranda-Balboa, M. J., Huertas-Delgado, F. J., Herrador-Colmenero, M., Cardon, G., & Chillón, P. (2020). Parental barriers to active transport to school: A systematic review. *International Journal of Public Health*, *65*(1), 87–98. https://doi.org/10.1007/s00038-019-01313-1

Avellaneda, P., & Anaya, E. (2013). Safe Routes to Schools – From road safety to community building. In L. Bech, J. C. Dextre, & M. Hughes (Eds.), *Cyclists & cycling around the world: Creating Liveable & Bikeable cities* (pp. 173–182). Fondo Editorial, Pontificia Universidad Católica del Perú. http://repositorio.pucp.edu.pe/index/handle/123456789/173081

Babey, S. H., Hastert, T. A., Huang, W., & Brown, E. R. (2009). Sociodemographic, Family, and Environmental Factors Associated with Active Commuting to School among US Adolescents. *Journal of Public Health Policy*, *30*(S1), S203–S220. https://doi.org/10.1057/jphp.2008.61

Barajas, J. M. (2020). Supplemental infrastructure: How community networks and immigrant identity influence cycling. *Transportation*, *47*(3), 1251–1274. https://doi.org/10.1007/s11116-018-9955-7

Bayona-i-Carrasco, J., & Domingo, A. (2021). School segregation of migrants and their descendants in a dual school system: The case of Barcelona. *Population, Space and Place*, *27*(8). https://doi.org/10.1002/psp.2446

Bergen, N., & Labonté, R. (2020). "Everything Is Perfect, and We Have No Problems": Detecting and Limiting Social Desirability Bias in Qualitative Research. *Qualitative Health Research*, *30*(5), 783–792. https://doi.org/10.1177/1049732319889354

Bierbaum, A. H., Karner, A., & Barajas, J. M. (2021). Toward Mobility Justice: Linking Transportation and Education Equity in the Context of School Choice. *Journal of the American Planning Association*, *87*(2), 197–210. https://doi.org/10.1080/01944363.2020.1803104

Bonal, X., Zancajo, A., & Scandurra, R. (2021). Student mobility and school segregation in an (un)controlled choice system: A counterfactual approach. *British Educational Research Journal*, *47*(1), 42–64. https://doi.org/10.1002/berj.3694

Bonham, J., & Wilson, A. (2012). Bicycling and the Life Course: The Start-Stop-Start Experiences of Women Cycling. *International Journal of Sustainable Transportation*, *6*(4), 195–213. https://doi.org/10.1080/15568318.2011.585219

Børrestad, L. A. B., Andersen, L. B., & Bere, E. (2011). Seasonal and socio-demographic determinants of school commuting. *Preventive Medicine*, *52*(2), 133–135. https://doi.org/10.1016/j.ypmed.2010.12.006

Buehler, R., & Pucher, J. (2022). Cycling through the COVID-19 Pandemic to a More Sustainable Transport Future: Evidence from Case Studies of 14 Large Bicycle-Friendly Cities in Europe and North America. *Sustainability*, *14*(12), 7293. https://doi.org/10.3390/su14127293

Castañeda, P. (2020). From the Right to Mobility to the Right to the Mobile City: Playfulness and Mobilities in Bogotá's Cycling Activism. *Antipode*, *52*(1), 58–77. https://doi.org/10.1111/anti.12581

Chillón, P., Martínez-Gómez, D., Ortega, F. B., Pérez-López, I. J., Díaz, L. E., Veses, A. M., Veiga, O. L., Marcos, A., & Delgado-Fernández, M. (2013). Six-Year Trend in Active Commuting to School in Spanish Adolescents: The AVENA and AFINOS Studies. *International Journal of Behavioral Medicine*, *20*(4), 529–537. https://doi.org/10.1007/s12529-012-9267-9

Chillón, P., Ortega, F. B., Ruiz, J. R., Perez, I. J., Martin-Matillas, M., Valtuena, J., Gomez-Martinez, S., Redondo, C., Rey-Lopez, J. P., Castillo, M. J., Tercedor, P., Delgado, M., & AVENA Study Group. (2009). Socio-economic factors and active commuting to school in urban Spanish adolescents: The AVENA study. *The European Journal of Public Health*, *19*(5), 470–476. https://doi.org/10.1093/eurpub/ckp048

