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**Title:** Toward a green and playful city: Understanding the social and political production of children's relational wellbeing in Barcelona

**Journal:** Cities

Note: This is an accepted manuscript of an article published by Elsevier in Cities in 2019 available for full download online at:

<https://doi.org/10.1016/j.cities.2019.102438><<https://doi.org/10.1016/j.cities.2019.102438>

**Year:** 2019

## Abstract

This paper examines recent urban green amenities directed toward children and families and develops a novel understanding of the ways in which children's socio-natures are made/unmade through such interventions. We employ ethnographic and archival analysis in two new parks – Poble Nou and Nou Barris – in Barcelona to examine how a particular type of children's wellbeing, what we call "relational wellbeing" is shaped through the production of green-playful-child-friendly amenities. We find that planning processes and visions, urban development goals, and neighbourhood socio-material structure moderate the effect of green-playful-child-friendly amenities on relational wellbeing by directing how these spaces are used. This finding points toward the importance -- for equity concerns -- of accounting for the social and political processes that generate relational wellbeing. These processes are often reflective of broader economic agendas of urban transformation designed to extract value, control space, and/or legitimize speculative urban development – while sometimes eroding local socio-material conditions – to the point of producing green spaces of privilege, exclusion and control. The connection between relational wellbeing and green-playful-child-friendly interventions highlights the importance, within the urban environmental equity literature, of reconceptualising pathways of wellbeing and health beyond questions of spatial distribution of natural areas and offers a new perspective for the development of future guidelines on green-playful-child-friendly space policies.

## Keywords

*Barcelona, Children-Nature-Play, Urban Environmental Equity, Urban Political Ecology, Relational Wellbeing, Environmental Justice, gentrification*

## Introduction

Municipalities are increasingly creating and restoring green amenities directed toward children and families as an important part of efforts to shift toward more sustainable and healthy cities for all (Woolley 2006; Ekawati 2015; Anguelovski, Connolly, et al. 2018; Kondo et al. 2018; Lang and Rothenberg 2017). Yet, these amenities, which serve at once to promote greater contact with nature and 'free' or 'creative' play in cities, are increasingly reduced to universal prescriptions for achieving

wellbeing within policy conversations guiding urban growth. However, there is a risk that such an approach reifies and commodifies problematically narrow concepts of the child, nature, and play (Morgan 2017; Kraftl 2006) – potentially (re)producing uneven territorialisation at odds with equity and wellbeing goals (Rigolon and Flohr 2014).

In this paper, we challenge widely-held assumptions that child-friendly green spaces of play produce universal benefits (Douglas, Lennon, and Scott 2017; Flouri, Midouhas, and Joshi 2014; Ward et al. 2016) by focusing on the particularly relational aspects of wellbeing. Our original contribution flows from this challenge; we parse out the socio-political mechanisms that produce differences in what we call ‘relational wellbeing’ – the portion of overall wellbeing derived from social relations, connections, and interactions. By focusing on how design, socio-spatial context, and planning and politics shape relations in particular children’s spaces, we uncover an important part of the making/unmaking of children’s urban socio-natures. Specifically, we highlight the impacts of power and capital (e.g. Morgan, 2017; Shillington and Murnaghan, 2016) on the wellbeing outcomes of new green play spaces. Studies in children’s geography (van Vliet and Karsten 2015; Christensen and O’Brien 2003; Bartlett et al. 2016), urban environmental justice (Rigolon and Flohr 2014), and social determinants of health (Dadvand et al. 2015; Ebbeling, Pawlak, and Ludwig 2002; J. Ward et al. 2016; Rydin et al. 2011) have indeed overlooked the ways in which such social and political processes shape children’s wider socio-natures and in turn relational wellbeing.

Using Barcelona as a critical case study where the green and playful agenda has permeated recent urban development and municipal practice, we examine two new child-oriented park areas with contrasting political visions and processes of space production. These two parks also have different socio-economic characteristics: The Parc Central de Nou Barris is exemplary of a traditional working-class neighbourhood while the Parc Central de Poble Nou exemplifies a recently gentrifying neighbourhood. Using archival data and ethnographic observation methods, we qualitatively analyze the ways in which socio-material and political foundations differentially co-produce relational wellbeing for children. This is a process that is not specific to Barcelona. Rather, the underlying dynamics we uncover apply across many cities turning toward the intersection of greening and child’s play as a means of increasing livability.

Results show that neighbourhood socio-material conditions and political processes of space production seem to undermine the relationship between green space and relational wellbeing in some cases, while, in other cases support greater relational wellbeing. Such findings highlight the importance, within the ample urban environmental health and environmental equity literature, of reconceptualising drivers of and pathways for wellbeing and health benefits beyond questions of green space access and distribution throughout the city. They also call for the critical examination of internationally-praised urban planning practices that place social equity, wellbeing, and access to green space for all at the center of municipal action but, might, in some cases, undermine the creation of benefits for some social groups.

## The production of (uneven) urban space in the green-playful-child-friendly city

### The changing status of children’s urban socio-natures

Urban space is ‘lived’ space (Raffestin 2012) composed of messy relations, ties, and representations that people build within their material and social environment. The full human and environmental

composition of urban lived space has been described as “*social space*” (Lefebvre 1974), “*territory*” (Raffestin 2012) or “*socio-nature*” (Swyngedouw 1996). These human-human and human-environment relations are the “*hidden, dissimulated structure of the everyday*” (Raffestin 2012) that co-produce space, human experience, and wellbeing (Smith and Reid 2017). Thus, urban socio-nature is built on a series of complex metabolic processes in which social and natural systems dialectically produce the city (Swyngedouw 1996). Through socio-natures, people construct nature and themselves both discursively and materially as a human-nature outcome and relation (Heynen, Kaika, and Swyngedouw 2006). And, in turn, these processes are deeply political in the sense that they are produced, circulated and interpreted through (and for) power (Heynen 2006).

Children’s urban socio-natures are specifically those aspects of the metabolic processes producing cities that shape the urban life of those individuals understood in a given time and place to be a child – and shaping their construction of nature-human relations. The socio-natures of many Western cities are premised on an historical disregard for children in urban planning. Urban development trends in Europe and the US historically produced unsustainable, adult-centered environments that adversely affected children’s healthy development and wellbeing (Christensen & O’Brien, 2003; Hart, 1979; Karsten, 2002; Lynch, 1977; Tonucci, 1997; Valentine, 1997; Van den Berg, 2013; Ward, 1978). Such adverse environments occurred through children’s institutionalization, enclosure and control (Zeicher 2001; De Visscher and Bouverne-de Bie 2008), and through poor free outdoor play and contact with nature (Louv 2005).

Yet, today many city administrations are seeking to reverse these trends by investing ample resources in green space and infrastructure projects (Anguelovski, Connolly, et al. 2018; Kondo et al. 2018; Lang and Rothenberg 2017; Woolley 2006; Ekawati 2015). These investments are a targeted effort to improve the social and environmental conditions that make up children’s socio-natures. They respond to and further build on research highlighting the health and wellbeing benefits of quality urban outdoor environments. In all, this research shows that green outdoor amenities improve local environmental air and noise conditions and offer sites for restorative activities, with physical (Dadvand et al. 2015; Gascon et al. 2016) and mental health benefits (Triguero-Mas et al. 2017).

The emerging reformulation of children’s socio-natures is premised on a universal notion of wellbeing developed from measures in public health research of specific health outcomes. A universal notion of wellbeing is defined here as the somatic and psychic state of a person that allows its proper functioning (Zaror et al. 2019). This understanding of wellbeing is usually assumed to be induced by the exposition to specific material conditions or necessary things to “*live well*”. Environmental epidemiologists, for instance, argue that green areas can improve wellbeing outcomes by helping to address obesity (Ebbeling et al., 2002), attentional functioning needs (Taylor et al., 2001), risk of ocular vision impairment (Dadvand et al., 2017) and lower cognitive development (Dadvand et al., 2015; Ward, Duncan, Jarden et.al 2016). This evidence has been used to make an argument of the universal benefits for children’s wellbeing of an exposure to green socio-natures.

Consequently, this common narrative of universal wellbeing benefits reduces understanding of children’s socio-natures to simple types of play equipment or physical access to amenities – an approach that recent public health scholarship has started to question (Anguelovski, et al. 2018; Anguelovski et al., forthcoming). In that approach, children are assumed to be homogeneous, pre-existing, innocent, and pure subjects with inherent, direct, and universal connections to nature (Taylor, 2011). However, this understanding ignores other social categories, such as gender, race, ethnicity, class, and physical and mental abilities (Kraftl 2006). It also abstracts away the differences

in understanding childhood across space, time and social position (Ariès 1962; Mintz and Kellogg 1988; Thompson 1963). As such, common narratives around greening, play, and health impacts obscure the ways in which the everyday urbanism of children's green spaces actually enables or prevents construction of play and access to play.

### Toward a focus on relational wellbeing in children's urban socio-natures

The generalized approach to wellbeing does not often account for the specifically relational aspects that structure a great deal of children's experiences in cities. Green amenities are not just places to receive environmental inputs; they are also places of interaction. They are sites of peer and intergenerational exchange where children can explore both themselves and the material and social surroundings (Stevens 2007), acquire a social network, and negotiate their cultural and social identities (Christensen and O'Brien 2003; Formoso, Weber, and Atkins 2010). Green spaces are especially important as centers of 'free' or 'creative' play (A. F. Taylor et al. 1998; Douglas, Lennon, and Scott 2017; Flouri, Midouhas, and Joshi 2014; J. Ward et al. 2016). Moreover, children's greater access to green spaces tends to foster environmental stewardship by increasing their knowledge of and attachment to the natural environment (Kals, Schumacher, and Montada 1999; Chawla 2007; Derr, Chawla, and van Vliet 2017; Broom 2017; Fisher, Svendsen, and Connolly 2015; Chawla 2015), which also plays a role in wellbeing through regular social and environmental contacts.

In response, in this paper we aim to contribute to a research agenda that addresses an under-theorization of the underlying ontologies and pathways for wellbeing (e.g. Smith and Reid 2017). Specifically, we look at how relational wellbeing is differentially produced in two urban green play spaces. We examine some of the complexities and nuances embedded in the production of children's urban socio-natures and develop an understanding of a particularized notion of wellbeing – relational wellbeing, which is strongly mediated by political and socio-material relations. In all, we aim at refining the ways we view equity and wellbeing within green-playful-child-friendly spaces beyond a traditionally decontextualized analysis of access and distribution of amenities.

Furthermore, we employ relational wellbeing as a conceptual tool for understanding better how children's wellbeing in large cities embedded in global economic and financial flows (Moreno 2014) can be subsumed into market logics of demand and supply, favoring the creation of spaces as commodities designed primarily to increase real estate profits (van Vliet and Karsten 2015). The travel, tourism, hospitality, and real estate industries are now selling green-playful-child-friendly-ness as a consumable product to middle-class residents who have the capacity to move according to residential preferences (van Vliet and Karsten 2015; Boterman and Bridge 2015; Van den Berg 2013). Some families link access to these spaces with the ability to remain in the city after having children (Karsten 2002; Lilius 2018), and elevate them to essential aspects of a new urban middle class identity (Rutz and Balkan 2009; Donner 2017; Boterman and Bridge 2015; Van den Berg 2013).

This entrepreneurial (Harvey 2006) market and neoliberal (Rossi 2017; Horton 2016) logic in the process of green-playful-child-friendly space production also shapes questions of distribution and inclusion (Goodling et al., 2015). As the ample urban environmental justice and equity literature has demonstrated, children's leisure spaces and playgrounds tend to be unevenly distributed, being spatially concentrated in wealthier neighbourhoods or in the outskirts of the city, and in turn do not offer equal access to marginalized or discriminated groups, including children within those groups (Karsten 2002; Rigolon and Flohr 2014; Rigolon 2017). Child-friendly (Van den Berg 2013) and green (Anguelovski et al., 2018; Hamilton & Curran, 2013; Heynen et al., 2006; Pearsall, 2010; Quastel,

2009; Quastel et al., 2012; Wolch et al., 2014) amenities can even contribute – sometimes in combination with other revitalization strategies – to increased rent and property value, leading to (green) gentrification trends (Dooling 2009; Gould and Lewis 2017; Checker 2011; Van den Berg 2013) and to other socio-cultural exclusionary trends (Anguelovski et al., forthcoming). Similar trends of gentrification have been established in relation to park-based playful urbanism and the “*disneyfication*” of cities (Zukin 1995b; Bryman 2004).

### Bringing back alternative voices in front of a historical disregard and a universal model

The universalized notion of children’s wellbeing that lies behind many green-playful-child-friendly spaces turns the historical disregard for children in urban planning on its head, but also dismisses alternative visions for what is desirable (Zukin 1995a; De Visscher and Bouverne-de Bie 2008; Van den Berg 2013). Shaping the notion of wellbeing that drives the creation of such spaces around market demand prevents historically disempowered groups (at the intersection of class, racial, ethnic, gender, and sexual status) from transforming their needs into claims for urban territory because those needs are often not compatible with the private accumulation of capital (Donner 2017). In addition, green-playful-child-friendly amenities may be perceived as fundamentally problematic sites of power, conflict, violence, oppression, racism and/or as devices of social control for minorities, immigrants and/or working class residents (Brownlow 2006; Hamilton and Curran 2013; Byrne and Wolch 2009; Wolch, Byrne, and Newell 2014). Finally – and importantly for our findings here – the universalizing narrative around such spaces overlooks different class-based norms for free unstructured play (Holloway and Pimlott-Wilson 2018; De Visscher and Bouverne-de Bie 2008; Van den Berg 2013). Any view apart from a playful, pristine childhood becomes associated with an abject un-child-like other (Aitken 2001; Van den Berg 2013; De Visscher and Bouverne-de Bie 2008) or “*waste*” (Katz 2008) – the alternative experience is equated with a degraded urban environment and dismissed within the green-playful-child-friendly urbanism narrative.

Despite – at least discursively – downplaying the poor wellbeing outcomes that may result for some groups from existing profit-oriented urban interventions, removing alternative voices serves to mobilize a consensus around urban policy goals that avoid challenging the socio-ecological contradictions of unsustainable, unjust, and androcentric growth. By obscuring the political construction of spaces and the contestation they might trigger, narratives around children’s access to green space and wellbeing could paradoxically eventually aggravate urban socio-environmental inequalities by generating green-playful-child-friendly cities with narrow wellbeing benefits for an exclusive number and type of residents. In response, our paper also examines the set of environmental inequities produced by dominant representations and idealizations of nature and children (e.g. Shillington and Murnaghan 2016) and by the implementation processes of specific interventions. Our central questions are thus: How does the political and social production of green-playful-child-friendly amenities shape relational wellbeing in different contexts? And how do those processes of producing relational wellbeing help refine our understanding of environmental inequities?

### Transformation of urban socio-natures in Barcelona 1975-2016

We selected Barcelona as a site to examine the recent transformation of children’s urban socio-natures because the city has been extensively engaged in the creation of new public and green spaces since Spain’s transition to democracy in 1979, with a strong emphasis on improving neighbourhood quality of life and children’s wellbeing. Since that time, the city has created roughly 300 new public green spaces, many with children’s play areas as central aspects. Furthermore, Barcelona’s recent urban transformation is characterized by different phases, with clear shifts in the role of economic, social, and political interests; as well as scales of interventions and involved

stakeholders across time and space. Its practice of urban planning has received much international attention, with many praising its emphasis on neighborhood urbanism and access to new physical infrastructure and calling for it to be used in broader international applications (Marshall 2000; Monclús 2003), although others have raised criticisms (Anguelovski, 2014; Arbaci & Tapada-Berteli, 2012; Borja et al., 2004). This recent history makes Barcelona a critical case to examine the complex and uneven effects of the production of green-playful-child-friendly socio-natures.

Early 1980s livability interventions in Barcelona were mostly led by the municipal government in conjunction with social movements and neighbourhood associations. They were geared towards localized and small-scale interventions creating quality open and green spaces with children's play spaces often built in. This early approach especially targeted neighbourhoods with a historical deficit of public space, such as degraded areas of the historic center (e.g. Jardín Emili Vendrell, 1984), working class neighbourhoods (e.g. Parc de la Espanya Industrial, 1985), and more peripheral neighbourhoods (e.g. Parc del Clot, 1986).

The preparations for the 1992 Olympic Games inaugurated a new period characterized by the presence of large operators – mostly public-private partnerships and mixed capital companies – executing extensive urban transformations (Montaner et al., 2011) without negotiating with small associations. Most public spaces and parks built during that period covered a much greater scale of action and featured public art installations authored by internationally acclaimed artists and architects (e.g. Joan Miró, Fernando Botero, Santiago Calatrava, Norman Foster). Many of those new parks raised eyebrows among some local planners and resident groups for being considered as tourist-oriented spaces of consumption and design rather than spaces responding to the needs of neighbourhood residents (Anguelovski et al., 2018).

The post-1992 Olympic games consolidated the leading role of private operators – mostly real estate companies (Montaner, Álvarez, and Muxí 2011) in a context of economic crisis for public administrations and increase of real estate values and tourism. Representative of this time (1997-2004) the district of Sant Martí located just up the coast from the historic city center was radically transformed through new public space and greening interventions anchored by the “Diagonal Mar” luxury development and park; the establishment of the “22@ district” as a hub for tech and creative firms with a new Central Park (Parc Central de Poble Nou); and the construction of the Parc del Forum for the 2004 *Forum of Cultures* international fair along the last undeveloped sections of the Barcelona waterfront. Green space production was embedded in a competitive urbanism logic to attract new investors and visitors, with decision-making influenced by developers and real estate speculation (Montaner, Álvarez, and Muxí 2011). Several observers lament the resulting direct social costs, such as displacement, loss of industrial working-class cultural heritage (Borja, 2010) and streets with scant urban life (Montaner, Álvarez, and Muxí 2011). Since 2004, the municipality has linked open space policy with global sustainability agendas to emphasize green infrastructure, biodiversity, and re-naturing projects through new green amenities including parks, forests, ecological corridors, streams, community gardens, and urban farms (Anguelovski et al., 2018; Depietri et al., 2016).