Codina, O., Maciejewska, M., Nadal, J., & Marquet, O. (2022). Built environment bikeability as a predictor of cycling frequency: Lessons from Barcelona. *Transportation Research Interdisciplinary Perspectives*, *16*, 100725. https://doi.org/10.1016/j.trip.2022.100725

Col·lectiu Punt 6. (2021). *Dones i Persones no Binàries en bici 2021: Estudi de mobilitat ciclista a Barcelona des d'una perspectiva feminista [Women and Non-Binary People on Bikes 2021: Study of cycling mobility in Barcelona from a feminist perspective]*. https://www.punt6.org/wp-content/uploads/2022/07/informe-bicis-2021_catala.pdf

Collins, D. C. A., & Kearns, R. A. (2005). Geographies of inequality: Child pedestrian injury and walking school buses in Auckland, New Zealand. *Social Science & Medicine*, *60*(1), 61–69. https://doi.org/10.1016/j.socscimed.2004.04.015

Conticelli, E., Santangelo, A., & Tondelli, S. (2018). Innovations in cycling mobility for sustainable cities. In M. Pezzagno & M. Tira (Eds.), *Town and Infrastructure Planning for Safety and Urban Quality* (1st ed., pp. 155–162). CRC Press. https://www.taylorfrancis.com/books/9781351173353/chapters/10.1201/9781351173360-21

Cornado, C., Garcia-Almirall, P., Vima, S., Busqued, G. V., & Uzqueda, A. (2017). Methodology for the Detection of Residential Vulnerable Areas – the Case of Barcelona. *IOP Conference Series: Materials Science and Engineering*, *245*(4), 042062. https://doi.org/10.1088/1757-899X/245/4/042062

Cunha, I., & Silva, C. (2022). Equity impacts of cycling: Examining the spatial-social distribution of bicycle-related benefits. *International Journal of Sustainable Transportation*, 1–19. https://doi.org/10.1080/15568318.2022.2082343

Curto, A., de Nazelle, A., Donaire-Gonzalez, D., Cole-Hunter, T., Garcia-Aymerich, J., Martínez, D., Anaya, E., Rodríguez, D., Jerrett, M., & Nieuwenhuijsen, M. J. (2016). Private and public modes of bicycle commuting: A perspective on attitude and perception. *The European Journal of Public Health*, *26*(4), 717–723. https://doi.org/10.1093/eurpub/ckv235

CycleSisters. (2023). *Cycling for Diverse Communities: A Guide for Groups & Clubs*. https://www.cyclesisters.org.uk/guides

D'Adda, G. (2021). Urban mobilizations and municipal policies to un-make housing precarity: *The Barcelona experiments*. *City*, *25*(5–6), 740–763. https://doi.org/10.1080/13604813.2021.1981696

Doran, A., El-Geneidy, A., & Manaugh, K. (2021). The pursuit of cycling equity: A review of Canadian transport plans. *Journal of Transport Geography*, *90*, 102927. https://doi.org/10.1016/j.jtrangeo.2020.102927

Edwards, A. (2022). *Diversity in Cycling* (2nd edition). https://www.diversityincycling.com/wp-content/uploads/2022/09/Diversity-In-Cycling-Second-Edition.pdf

Egan, R., & Philbin, M. (2021). Precarious entitlement to public space & utility cycling in Dublin. *Mobilities*, *16*(4), 509–523. https://doi.org/10.1080/17450101.2021.1913067

Egli, V., Ikeda, E., Stewart, T., & Smith, M. (2018). Interpersonal Correlates of Active Transportation. In R. Larouche (Ed.), *Children's Active Transportation* (pp. 115–125). Elsevier. https://doi.org/10.1016/B978-0-12-811931-0.00008-9

ESCA. (2023a). *Enquesta de salut de Catalunya—2022: Taules ESCA 2021-2022 població infantil*. Direcció General de Planificació en Salut. https://hdl.handle.net/11351/9652

ESCA. (2023b). *Enquesta de salut de Catalunya—2022: Taules ESCA per sexe, grup d'edat, classe social i nivell d'estudis [Health survey of Catalonia—2022: ESCA tables by sex, age group, social class and education level]*. Direcció General de Planificació en Salut. https://hdl.handle.net/11351/9652

Ferrer-Fons, M., López, M. J., Brugueras, S., Continente, X., Cortés, E., & Artazcoc, L. (2023). *Avaluació del programa Protegim les Escoles [Evaluation of the Let's protect schools program]*. Agència de Salut Pública de Barcelona. https://www.aspb.cat/wp-content/uploads/2023/03/Avaluacio-programa-Protegim-Escoles.pdf

Foster, L. (2003). The Capitalization of Black and White. *Share*, *26*(18). https://www.yorku.ca/lfoster/documents/Foster Scanned Articles/The Capitalization of Black And White_Foster_Share_21.08.03.pdf

Fraser, J. C. (2004). Beyond Gentrification: Mobilizing Communities and Claiming Space. *Urban Geography*, *25*(5), 437–457. https://doi.org/10.2747/0272-3638.25.5.437

Furness, Z. (2007). Critical Mass, Urban Space and Vélomobility. *Mobilities*, *2*(2), 299–319. https://doi.org/10.1080/17450100701381607

GESOP. (2022). *Barómetro de la Bicicleta en España: Informe de resultados [Barometer of the Bicycle in Spain: Results Report]*. Gabinet d'Estudis Socials i Opinió Pública. https://www.ciudadesporlabicicleta.org/wp-content/uploads/2022/11/Barometro-Bicicleta-2022_Resumen.pdf

Goel, R., Goodman, A., Aldred, R., Nakamura, R., Tatah, L., Garcia, L. M. T., Zapata-Diomedi, B., de Sa, T. H., Tiwari, G., de Nazelle, A., Tainio, M., Buehler, R., Götschi, T., & Woodcock, J. (2022). Cycling behaviour in 17 countries across 6 continents: Levels of cycling, who cycles, for what purpose, and how far?

Transport Reviews, *42*(1), 58–81. https://doi.org/10.1080/01441647.2021.1915898

Golub, A., Hoffmann, M. L., Lugo, A. E., & Sandoval, G. (Eds.). (2016). *Bicycle justice and urban transformation: Biking for all?* Routledge.

Gomà Garcia, A., & Muñoz Aranda, J. (2018). Segregated in the City, Separated in the School. The Reproduction of Social Inequality through the School System. *Urban Science*, *2*(4), 112. https://doi.org/10.3390/urbansci2040112

Hellgren, Z., & Gabrielli, L. (2021). Racialization and Aporophobia: Intersecting Discriminations in the Experiences of Non-Western Migrants and Spanish Roma. *Social Sciences*, *10*(5), 163. https://doi.org/10.3390/socsci10050163

Heynen, N., Kaika, M., & Swyngedouw, E. (2006). Urban political ecology: Politicizing the production of urban natures. In M. Kaika, N. Heynen, & E. Swyngedouw (Eds.), *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism* (pp. 16–35). Routledge.

Hidalgo, D., Miranda, L., Lleras, N., & Ríos, J. (2016). Al Colegio en Bici: Bike-to-School Program in Bogotá, Colombia. *Transportation Research Record: Journal of the Transportation Research Board*, *2581*(1), 66–70. https://doi.org/10.3141/2581-08

Holloway, S. L., & Pimlott-Wilson, H. (2014). Enriching Children, Institutionalizing Childhood? Geographies of Play, Extracurricular Activities, and Parenting in England. *Annals of the Association of American Geographers*, *104*(3), 613–627. https://doi.org/10.1080/00045608.2013.846167

Honey-Rosés, J. (2023, April 3). Lessons from the Bike Bus Summit. *City Lab Barcelona*. https://citylabbcn.org/2023/04/03/lessons-from-the-bike-bus-summit/

Honey-Rosés, J., Ubalde-López, M., Abiétar, D. G., Antentas, G., Aparicio, O., Balbé Ortí, A., Calvo Sanchez, R., Cholbi, J., Fernández, G., Garcia, D., Hurtado, B., Martí, C., Palomeque, O., & Sobrino, M. (2023). *Protegim les Escoles: Avaluació dels Entorns Pacificats del Programa Protegim les Escoles de la Ciutat de Barcelona [Protegim les Escoles: Evaluation of the Pacified Environments of the Let's Protect Schools Program of the City of Barcelona]*.