Meanwhile, children's wellbeing and access to green space has played a strong role in the Barcelona green agenda in recent decades. Since 1990, the municipality has produced regulatory frameworks (e.g. periodic Children and Adolescence Plans, Charter for Educating Cities) that direct public action. The main objectives of children-focused interventions in Barcelona have generally been to guarantee children's universal access to urban resources and services and promote more and better facilities and services for education, leisure and health. Most recently, several plans and objectives<sup>i</sup> highlight the importance of children's right to free play and access to nature and two main strategies aim to

stimulate free outdoor play: the 2018 governmental measure “Barcelona dona Molt de Joc” (Barcelona gives a lot of play)<sup>ii</sup> and the 2016 (and beyond) creation of pacified “superblocks”<sup>iii</sup>.

## Materials and Methods

In this study, we compare the creation and use of green play spaces in two neighbourhoods – Poble Nou and Nou Barris. We describe their characteristics in *Table 1* below.

*Table 1. Case study comparison model*

	PARC CENTRAL DE POBLE NOU-St. Martí district	PARC CENTRAL DE NOU BARRIS-Nou Barris district
<b>SIMILAR</b> starting points in 1990	<b>TIME:</b> same period (end of 90s).	
	Construction started in 1999 and park opened in 2008	Construction started in 1992 and park opened in stages between 1999 and 2003
	<b>LOCATION:</b> First periphery of Barcelona	
	<b>DIMENSION:</b> Large non-urbanized urban spaces with a high proportion of public land	
	<b>SOCIAL COMPOSITION:</b> above Barcelona-average percentage of children (14.10% for Nou Barris district and 14.08% for St. Martí district)	
	<b>Gentrifying neighbourhood</b>	<b>Working class neighbourhood</b>
<b>DIFFERENT</b> 1990-2018 Political Processes of transformation & Social composition (1990-2018)	<b>SOCIAL COMPOSITION:</b>	
	High income Rapidly growing percentage of college educated Low presence of Global South residents	Low income Low percentage of college educated High presence Global South residents
	<b>URBAN TRANSFORMATION:</b>	
	<i>Scale</i>	
	Immersed in large city- scale strategic transformation	District-neighbourhood scale transformation
	<i>Benefits</i>	
	Part of Barcelona’s attempt to gain competitive advantage in the ICT sector/world economy	Community: Compensation of developmentalist Franco’s phase and provision with equipment to historically underprovided community. Public space for the neighbours.
	Promotion and construction of housing for ICT and/or international expatriate workers	Creation of social housing
	<i>Framing/Vision</i>	
	Radical transformation of the neighbourhood Imposition of “new” spectacular, isolated, sustainable, district and park and erosion of industrial heritage, historical layout of the area	Continuity Response to neighbourhood demands and remediation of historical lack of quality public spaces, community equipment and affordable housing
	Privatization of infrastructure works Redevelopment and urbanization of more than 35 km of streets and public spaces	Gain of public space overall through expropriation
	<i>Balance of Power</i>	
	Leading role of private sector	Leading role of public sector
Privatization of the public land	Expropriation of private land for the creation of public space	
<b>DESIGN OF THE PARK:</b>		
Role of Park: Playful and festive Isolated park Wild-alike aesthetic Unstructured play equipment	Role of Park: Socio-cultural Connecting park Urban aesthetic Structured play equipment	

To conduct our study, we used both archival and ethnographic observation methods. On the one hand, we carried out 30 hours of observation in each park in May 2018, over two afternoons (from 17:00 until 21:00) between Monday and Thursday, one Friday afternoon (from 17:00 to 21:00), one day-long observation on a Saturday and one day-long observation on a Sunday (in both cases from

11:00 until 20:00) for each park in order to get an in-depth sense of each park's uses, users, and relationships between them. The chosen time slots covered midweek after school play, Friday afternoon play and weekend leisure times, in order to discriminate the effect of these different types of time and days on the uses, relations and duration of activities. This selection also helped us observe a variety of users and interactions between them.

We systematized our observations in three ways in order to combine a structured observation of play and recreation in the park (e.g. McKenzie et al. 2006, 2000) with an ethnographic non-structured approach to observation (DeWalt and DeWalt 1989; Marshall and Rossman 1995). First, through a checklist which included questions about physical access to the park, safety, urban density characteristics, types, quality, usability, organization and distribution of equipment (including those for children), green space and natural element characteristics and composition and maintenance concerns. Second, we designed a diagramming tool (See *Figure 1*) to keep systematic track of the parks user's physical activity levels, activity modes/types, estimated age, gender and ethnic groupings, which we classified alongside the intensity of the physical activity and the interacting elements/agents – these were our proxy for type of play and socio-material interaction. Furthermore, we employed a field notebook with detailed descriptions of the type, location and duration of activities,<sup>iv</sup> informal conversations, observable aspects of participants' ethnic and socio demographic characteristics, and the relations and interactions developed in the space. We built, adjusted, and completed our diagram and detailed descriptions continuously throughout field work, while moving around the park and stopping for especially long intervals of observation in each park's most crowded areas.



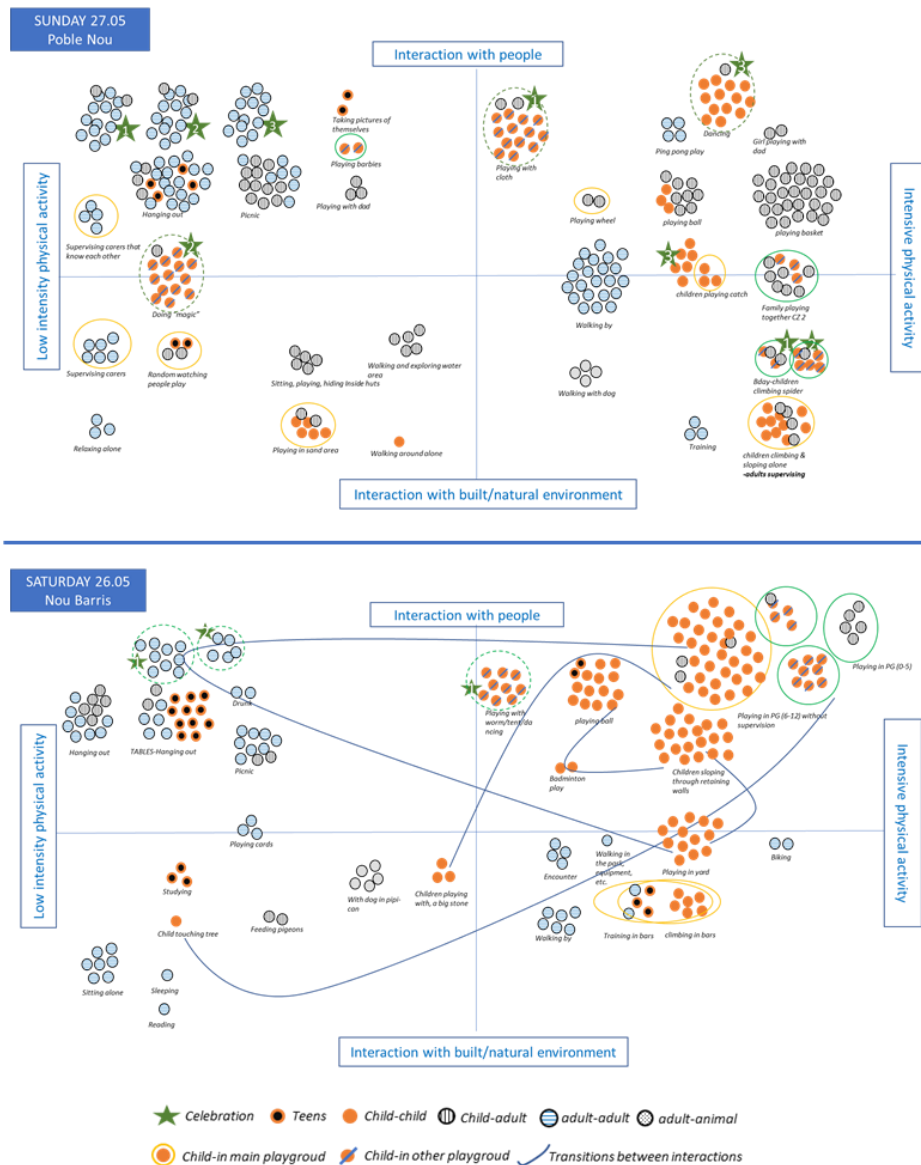


Figure 1 Diagram of activities based on the intensity of the physical activity, of the interactions, and the interacting elements/agents. Two examples of a weekend day in May in Parc Central de Poble Nou and Parc Central de Nou Barris

Field data was analysed using grounded theory techniques, (Strauss and Corbin 1990) following an iterative process of data collection and analysis<sup>v</sup> and using the insights of the analysis carried out after each session of observation to inform the following iteration of data collection. The final most relevant codes related to relational wellbeing from the analysis are: “self-management of risk”, “exploration of oneself”, “bodily and communicative control over rules and codes of conduct”, “shared meanings and affordances”, “management of material and social boundaries”, “negotiation of social identity”, “social network”, “exploration of social and material environment”, “attachment to environment and sense of place”, “routines”, “regimes of care” “regimes of space”, “regimes of time”.

In addition, we supplemented field observations with archival analysis of roughly 150 pages of documents related to the process of planning/transformation that generated these parks and the design attributes of each park, including the modifications of the General Municipal Plan of 1976 for the creation of the Central Park of Poble Nou<sup>vi</sup>, the modification for the Central Park of Nou Barris<sup>vii</sup> and the different proposals that competed for the design of each park. The archival data contextualized the political processes of production of these socio-natures and situated the observed

socio-material relations in the neighbourhood’s historical social and political context. These archival data were thematically coded according to the discourses, normative visions (e.g. of the “good” city or neighbourhood), identified social concerns or problems, definition of beneficiaries, coalitions of power, material design of the built environment and role of “nature” suggested in the analysed processes of urban transformations.

Our approach does not assume that green amenities have a specific, deterministic effect on children’s relational wellbeing *per se*. Rather, we understand green-playful-child-friendly socio-natures as produced by a set of political and social processes that generate a medium in which relations of wellbeing arise or not (e.g. Smith & Reid, 2017). Thus, we are looking for evidence of processes at work below the surface-level and traditional target indicators of wellbeing that may shape the effects on relational wellbeing. We specifically focus on the following socio-material relations as indicators of relational wellbeing within the context of children’s play activities: personal (exploration of oneself, self-management of risk); social (negotiation of social identity); and socio-environmental (exploration of material environment, environmental knowledge, attachment to nature). We also hypothesise that the social composition of the neighbourhood will shape the creation of socio-material relations. A visualisation of the conceptual framework for data collection and analysis is presented in *Figure 2*.

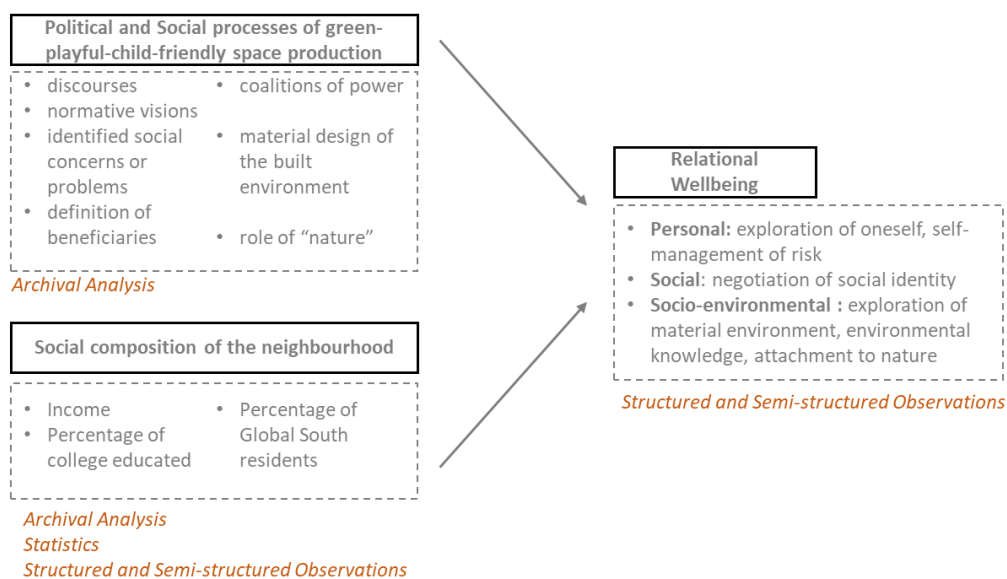


Figure 2 Conceptual framework for data collection and analysis

## Results: A ground-level view of children’s socio-natures in Barcelona

In this section we analyse the production of children’s socio-natures and how those shape relational wellbeing based on our different data sources.

### Assemblage of wellbeing in a structured urban socio-nature: the Parc Central de Nou Barris *Green space remediation for a historically underserved community*

Nou Barris is the district in Barcelona with the lowest index of family economic capacity, a low proportion of college-educated residents in 2016 (11.11% vs. 29.14% city wide average; Barcelona Statistics Department), the second highest proportion of residents from the Global South in Barcelona (7.31% in 2016), and above average percentage of children aged 0-14 (14.11 % vs 12.99% city wide average in 2016).

According to archival documents, the creation of the Parc Central de Nou Barris in 1992 was underpinned by a municipal commitment to remediate environmental inequities indicated by a historical lack of quality public spaces, community facilities, and affordable housing in this traditionally working-class district. It responded to longstanding resident demands articulated through a historically active network of neighbourhood associations, which still persists today.<sup>viii</sup> The Park is located on the site of an old Psychiatric Hospital that the 1976 General Metropolitan Plan (PGM) and a 1992 Special Plan<sup>ix</sup> decided to dedicate to a large green space, to community facilities (e.g. the Nou Barris district headquarter, local police offices, student housing, and a library) and to social housing. The planning of the park represented an important milestone in the interruption of the speculative and developmental urbanization of the area of the previous decade and its substitution for a period of suture urbanism, *"reliving what had been separated, of intervening in the regeneration and dignifying of spaces marginalized by Francoist speculation"*<sup>x</sup>.

According to the 1992 Special Plan<sup>9</sup>, the amount of land for housing was reduced to a strip located along the Park, but with a strong ambition to devote these to quality public housing. The land reserved for community facilities largely re-used the remaining structure of the old Psychiatric hospital and its environs. Finally, the ground where the park was planned – that was previously privately owned and ready to be developed – was obtained by expropriation legitimated by the 1992 Plan.<sup>xi</sup> As a result, public space was regained, community facilities were built, and more social housing was provided for *vis a vis* the previous state of the metropolitan plan. The Parc Central de Nou Barris and its surrounding transformations had a strong impact on discourse about the local community, as revealed by the narrative used to explain the origin of and visions behind the park in official documents<sup>8</sup> and informative signs throughout the community amenity areas.



Figure 3 Parc Central de Nou Barris. The design reflects the integration of different spaces and diversity of uses

Source: Pla Especial d'ordenació de l'ambient de l'antic institut mental-Forum Nord de la Tecnologia-1992, Municipal Archive of Poble Nou. Scale 1:5.000m

#### *Material coherence and continuity of the park-design*

The park has a rather urban aesthetic, reflected in the predominance of paved triangular terraces connected by brick-ramps used as contention slopes (see *Figure 4.b,c*) and the same vertical wooden

structures providing daytime shade and night lights that are present across the neighbourhood (see *Figure 4.a*). This design, together with the absence of a clear perimeter, contributes to a sense of continuity and visual coherence, integration, and flow between the neighbourhood physical elements – houses, streets, equipment – and its natural features. Children’s play equipment is mostly composed of fenced playgrounds – three out of four playgrounds are fenced (see *Figure 4.d,e,f*) – and contain objects that seem likely to shape and even dictate children’s play. Benches are spread throughout the park, many of them around the fenced playgrounds, supporting children’s supervision, and the abundant communal areas and picnic tables.



a. Vertical iconic structures



d. Fenced playground. Castle and slide



b. Brick slopes



e. Fenced playground-Individual rocking horses



c. Brick slopes



f. Fenced playground with hanging bars

Figure 4 Parc Central de Nou Barris. Material design of built environment. Design and elements allow for integration of diverse infrastructure, natural and non-natural elements, users, and uses

#### *Socio-material relations in the Parc de Nou Barris*

At first sight, abundant socio-environmental interactions take place in the park amongst people of a diversity of ages and spoken languages (Catalan, Spanish-Castellano, Spanish-Argentinian; Spanish-Dominican; Portuguese/Brasilian, Russian, Slavic languages or Moroccan) who seem to be involved in regular daily routine activities in and around the park throughout most of the time of observation. During working weekdays, teenagers carrying their backpacks enter the library or sit in the lawn to do homework and chat. Elderly – mostly white and Spanish residents – take walks in the park or sit in groups and engage in informal talk about their upcoming summer holidays or some health issues. Middle-age adults walk by and casually meet acquaintances and chat. Homeless people (many of them black) gather around the “*Centre de Atenció Integral*,”<sup>xii</sup> complaining about the difficulty of

getting accepted in a music audition if you're not *"Spanish-Spanish"* or the discriminations faced when begging on the streets. Parents from diverse backgrounds (in general, either Spanish or from the Global South) wait at a school entrance in front of the park, either gathering for a while chatting over their latest tax declaration, scheduling appointments for dinner, breastfeeding, asking for someone to take care of the kids for a night, or using that time to quickly enter the local market and buy some groceries. During weekends, the park is an active and dynamic meeting point with a myriad of children playing, families and groups of friends – with and without children – organizing picnics or birthday celebrations, elderly people taking a walk and sunbathing on the benches, and teenagers gathering to sing rap, skate, smoke and/or play cards.