Huang, C., Dannenberg, A. L., Haaland, W., & Mendoza, J. A. (2018). Changes in Self-Efficacy and Outcome Expectations From Child Participation in Bicycle Trains for Commuting to and From School. *Health Education & Behavior*, *45*(5), 748–755. https://doi.org/10.1177/1090198118769346

iermB. (2022). *Enquesta de Mobilitat en Dia Feiner 2021 (EMEF 2021) [Weekday Mobility Survey 2021 (EMEF 2021)]*. Institut d'Estudis Regionals i Metropolitans de Barcelona. https://omc.cat/documents/662112/1025112/EMEF+2021_Informe+Resum+Executiu.pdf

Isaksen, L. W., & Näre, L. (2019). Local loops and micro-mobilities of care: Rethinking care in egalitarian contexts. *Journal of European Social Policy*, *29*(5), 593–599. https://doi.org/10.1177/0958928719879669

Iungman, T., Khomenko, S., Nieuwenhuijsen, M., Barboza, E. P., Ambròs, A., Padilla, CindyM., & Mueller, N. (2021). The impact of urban and transport planning on health: Assessment of the attributable mortality burden in Madrid and Barcelona and its distribution by socioeconomic status. *Environmental Research*, *196*, 110988. https://doi.org/10.1016/j.envres.2021.110988

Johansson, K., Laflamme, L., & Hasselberg, M. (2012). Active commuting to and from school among Swedish children—A national and regional study. *The European Journal of Public Health*, *22*(2), 209–214. https://doi.org/10.1093/eurpub/ckr042

Jurak, G., Sorić, M., Ocvirk, T., Potočnik, Ž. L., Meh, K., Đurić, S., Sember, V., & Starc, G. (2021). Barriers and Determinants of Active Commuting to School in Slovenia. *Sustainability*, *13*(24), 13808. https://doi.org/10.3390/su132413808

Keeley, G. (2021, December 5). Barcelona bicibús: The children's bicycle convoy that's helping cycling take off in Spain. *The i Newspaper*. https://inews.co.uk/news/world/barcelona-bicibus-spain-bicycle-cycling-children-school-convoy-1334306

Kobel, S., Wartha, O., & Steinacker, J. (2019). Correlates of Active Transport to School in German Primary School Children. *Deutsche Zeitschrift Für Sportmedizin*, *2019*(3), 67–74. https://doi.org/10.5960/dzsm.2019.369

Kotsila, P., Anguelovski, I., Sekulova, F., & García-Lamarca, M. (2023). *Injustice in Urban Sustainability: Ten Core Drivers* (1st ed.). Routledge. https://doi.org/10.4324/9781003221425

Larouche, R., & Mendoza, J. A. (2018). Walking School Buses and Bicycle Trains. In R. Larouche (Ed.), *Children's Active Transportation* (pp. 217–228). Elsevier. https://doi.org/10.1016/B978-0-12-811931-0.00015-6

Larouche, R., Stone, M., Buliung, R. N., & Faulkner, G. (2016). "I'd rather bike to school!": Profiling children who would prefer to cycle to school. *Journal of Transport & Health*, *3*(3), 377–385. https://doi.org/10.1016/j.jth.2016.06.010

Law, S. F., & Karnilowicz, W. (2015). 'In Our Country it's Just Poor People who Ride a Bike': Place, Displacement and Cycling in Australia: Place, displacement and cycling. *Journal of Community & Applied Social Psychology*, *25*(4), 296–309. https://doi.org/10.1002/casp.2215

Leyendecker, K., & Cox, P. (2022). Cycle campaigning for a just city. *Transportation Research Interdisciplinary Perspectives*, *15*, 100678. https://doi.org/10.1016/j.trip.2022.100678

Lubitow, A., Tompkins, K., & Feldman, M. (2019). Sustainable Cycling for all? Race and Gender–Based Bicycling Inequalities in Portland, Oregon. *City & Community*, *18*(4), 1181–1202. https://doi.org/10.1111/cico.12470

Marechal, K. (2018). Recasting the Understanding of Habits for Behaviour-Oriented Policies in Transportation. *Sustainability*, *10*(4), 899. https://doi.org/10.3390/su10040899

Mendoza, J. A., Cowan, D., & Liu, Y. (2014). Predictors of Children's Active Commuting to School: An Observational Evaluation in 5 U.S. Communities. *Journal of Physical Activity and Health*, *11*(4), 729–733. https://doi.org/10.1123/jpah.2012-0322

Mendoza, J. A., Haaland, W., Jacobs, M., Abbey-Lambertz, M., Miller, J., Salls, D., Todd, W., Madding, R., Ellis, K., & Kerr, J. (2017). Bicycle Trains, Cycling, and Physical Activity: A Pilot Cluster RCT. *American Journal of Preventive Medicine*, *53*(4), 481–489. https://doi.org/10.1016/j.amepre.2017.05.001