There are abundant instances of children's free play and exploration of the environment. Children frequently decide the type, location, and rules of their play – either individually or in peer-groups, but without the guidance of an adult, which is also illustrated in the frequent instances of child-child interactions in our diagram (See example of one observation session in *Figure 1* where child-child interactions are represented in orange). Children also exhibit a considerable degree of exploration and shared knowledge of their surrounding social and material environment. Free play is apparent in the seemingly improvised art of children's activities. Children's use of the equipment often challenges the standard usage of the equipment. There were regular observations such as, *"children slide down the contention slopes as if they were slides"*, *"children hang themselves from bike racks as if these were monkey bars"* (Fieldwork Notes, several days). Also, children play throughout the entire park and their range of movement seems to be only limited by the adjacent traffic streets and not by the fenced playgrounds. Children enter and exit fenced playgrounds whenever they want, flowing from one to another as if moving between rooms in a house, in a safe, familiar, and comfortable manner. Fenced playgrounds also seem to support toddlers' independent exploration of themselves and the environment given that some parents/caregivers seem to take advantage of the safety and visibility of the fenced playgrounds to leave toddlers alone for a while inside while playing with older children or chatting with other adults.

There are also numerous unexpected transitions in the type of play (e.g. from quiet to active play), the composition of the group playing – including interactions with strangers – (e.g. from individual to group play), and the objects of interaction (e.g. from interacting with a ball to interacting with a wooden stick to interacting with an ant). The high degree of fluctuation between spaces and types of activities was also observable through the very frequent lines representing transitions between activities and places in our diagrams (See example of one observation session in *Figure 1*).

This relates to one of the main patterns observed in Parc de Nou Barris. Although the interactions with the surrounding environment mostly start out involving *non-green/non-natural* elements such as the playing equipment, the contention walls, the light and shade structures or objects brought from home (e.g. a ball), these interactions frequently stimulate and evolve into interactions with the *natural* environment, such as water, wooden sticks, trees and animals.

Furthermore, another main pattern in Nou Barris was that children's socio-material relations were characterized by a high degree of control over their surrounding material environment, which allowed for an individual or peer-based management of risk, rules and resources. We recorded recurrent instances of children's awareness of their own aptitudes and limits (e.g. *"I can't do this"*, says a girl to her dad; Fieldwork Notes Tuesday 8.05, 18:00) or warnings to other kids about the risks involved in certain activities (e.g. *"take care when sliding, in this way you will fall on your head"*; *"if you go into the water and get wet your mum will be very angry with you"*, *"if you get on this (big wheel) you will feel very dizzy"*; Fieldwork Notes, several days). There were also hints of understanding of rules (e.g. *"I like the water area, but bathing is not permitted, and anyway, I would*

*not like it because the water is very dirty*"; Fieldwork notes, Wednesday 16.05, 19:00) and peer-organization of norms (e.g. we observed that children tend to queue for using the Tyrolean, except when it's their first time of the day, when it seems to be accepted to skip the queue). Additionally, the children had a good geographic orientation vis-à-vis the surrounding environment (e.g. *"let's go to the water area"*; *"I live there"*; Fieldwork notes, Wednesday 16.05, 18:00), showing attachment to the space (e.g. *"I like the spider/climbing areas. There is one here and one over there"*; Fieldwork notes, Tuesday 8.05, 18:00), and held considerable knowledge of the available resources (e.g. we repeatedly observed carton boxes being collected from nearby stores to be shared and used to better slip down the contention walls).

The set of socio-material relations at work and the high degree of communicative and bodily exploration, knowledge, control, attachment and familiarity that children seemed to have with the social and material environment was at odds with the expected affordances and opportunities offered by a non-*"natural"*, structured and fenced socio-nature. Nevertheless, unstructured and spontaneous relations among kids and their environment seem to emerge because of the way this socio-nature was inhabited and owned by the apparently working-class and/or minority residents in the park. The frequency with which mostly children but also teenagers, adults and elderly went to the park and the long time they spent in the park revealed a socio-nature comprised of proximate, ordinary, and comfortable public space for residents' fulfilment of their social and material needs, inhabited and cared for as an extension of the domestic sphere.

A shared regime of care towards children, the integration of adults in the space, and a sense of community precipitate the production of these spaces of play as a familiar, supportive and nurturing arena characterized by safety and informal care that facilitates the creation of relational wellbeing for children and adults. Child care activities were often shared among adult acquaintances who gathered together (e.g. *"one or two adult members of the group at a time seem to care for children, bringing them a snack, playing with them or keeping an eye"*; Fieldwork Saturday 26.05, 15:00). During weekends, as large group picnics allowed children to play with one another and/or with adults, adult participants did not seem to be in the park only in a supervisory/childcare mode but also in order to socialize with peers and enjoy their free time. This was also perceptible through the diagram, in which we recorded consistently frequent adult-adult interactions (See example of one observation session in *Figure 1* where adult-adult interactions are represented in striped blue). Their presence reinforced a social network for them and for the children.

Last, a sense of community was perceptible, especially when new children and adults joined the park and upon arrival greeted each other - sometimes with an energetic *"hola familia"/ "hi, family."* During working days, we also encountered a general sense of co-responsibility – also stemming from strangers – towards children's safety (e.g. *"a young man training in the bars calls the attention of a girl who is climbing too high and keeps an eye on the girl until she finishes climbing"* Fieldwork Notes Tuesday 8.05, 18:00) and amusement (e.g. parents play and interact with their offspring, but also with other children in the playground; and the observation of *"teenagers training in bars and listening to music (trap) briefly interacting with two nearby girls"*; Fieldwork notes Wednesday 16.05, 19:00).

Scheduled structured play in a spectacular and “wild” socio-nature: the Parc Central de Poble Nou

#### *Radical transformation of a neighbourhood for a city-wide redevelopment strategy*

According to archival documents, in the late 1990s, Poble Nou was a low-income, working-class post-industrial neighbourhood that “*had not participated in the dynamic of urban improvement of the surrounding renewed areas.*”<sup>xiii</sup> During the early 2000s, the regeneration of Poble Nou and the creation of the Parc Central del Poble Nou were tightly linked with a large-scale city-wide redevelopment strategy. In Poble Nou, this strategy called for a new creative, technology-centered, and sustainable hub known as the “22@ district” that would “*boost Barcelona’s competitive advantage*”<sup>13</sup> and bring the city into line with the global transition from a “*capitalist industrial society into a digital and knowledge driven society*” of the 21<sup>st</sup> century<sup>13</sup>. This general strategy holds up to today.

This strong entrepreneurial framework used by the city Administration at the time was explicit that “*the increase of the housing stock should be minimal, and ... dedicated to the residence of the workers of the companies*”<sup>13</sup>, and not the existing majority of low-educated residents that lived in Poble Nou at the end of the 1990s.<sup>13</sup> Furthermore, as stated in the archival documents, there was an initial capital prerequisite required for a developer to benefit from 22@ support (the minimum intervention unit was the block and main actors/partners had to “*own 60% of the land*”<sup>13</sup>), which resulted in high private investment and in the creation of a new public-private capital company – 22@bcn S.A. – to facilitate the transformation. The radical top-down intervention in Poble Nou socially, physically, productively, and functionally transformed the neighbourhood and swept away a large percentage of residents through concomitant gentrification and displacement dynamics, transformation of the material environment that had been associated with an industrial heritage, and alteration of the existing sense of community (Montaner, Álvarez, and Muxí 2011; Anguelovski, Connolly, et al. 2018). Today this heavily gentrifying neighbourhood has an index of economic capacity similar to Barcelona’s average (92.63 in 2016<sup>xiv</sup>), a below-average percentage of residents from the Global South (4.67% in 2016), increasing presence of college educated residents (23.21% vs. 29.14% city wide average<sup>xv</sup>), above average percentage of children aged 0-14 (14.08 % vs 12.99% city wide average in 2016), loss of public space and a growing building stock of high-end housing and contemporary unique-architecture. Its current demographic and social composition thus varies quite dramatically from that of Nou Barris.