Merriam-Webster. (n.d.). *Elitist*. Retrieved 22 August 2023, from https://www.merriam-webster.com/dictionary/elitist

Minguillón, M. C., Rivas, I., Moreno, T., Alastuey, A., Font, O., Córdoba, P., Álvarez-Pedrerol, M., Sunyer, J., & Querol, X. (2015). Road traffic and sandy playground influence on ambient pollutants in schools. *Atmospheric Environment*, *111*, 94–102. https://doi.org/10.1016/j.atmosenv.2015.04.011

Mueller, N., Rojas-Rueda, D., Basagaña, X., Cirach, M., Cole-Hunter, T., Dadvand, P., Donaire-Gonzalez, D., Foraster, M., Gascon, M., Martinez, D., Tonne, C., Triguero-Mas, M., Valentín, A., & Nieuwenhuijsen, M. (2017). Urban and Transport Planning Related Exposures and Mortality: A Health Impact Assessment for Cities. *Environmental Health Perspectives*, *125*(1), 89–96. https://doi.org/10.1289/EHP220

NdM-Glossar. (n.d.). Weiß [white]. *Wörterverzeichnis Der Neuen Deutschen Medienmacher*innen (NdM) Mit Formulierungshilfen, Erläuterungen Und Alternativen Begriffen Für Die Berichterstattung in Der Einwanderungsgesellschaft [Glossary of New German Media Makers (NdM) with Formulation Aids, Explanations and Alternative Terms for Reporting in the Immigration Society]*. Retrieved 22 August 2023, from https://glossar.neuemedienmacher.de/glossar/prefix:w/

Panter, J. R., Jones, A. P., van Sluijs, E. M. F., & Griffin, S. J. (2010). Attitudes, social support and environmental perceptions as predictors of active commuting behaviour in school children. *Journal of Epidemiology & Community Health*, *64*(01), 41–48. https://doi.org/10.1136/jech.2009.086918

Perchoux, C., Enaux, C., Oppert, J.-M., Menai, M., Charreire, H., Salze, P., Weber, C., Hercberg, S., Feuillet, T., Hess, F., Roda, C., Simon, C., & Nazare, J.-A. (2017). Individual, Social, and Environmental Correlates of Active Transportation

Patterns in French Women. *BioMed Research International*, *2017*, 1–11. https://doi.org/10.1155/2017/9069730

Pereira, R. H. M., Schwanen, T., & Banister, D. (2016). Distributive justice and equity in transportation. *Transport Reviews*, *37*(2), 170–191. https://doi.org/10.1080/01441647.2016.1257660

Raser, E., Gaupp-Berghausen, M., Dons, E., Anaya-Boig, E., Avila-Palencia, I., Brand, C., Castro, A., Clark, A., Eriksson, U., Götschi, T., Int Panis, L., Kahlmeier, S., Laeremans, M., Mueller, N., Nieuwenhuijsen, M., Orjuela, J. P., Rojas-Rueda, D., Standaert, A., Stigell, E., & Gerike, R. (2018). European cyclists' travel behavior: Differences and similarities between seven European (PASTA) cities. *Journal of Transport & Health*, *9*, 244–252. https://doi.org/10.1016/j.jth.2018.02.006

Ravensbergen, L. (2022). 'I wouldn't take the risk of the attention, you know? Just a lone girl biking': Examining the gendered and classed embodied experiences of cycling. *Social & Cultural Geography*, *23*(5), 678–696. https://doi.org/10.1080/14649365.2020.1806344

Ravensbergen, L., Buling, R., & El-Geneidy, A. (2022). Cycling safety as mobility justice. In G. B. Norcliffe (Ed.), *Routledge companion to cycling* (pp. 272–281). Routledge. http://dx.doi.org/10.4324/9781003142041-35

Ravensbergen, L., Buliung, R., & Laliberté, N. (2019). Toward feminist geographies of cycling. *Geography Compass*, *13*(7), e12461. https://doi.org/10.1111/gec3.12461

Ravensbergen, L., Buliung, R., & Laliberté, N. (2020). Fear of cycling: Social, spatial, and temporal dimensions. *Journal of Transport Geography*, *87*, 102813. https://doi.org/10.1016/j.jtrangeo.2020.102813