#### *Spectacular and isolated design*

In the late 1990s, the construction of the Parc Central del Poble Nou was contemplated as part of this broader economic development agenda and as a central element of the area’s “*playful and festive offer of activities.*”<sup>xvi</sup> A review of historical documents reveals the extent to which the final selected project, led by French architect Jean Nouvel, reflected the same lack of consideration for Poble Nou’s material and social heritage as other 22@ projects. The park design aligns with the layout of the more modern portion of the central city (Avenida Diagonal and *Eixample* neighbourhood). It is structured around the historically central highway to France called *Pere IV* Street which erodes the older urban layout of Poble Nou (see *Figure 5*). Poble Nou’s material and social heritage was further transformed by the choice of an isolated park design – the space is concealed by bougainvillea ivy vegetated walls and only has a few entrances – that closes the new public space off from its surroundings (*Figure 5*).



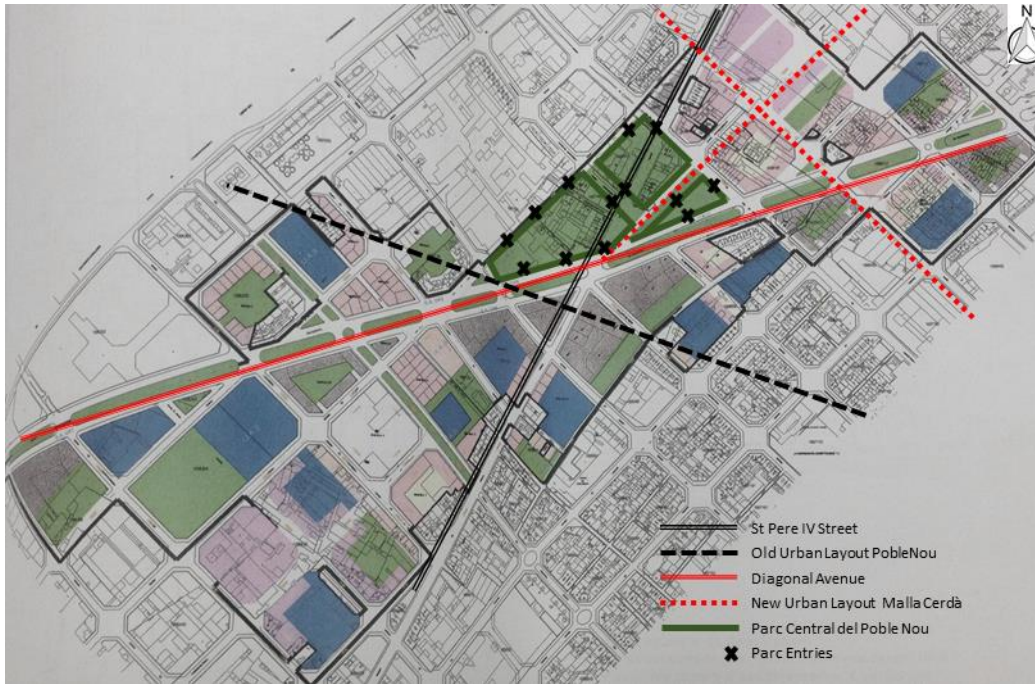


Figure 5 Parc Central del Poble Nou. Design reflects segregation of infrastructure and users and lack of continuity between different park spaces

Source: Proyecto de Ordenación del Parque de Pueblo Nuevo 2000, Municipal Archive of Sant Martí. Scale 1:5.000m

On the interior, the park is silent, and the noise and urban form of the exterior are almost not perceptible (e.g. Figure 6). With much of the park mimicking wild nature, in sharp contrast with Nou Barris, the Parc Central is divided into three main areas separated by city streets. Each of these areas presents a “natural” aesthetic, mainly achieved through the presence of abundant willow-trees. None of the children’s equipment is fenced and many of the amenities are built out of biomass, such as wooden huts (Figure 6.a), a water area, one sand area, and a spiral-shaped area full of bushes forming a labyrinth. There are also monkey bars, climbing spider nets (Figure 6.c), ping pong tables, basketball courts, and a large open playground surrounded by individual chairs and willows (Figure 6.d, e). The playground integrates many possible play options and presents a diverse orography, with ramps, ropes, slides, a wheel, hanging bars, a sand zone, and a rubber-surface area painted different colours and shapes (e.g. lines and circles).



a. Wooden huts



d. Playground in vegetated area



b. Dense Vegetation and artistic sculptures



e. Playground in vegetated area



c. Spider-net. Supervised play



f. Birthday Celebration

Figure 6 Parc Central de Poble Nou. Material design of built environment. Design reflects segregation of infrastructure and users and lack of continuity between different park spaces

1

2 *Socio-material relations in the Parc Central de Poble Nou*

3 During weekdays, the park is usually very quiet in the early afternoon, one can hear birds and bikes  
 4 passing through the bike lane on the old Pere IV street. Some of the few adult visitors lie on the grass  
 5 while others walk their dogs. Teenagers seem to rarely use the park, and when they do, they practice  
 6 dance moves, play basketball, or take pictures of themselves with their smartphones. Elderly visitors  
 7 are also almost absent. In general, children and their parents/caregivers tend to gather around the  
 8 main rubber playground (Figure 6.d, e) and at intervals in the central plaza or around some of the  
 9 hanging bars. They are mostly white and Spanish or from the Global North, as can be inferred from  
 10 the main spoken languages – Catalan, Spanish, French, Italian, American-English and Greek. For the

11 few instances of ethnic diversity we observed, visitors seemed to be divided along class lines around  
12 the playground, which we could infer by observing/identifying the dress style and relation with  
13 children of the visitors (e.g. parent or professional carer). In field notes (Monday 7.05), we recorded,  
14 *“the 3 ethnically diverse persons in the park – one Asian and two Andean women – sit in the benches*  
15 *that are further away from the central playground, whereas Spanish-Global North white parents are*  
16 *sitting in the first line of the playground. The Asian woman is in the playground accompanying her*  
17 *child, whereas the Andean-South American women are professional caregivers.”* This hierarchical  
18 spatial disposition did not apply to middle-class non-white parents – only observed in seldom  
19 birthday celebrations – who were mostly spatially integrated.

20 Children were almost constantly accompanied by an adult and, as a result, play areas had  
21 comparable numbers of parents and children mixed together. This observation is perceptible in our  
22 diagrams by the high presence of adult-child interactions (See example of one observation session in  
23 *Figure 1*, with adult-child interactions represented in black stripes). Children’s interactions with the  
24 play equipment were mainly guided and stimulated by parents (e.g. parents saying, *“look at that*  
25 *rope!”*, *“do you want to go to the slide?”* Fieldwork Notes, various days). When not guided by  
26 parents, interactions with the environment followed a strict obedience to the existing physical cues  
27 (e.g. the spider and monkey bars were exclusively used to climb, the sand area to play with sand, the  
28 basketball courts to play basketball). Furthermore, children’s activities seemed to be guided by the  
29 uses demarcated by the colours and shapes painted on the rubber soil (i.e. circles to walk in circles or  
30 jump, straight lines to walk or run, etc.). Parents contributed to the reproduction of these norms by  
31 explaining to children how to navigate the playground. In Poble Nou, in contrast with Nou Barris,  
32 none of the diagrams of the observation sessions contained fluid transitions across space or between  
33 activities (see example in *Figure 1*).

34 Despite the numerous opportunities to have contact with nature (the park was designed to mimic  
35 natural landscapes), none of the children exited the playground area delimited by the rubber soil and  
36 children did not interact with the material environment other than the play equipment or games  
37 brought from home (e.g. balls, buckets, etc.). Consequently, the contrast between the  
38 neighbourhood and playground physical elements, on the one hand, and the “wild-resembling”  
39 aesthetic of some of the natural elements, on the other, reinforced a socio-natural dichotomy,  
40 leaving “natural” elements as an untouched aesthetic background landscape. The size and shape of  
41 the trees (*Figure 6*) and their more manicured look might furthermore lead parents and children to  
42 perceive that those trees are not meant for play but have been placed there for aesthetic reasons.

43 Interactions with the social environment at all times were also scarce in comparison with Nou Barris.  
44 Children did not seem to interact much with other unknown children or adults. When interactions  
45 with strangers took place, these were mostly reduced to polite and kind gestures mediated by adults  
46 (e.g. *“a dad explains to his daughter that if she wants to play with a ball, she needs to ask the owner*  
47 *for permission and thank her”*; Fieldwork Notes, Friday 11.05; 19:00). The management of risk was  
48 also mostly taken over by adults (e.g. parents/caregivers commanding *“do not jump here”*, *“watch*  
49 *out when climbing the ramp”*; *“don’t run so fast or you might bump into other children”*; Fieldwork  
50 Notes, various days).

51 The set of socio-material relations at work, especially the reduced exploration and management of  
52 oneself and the material and social environment was at odds with the expected opportunities  
53 offered by a “nature-like” play space with unstructured and creative play amenities designed into it.  
54 Nevertheless, these socio-material relations seemed to, partly, be shaped by parents shadowing  
55 children and by a lack of independent child integration into the park. The adults’ main reason to be in  
56 the park was to accompany their children, play with children or supervise them. This was also

57 perceptible through the diagram, in which we found few adult-adult interactions (See example of  
58 one observation session in *Figure 1* where adult-adult interactions are represented in a blue stripe).