Ravensbergen, L., Buliung, R., & Sersli, S. (2020). Vélomobilities of care in a low-cycling city. *Transportation Research Part A: Policy and Practice*, *134*, 336–347. https://doi.org/10.1016/j.tra.2020.02.014

Reimers, A. K., Marzi, I., Schmidt, S. C. E., Niessner, C., Oriwol, D., Worth, A., & Woll, A. (2021). Trends in active commuting to school from 2003 to 2017 among children and adolescents from Germany: The MoMo Study. *European Journal of Public Health*, *31*(2), 373–378. https://doi.org/10.1093/eurpub/ckaa141

Rivas, I., Donaire-Gonzalez, D., Bouso, L., Esnaola, M., Pandolfi, M., Castro, M., Viana, M., Àlvarez-Pedrerol, M., Nieuwenhuijsen, M., Alastuey, A., Sunyer, J., & Querol, X. (2016). Spatiotemporally resolved black carbon concentration, schoolchildren's exposure and dose in Barcelona. *Indoor Air*, *26*(3), 391–402. https://doi.org/10.1111/ina.12214

Roberts, J. D., Mandic, S., Fryer, C. S., Brachman, M. L., & Ray, R. (2019). Between Privilege and Oppression: An Intersectional Analysis of Active Transportation Experiences Among Washington D.C. Area Youth. *International Journal of*

Environmental Research and Public Health, *16*(8), 1313. https://doi.org/10.3390/ijerph16081313

Rodríguez, P., Puente, A., & Oliveres, V. (2019, January 13). *Dos de cada tres colegios públicos de Barcelona doblan en inmigrantes al concertado más cercano [Two out of three public schools in Barcelona double in immigrants to the nearest semi-private school]*. https://www.eldiario.es/catalunya/colegios-concertados-barcelona-inmigracion-barrio_1_1758839.html

Rutberg, S., & Lindqvist, A.-K. (2019). Children's motivation overcame parental hesitation: Active school transportation in Sweden. *Health Promotion International*, *34*(6), 1149–1156. https://doi.org/10.1093/heapro/day083

Sagaris, L., & Lanfranco, D. (2019). Beyond "safe": Chilean "Kool" routes to school address social determinants of health. *Journal of Transport & Health*, *15*, 100665. https://doi.org/10.1016/j.jth.2019.100665

Saldaña, J. (2009). *The coding manual for qualitative researchers*. Sage.

Saura, V. (2020, January 13). Que mai més un infant mori atropellat a la sortida d'una escola [Never again shall a child be run over outside school]. *El Diari de l'educació*. https://diarieducacio.cat/que-mai-mes-un-infant-mori-atropellat-a-la-sortida-duna-escola/

Scandurra, R., Zancajo, A., & Bonal, X. (2022). Opting out of neighbourhood schools: The role of local education markets in student mobility. *Population, Space and Place*, *28*(5), e2542. https://doi.org/10.1002/psp.2542

Schiaffino, A., & Medina, A. (2023). *Health status, health-related behaviours and health service utilisation in Catalonia, 2022. Executive summary of the main results. ESCA 2022*. Directorate-General for Health Planning. https://scientiasalut.gencat.cat/bitstream/handle/11351/9652/enquesta_salut_catalunya_resum_executiu_en_2022.pdf

Schwanen, T. (2021). Achieving just transitions to low-carbon urban mobility. *Nature Energy*, *6*(7), 685–687. https://doi.org/10.1038/s41560-021-00856-z

Scott, N. (2020). Where can cycling lift the common good? Regional political culture and fossil capitalism play a role. *Journal of Transport Geography*, *86*, 102745. https://doi.org/10.1016/j.jtrangeo.2020.102745

Sersli, S., Gislason, M., Scott, N., & Winters, M. (2020). Riding alone and together: Is mobility of care at odds with mothers' bicycling? *Journal of Transport Geography*, *83*, 102645. https://doi.org/10.1016/j.jtrangeo.2020.102645

Sheller, M. (2018a). *Mobility justice: The politics of movement in the age of extremes*. Verso.