59 Park occupation and activity increased after 5pm during school days. However, in contrast with Nou  
60 Barris, the short-time and the little regularity of children's and parents'/caregivers' visits to the park  
61 during these working evenings (i.e. there were few identified recurrent users and children usually  
62 stayed maximum 40-50 minutes in the park) also seemed to hinder children's development of a  
63 sense of control over the processes that shape their socio-nature and ability to contribute to the  
64 scant social network children and parents seemed to have within the park.

65 Furthermore, the park only seemed to serve as a brief and exceptional stop in children's and parents'  
66 life rather than a long daily routine (e.g. a dad says to a little girl: *"let's make a stop here and  
67 continue"*; Fieldwork Notes, Thursday 17.05, 18:00), unlike what we observed in Nou Barris. The  
68 individual/family-based management of care we observed (e.g. parents only interacted with their  
69 offspring, not with the other children) with independent nuclear family units sharing a material space  
70 might reflect a desire of parents and/or children to spend some quality minutes together in an  
71 exceptional moment within a broader, perhaps overscheduled, middle-class life (Katz 2008; Donner  
72 2017; De Visscher and Bouverne-de Bie 2008). This schedule is illustrated by parents' frequent  
73 conversations about their own and children's time management (e.g. *"can we go on Saturday?...No, I  
74 have an appointment to do my nails"*; Fieldwork Notes, Friday 11.05, 17:00). In turn, the lack of a  
75 routine and social network in the park tend to create a barrier against a greater sense of familiarity,  
76 safety, and informal environmental control that could prompt children to wander around  
77 comfortably and parents to feel more carefree.

78 During weekends, the time spent in the park and the sense of familiarity and safety seemed to  
79 increase, especially in the late mornings and late afternoons, when the space was usually more  
80 crowded, mostly owing to children's birthday celebrations (*Figure 5.f*). These celebrations were  
81 organized by residents who did not seem to use the park every day (e.g. organizing or participating  
82 parents acknowledged how this park is *"actually a nice place to do this kind of celebration"*;  
83 Fieldwork Notes, Sunday 27.05). During those events, parents socialized with other parents, talked  
84 about school options for children, language management (in the cases of multilingual families), work,  
85 etc. Although gathering for children's celebrations, adults seemed to be fulfilling independent  
86 socialization activities while children engaged in more exploratory play (e.g. running in-between  
87 trees), appropriated the material environment, and challenged the designed use of the equipment  
88 (e.g. *"some girls are using the monkey bars as a puppet house"*; Fieldwork Notes, Sunday 27.05,  
89 13:00). Free play attempts were, however, on several occasions interrupted by the arrival of a hired  
90 professional entertainer who, even if encouraging children's interaction with the environment,  
91 mostly directed children's play, mediated children's care, and contributed to a shared – although  
92 commodified – regime of care while adults kept socializing. We rarely observed such directed play in  
93 Nou Barris.

94 In Poble Nou, the lack of a routine, a sense of community or social network and the disaffection of  
95 adults in the socio-nature precipitate an individual/family-based management of care and the co-  
96 production of these spaces of play as a foreign, exceptional space, "used" as a material amenity in  
97 certain occasions but not "lived" as a community space in a way that enables practices associated  
98 with personal, social and environmental benefits to arise.

## 99 Interpretation and discussion

100 Our research in Barcelona reveals that different conditions of access, utilisation, and material design  
101 of the two parks in terms of green biomass and unstructured play equipment proved not to be a

102 sufficient condition for explaining the production of children’s relational wellbeing, free play and  
103 observed contact with nature. In the seemingly more un-natural and structured socio-nature of the  
104 working-class Nou Barris park, we observed a greater relational wellbeing. This was reflected through  
105 an assemblage of designs and interactions promoting children’s free play, self-exploration, self-  
106 management of risks, diverse social interactions, freedom of movement and environmental  
107 exploration, knowledge and control, thus creating a positive green-playful-child-friendly  
108 park/amenity towards relational wellbeing. In contrast, in the creative, unstructured and greener  
109 socio-nature of the gentrifying Poble Nou park, we found high rates of supervised play, few  
110 movements across space, a strict arrangement of the types of play, and scarce interactions with the  
111 social and material environment at most times of the day and week – conditions that point toward a  
112 lower level of relational wellbeing built over time. Thus, we argue that the most important aspect in  
113 determining the production of relational wellbeing is the inseparably intersected socio-material  
114 structure of the neighbourhood and residents’ uses of the socio-nature (i.e. local socio-material  
115 conditions, *Figure 7*). In turn, the differentiated planning processes, visions and urban development  
116 goals for each park determine how and for what these green-playful-child-friendly places are being  
117 produced and affect the socio-material conditions of the neighbourhood – and eventually use of  
118 space and relational wellbeing (*Figure 7*). While we have developed such findings for Barcelona, our  
119 analysis of the relation between urban greening, implementation of play and child-friendly agendas  
120 could readily be applied to analogous contexts in other cities such as Vienna, Amsterdam, Portland,  
121 or Austin, which have ostensibly exhibited similar agendas and neighbourhood greening.

122 In Nou Barris, our archival analysis shows that urban transformations entailed a municipal effort to  
123 support the existing social and material capital while improving the community’s access to  
124 equipment, social housing and public spaces. The production of a green-playful-child-friendly space  
125 was the catalyst for a holistic, resident-centered and co-driven process of regeneration that was able  
126 to address long standing demands stemming from existing neighbourhood associations and diverse  
127 social groups. Up to today, the socio-material conditions of Nou Barris’ residents (e.g. small  
128 apartments and no second residences; migrants with no direct family in the city; absence of  
129 professional domestic help) do influence residents’ management of time (e.g. full time-working  
130 parents and few children’s extra-curricular activities) and aspirations.

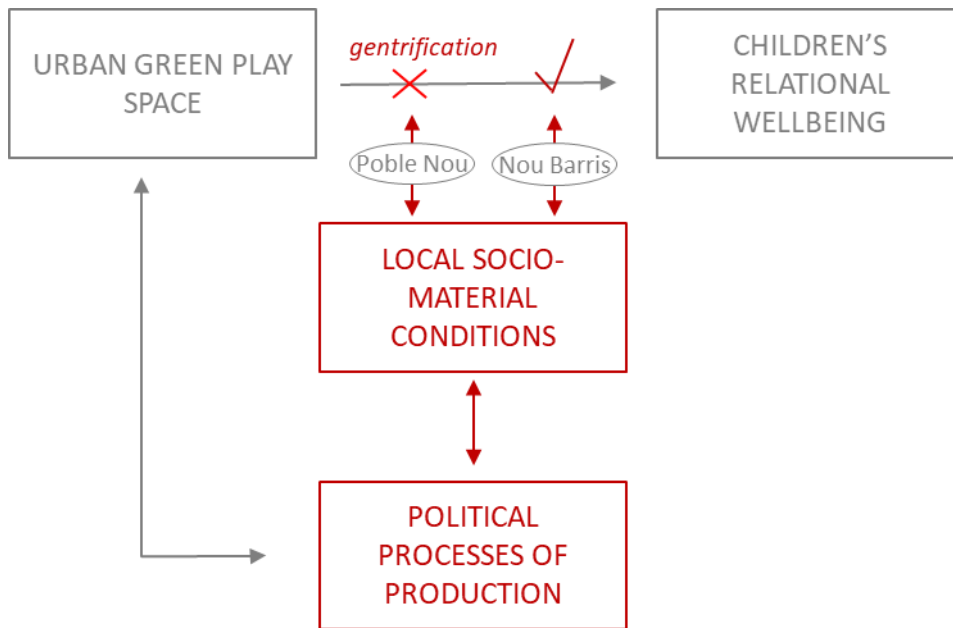
131 Here, the long-standing social capital of Nou Barris, which hasn’t been eroded by radical  
132 neighbourhood socio-material changes, is connected to what we observed in terms of risk  
133 perception, sense of community, and shared responsibility towards children. These conditions in turn  
134 co-produce the Parc Central de Nou Barris as a daily community park that resonates with the  
135 community’s pride, identity and life that permeated the original planning process. While the  
136 intensive use of the park allows for residents’ social reproduction, it simultaneously promotes  
137 children’s sense of safety, control, familiarity, knowledge and attachment to the material  
138 environment and, in turn, their contact with “nature”, freedom of movement, improvisation, fluidity  
139 of interactions, and a supportive surrounding social network – all reflecting strong relational  
140 wellbeing. This history has deep ramifications for how other cities engaging in similar agendas should  
141 include neighbourhood history and actors into a co-design process.