Sheller, M. (2018b). Theorising mobility justice. *Tempo Social*, *30*(2), 17–34. https://doi.org/10.11606/0103-2070.ts.2018.142763

Silonsaari, J., Simula, M., te Brömmelstroet, M., & Kokko, S. (2022). Unravelling the rationalities of childhood cycling promotion. *Transportation Research Interdisciplinary Perspectives*, *14*, 100598. https://doi.org/10.1016/j.trip.2022.100598

Simón i Mas, G. (2023, June 28). Results of the Bici Bus Survey. *City Lab Barcelona*. https://citylabbcn.org/2023/06/28/results-of-the-bici-bus-survey/

Smeds, E., Robin, E., & McArthur, J. (2020). Night-time mobilities and (in)justice in London: Constructing mobile subjects and the politics of difference in policy-making. *Journal of Transport Geography*, *82*, 102569. https://doi.org/10.1016/j.jtrangeo.2019.102569

Stehlin, J. (2015). Cycles of Investment: Bicycle Infrastructure, Gentrification, and the Restructuring of the San Francisco Bay Area. *Environment and Planning A: Economy and Space*, *47*(1), 121–137. https://doi.org/10.1068/a130098p

Stehlin, J. (2019). *Cyclescapes of the unequal city: Bicycle infrastructure and uneven development*. University of Minnesota Press.

Stehlin, J., & Tarr, A. R. (2017). Think regionally, act locally?: Gardening, cycling, and the horizon of urban spatial politics. *Urban Geography*, *38*(9), 1329–1351. https://doi.org/10.1080/02723638.2016.1232464

Sunyer, J., Esnaola, M., Alvarez-Pedrerol, M., Forns, J., Rivas, I., López-Vicente, M., Suades-González, E., Foraster, M., Garcia-Esteban, R., Basagaña, X., Viana, M., Cirach, M., Moreno, T., Alastuey, A., Sebastian-Galles, N., Nieuwenhuijsen, M., & Querol, X. (2015). Association between Traffic-Related Air Pollution in Schools and Cognitive Development in Primary School Children: A Prospective Cohort Study. *PLOS Medicine*, *12*(3), e1001792. https://doi.org/10.1371/journal.pmed.1001792

Surico, J. (2023, June 6). Make Way for the Bike Bus. *The New York Times*. https://www.nytimes.com/2023/06/06/nyregion/bike-bus-cycling.html?smid=url-share

Thúy Nguyễn, A., & Pendleton, M. (2020, March 23). Recognizing Race in Language: Why We Capitalize “Black” and “White”. *Center for the Study of Social Policy*. https://cssp.org/2020/03/recognizing-race-in-language-why-we-capitalize-black-and-white/

Trujillo, A., & Wilson, M. (2019). Radical Bicycle Politics. Confronting Car Culture and Capitalism as Root Causes of Mobility Injustice. In R. Kinna, U. Gordon, A. Trujillo, & M. Wilson (Eds.), *Routledge handbook of radical politics* (pp. 276–290). Routledge, Taylor & Francis Group. https://doi.org/10.4324/9781315619880-23

Untokening. (2017). *Untokening 1.0: Principles of Mobility Justice*. http://www.untokening.org/updates/2017/11/11/untokening-10-principles-of-mobility-justice

Verlinghieri, E., & Schwanen, T. (2020). Transport and mobility justice: Evolving discussions. *Journal of Transport Geography*, *87*, 102798. https://doi.org/10.1016/j.jtrangeo.2020.102798

Verplanken, B., Walker, I., Davis, A., & Jurasek, M. (2008). Context change and travel mode choice: Combining the habit discontinuity and self-activation hypotheses. *Journal of Environmental Psychology*, *28*(2), 121–127. https://doi.org/10.1016/j.jenvp.2007.10.005

Vietinghoff, C. (2021). An intersectional analysis of barriers to cycling for marginalized communities in a cycling-friendly French City. *Journal of Transport Geography*, *91*, 102967. https://doi.org/10.1016/j.jtrangeo.2021.102967

Waitt, G., & Buchanan, I. (2023). Velomobilities: Cycling geographies and well-being. *Geography Compass*, *17*(1), e12672. https://doi.org/10.1111/gec3.12672

Wullenkord, M. C., & Hamann, K. R. S. (2021). We Need to Change: Integrating Psychological Perspectives Into the Multilevel Perspectives on Socio-Ecological Transformations. *Frontiers in Psychology*, *12*(655352). https://doi.org/10.3389/fpsyg.2021.655352

Xarxa de Bicibús. (2022, June 16). *Demandes de la Xarxa de Bicibusos de Barcelona a l'Alcaldessa [Demands from the Barcelona Bicibús Network to the Mayor]*. https://twitter.com/bicibuseixample/status/1537484750675402755