142 In contrast, in Poble Nou, our archival analysis shows an urban transformation aimed at attracting  
143 private investment through public spending in fixed capital and infrastructure in the area and  
144 securing private capital accumulation and growth through the destruction of old economic, material  
145 and social structures (Harvey 1978). In turn, this process opened up a growing role for private capital  
146 in the design of public spaces and eroded the original social and material structure of the  
147 neighbourhood. In many aspects, unlike in Nou Barris, the Parc Central de Poble Nou was produced

148 as a commodity for the reproduction of power and capital in the restoration and new value creation  
149 of the geography of Poble Nou and the 22@ district. A spectacular object-image – where capital itself  
150 becomes image (Katz 2008) – that relies on commodified experiences and representations of the  
151 “desired” child and nature- was imposed on the space designed by Jean Nouvel producing a  
152 commodified space that reifies the formalisation of the relational categories of children, nature and  
153 play – one at odds with the claimed universal benefits of a green, playful and child-friendly city.

154 In the Parc Central de Poble Nou an eroded social and material capital strongly imprints socio-  
155 material relations in the socio-nature. Children’s use of space is ordered and structured, while free  
156 interactions with the “natural” environment are scarce. Structures of shared care and a sense of  
157 familiarity and safety are absent. A rather individual or family-based organization of care and play  
158 prevails, further confining the park to an exception in children’s routines. This sense of shared  
159 individuality and lack of socio-material relations outside the designed play amenities and/or the  
160 family unit are in line, although at a different scale, with the 22@ insular urban design of high-end  
161 constructions with little connectivity between them. The elimination of Poble Nou’s urban layout and  
162 industrial building stock together with the role of the park as an exception in children’s routines  
163 seems to further obstruct the creation of social networks and prevent the attainment of the  
164 necessary attachment and knowledge of the socio-nature to provide a sense of community and  
165 control over the environment – and thus relational wellbeing. The hectic and interrupted use of  
166 Poble Nou’s socio-nature is in turn linked to these new middle-class families’ socio-material  
167 structural circumstances (e.g. perhaps a second residence where children can interact with nature;  
168 domestic-help at home and more time to spend with their offspring in the park), routines, structures,  
169 times, habits (e.g. plenty of other activities are scheduled in their day, in addition to occasionally  
170 playing in the park), aspirations (e.g. desire to excel) and perceptions of high, external risks.

171 More specifically, in terms of relational wellbeing, our analysis reveals that planning processes,  
172 visions and urban neighbourhood development goals also moderate the effect of green-playful-child-  
173 friendly amenities by (re)-directing the socio-material structure of the neighbourhood in a way that  
174 either promotes or undermines socio-natures – that is how these spaces are used and perceived –  
175 and, eventually, relational wellbeing (*Figure 7*). These findings thus ask us to rethink how we  
176 interpret and analyse children’s relational wellbeing and urban environmental equity, with a much  
177 greater emphasis on procedural and cultural processes that lie below the surface of the built and  
178 natural environment and what nature/natural spaces are created and available there.



179

180

181 *Figure 7 Children's urban socio natures and the pathways for relational wellbeing*

182 Figure 7 provides a model for understanding why the widespread construction of green and playful  
 183 spaces in cities (and the density of “green” or “nature” features in particular) is not as important for  
 184 children’s wellbeing as neighbourhoods’ socio-material structures and residents’ social construction  
 185 of the space. In turn, both are inextricably linked to the political and planning processes driving  
 186 green and playful urban agendas. Relational wellbeing is co-produced by specific interactions  
 187 between humans and the material environment at place in these socio-natures that are themselves  
 188 embedded within socio-material structures as both a product and an enabler/constraint of specific  
 189 actions, routines and uses constitutive of relational wellbeing. The political planning processes  
 190 driving green and playful urban agendas and especially the balance of power between equity and  
 191 growth interests, the definition of the beneficiaries, and the recognition of (or lack of) the social and  
 192 material heritage of the neighbourhood also all have a strong impact on the neighbourhood local  
 193 conditions, and eventually relational wellbeing.

### 194 **Concluding remarks**

195 Our study asked how the political and social production of green-playful-child-friendly amenities  
 196 shapes relational wellbeing. This paper contributes to the vast urban environmental equity and urban  
 197 political ecology literatures (Agyeman, Bullard, and Evans 2002; Agyeman and Evans 2004; Campbell  
 198 1996; Gould and Lewis 2017; Mohai, Pellow, and Roberts 2009; Pellow 2000; Wolch, Byrne, and  
 199 Newell 2014; Heynen 2006) as well as wellbeing research (Smith and Reid 2017) through a novel  
 200 examination of the differential relationship between the creation of new green-playful-child-friendly  
 201 socio-natures and the types of relational activities that result in two contrasting spaces.

202 It directs our focus toward the ways in which social hierarchies are differentially reproduced through  
 203 the socio-material interactions generated in these spaces and how those, in turn, produce what we  
 204 call ‘relational wellbeing’ for children. It specifically contributes new theory on the role of politics,  
 205 power and capital in shaping how urban socio-natures promote or constrain relations of wellbeing. In  
 206 other words, this study moves us beyond traditional analysis of green or/and play space “access” and  
 207 its impacts on health/wellbeing outcomes. It also reveals how historic environmental inequities

208 might be remediated through green spaces that produce socio-natures and relational wellbeing in  
209 ways that address broader neighbourhood needs and characteristics as well as traditional local social  
210 relations and ties.

211 From a methodological standpoint, this paper also offers a novel methodology to analyse relational  
212 wellbeing. Our developed methodology allows researchers to systematically observe relations in  
213 space in such a way that they can be related to the underlying socio-material context and connected  
214 with overall wellbeing. While we have specifically focused on indicators of relational wellbeing within  
215 the context of children's play activities, this methodology can be applied to broader socio-natures  
216 and to other international cases of neighbourhood redevelopment and implementation of child-  
217 friendly green space and play agendas.

218 In sum, we call here for researchers to examine the underlying processes that shape children's socio-  
219 natures in order to understand relational wellbeing, as part of overall wellbeing. In Nou Barris, the  
220 park was planned to integrate with the existing urban fabric with few designed elements for children  
221 to interact with nature. Yet, such interactions were common because of existing social and material  
222 contexts apart from the planned and designed elements that made them possible. In Poble Nou,  
223 where interaction with a "purer" vision of nature was planned and designed with little integration to  
224 the existing surrounding urbanism, such interactions were rare. Rather, the social and material  
225 context militated a confined and rule-bound playscape. Even when access to nature was, in theory,  
226 greater and environmental inequities "better" addressed on paper, the differentiated benefits of  
227 greenness were determined almost entirely by the processes that shaped children's socio-natures.

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## 448 Footnotes:

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- <sup>i</sup> Plan Municipal De Infancia y Adolescencia 2005-2010; Plan Municipal De Infancia y Adolescencia 2013-2016, Foco Infancia y Ciudadanía 2017-2020
- <sup>ii</sup> <https://ajuntament.barcelona.cat/ecologiaurbana/ca/que-fem-i-per-que/espai-public-de-qualitat/barcelona-dona-molt-de-joc> establishes the goal of creating a playful Barcelona by 2030
- <sup>iii</sup> <http://ajuntament.barcelona.cat/ecologiaurbana/ca/que-fem-i-per-que/espai-public-de-qualitat/superilles>
- <sup>iv</sup> e.g. informal/unplanned vs. formal/planned; verbal vs. non-verbal, joyful vs. conflictive, inclusive vs. exclusive, intragenerational vs. intergenerational, monitored/surveyed vs. non-monitored, etc
- <sup>v</sup> Each phase of analysis involved line-by-line thematic note coding; thick descriptions of interactions; and elaboration of hypotheses about the relation between the most salient and repeated codes.
- <sup>vi</sup> Proyecto de Ordenación del Parque de Pueblo Nuevo, 2000. Municipal archive of Sant Martí
- <sup>vii</sup> Plan Especial de Ordenación del ámbito del antiguo Instituto Mental, Fórum Nord de la Tecnología, 1992. Municipal archive of Poble Nou
- <sup>viii</sup> Nou Barris, Centre de Estudis I Documentació de Nou Barris, Municipal Archive Nou Barris.
- <sup>ix</sup> Plan Especial d'Ordenació de l'àmbit de l'Antic Instituto Mental of 1992, Municipal Archive Nou Barris.
- <sup>x</sup> Nou Barris, Centre de Estudis I Documentació de Nou Barris
- <sup>xi</sup> Plan Especial d'Ordenació de l'àmbit de l'Antic Instituto Mental" of 1992, Municipal Archive Nou Barris
- <sup>xii</sup> Municipal centre that offers night-time accommodation, hygiene, dinner, breakfast, rest and social-health care.
- <sup>xiii</sup> Proyecto de Ordenación del Parque de Pueblo Nuevo 2000, Municipal Archive of Sant Martí
- <sup>xiv</sup> City of Barcelona Statistics Department
- <sup>xv</sup> City of Barcelona Statistics Department
- <sup>xvi</sup> Proyecto de Ordenación del Parque de Pueblo Nuevo 2000, Municipal Archive of Sant Martí