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SPECIAL ISSUE

Universally Accessible Public Spaces for All

Editors Hannes Juhlin Lagrelius, Luisa Bravo
Guest Editor Victor S. Pineda

Founder City Space Architecture

Partners UN-HABITAT FOR A BETTER URBAN FUTURE, World Blind Union

in cooperation with KTH Arkitektur och Konst, RMIT University, School of Architecture, The Chinese University of Hong Kong

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"Public space in cities is a common good, meant to be open, inclusive and democratic, a fundamental human right for everybody."

Dr Luisa Bravo
The Journal of Public Space, *Founder and Editor in Chief*
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(from the statement submitted at the 26th UN-Habitat Governing Council held in Nairobi, Kenya, 8-12 May 2017)

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CONTACT

Publisher
City Space Architecture
non-profit cultural association
Via Paolo Giovanni Martini 26/d
40134 Bologna, ITALY
jps@cityspacearchitecture.org
www.cityspacearchitecture.org

Partners
UN-Habitat / United Nations
Human Settlements Program
Nairobi, KENYA
www.unhabitat.org

World Blind Union
1929 Bayview Avenue
Toronto, Ontario
CANADA M4G3E8
https://worldblindunion.org/

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- the Focus and Scope of the journal
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An abstract of about 300 words with up to five keywords is also mandatory.

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EDITORIAL

Universally Accessible Public Spaces for All

Hannes Juhlin Lagrelius
World Blind Union, Canada
hannes.lagrelius@wbu.ngo

Luisa Bravo
City Space Architecture, Italy
luisa.bravo@cityspacearchitecture.org

At the occasion of the 10th session of the World Urban Forum in Abu Dhabi (2020), the World Blind Union (WBU) and City Space Architecture committed to develop and publish a special issue of The Journal of Public Space with a specific focus on universally accessible public spaces. This voluntary commitment was included in the Forum's outcome declaration, the Abu Dhabi Declared Actions (2021), intended to support accelerating the implementation of the New Urban Agenda (NUA) and urban dimension of the Sustainable Development Goals (SDGs) during the Decade of Action. In particular this Special Issue is contributing to Goal 17 - *Strengthen the means of implementation and revitalize the global partnership for sustainable development*, and its outcomes are focusing on Goal 11 - *Make cities and human settlements inclusive, safe, resilient and sustainable*.
Across the past two years, the two organisations have collaborated through a series of online meetings, to share objectives and goals, and different knowledge-sharing webinars around public space. In particular, one of the webinars was included in the global online initiative "2020: A Year without Public Space under the COVID-19 pandemic"[1] developed by City Space Architecture in cooperation with the School of Architecture at The Chinese University of Hong Kong and promoted through The Journal of Public Space. The webinar, titled *Creating Accessible and Inclusive Public Spaces with/for Resilient Communities*[2], was aimed at presenting the context of the global changing population dynamics in relation to older persons, persons with disabilities and other historically marginalised groups, and to reaffirm the crucial importance of inclusion and accessibility of public space as a right to access basic urban resources and services.
Today, more than half of the world's population live in cities, 15 per cent of them being persons with disabilities. By 2050, 70 per cent of the world's population will live in urban communities including over two billion persons with disabilities and older persons requiring inclusive and accessible infrastructure and services to live independently and participate on an equal basis in all aspects of society. Local and regional governments, and other key urban stakeholders, face immense pressure to adapt strategies, policies, and urban planning and design practices to fully respond to the rights and needs of all persons with disabilities and intersecting social groups. Recent examples of global crisis, like the COVID-19 pandemic, reminds us that much remains to be done to address persisting and emerging accessibility barriers which sustain inequalities and exclusion of persons with disabilities and other marginalised groups, such as older persons: they

[1] The initiative included 20 webinars, from May to September 2020, a final two-day online conference in November 2020 (https://www.journalpublicspace.org/index.php/jps/navigationMenu/view/covid-19-program) and a special issue of The Journal of Public Space, Vol. 5 n. 3 (2020) (https://www.journalpublicspace.org/index.php/jps/issue/view/76)
[2] A summary of the webinar with recorded video is available at: https://www.journalpublicspace.org/index.php/jps/navigationMenu/view/webinar7-summary

have shone a light on the need for inclusive and accessible infrastructure as one of the most critical challenges of the 21st century (Al Jubeh, K., Dard, B., Zayed, Y., 2020).
There are several core global instruments and frameworks that specifically stress the importance of accessibility and Universal Design: the UN Convention on the Rights of Persons with Disabilities (CRPD, 2006), the 2030 Agenda for Sustainable Development (2015), the Sendai Framework for Disaster Risk Reduction (2015), and the New Urban Agenda (2016).
Accessibility is a right, and a precondition for the inclusion of persons with disabilities in society (CRPD Article 3). Delivering on the commitments of the humanitarian and development frameworks towards leaving no one behind means true alignment with the CRPD. It also means that governments, policy makers, and planners must address accessibility across all interventions, policies, and programs including how accessibility of the built, digital and social environments is grasped and integrated across urban and rural development processes, budgets and policies (CRPD Article 9) – including plans and strategies for climate action, resilience and emergencies. Despite these frameworks and instruments are outlining commitments and obligations to accessibility, Universal Design – and meaningful participation – is too often overlooked and forgotten in discussions and processes guiding urban governance, planning and how our urban environments are designed. This directly impact the extent to which persons with disabilities and intersecting groups can enjoy their human rights and opportunities in cities and communities, including equal access to public spaces and services, education, jobs, health and more (Bravo, 2022, p. 25).
The imperative for universal accessibility calls for public spaces that are accessible, available, affordable, appropriate and of good quality for all. Such public spaces benefit everyone and are a crucial medium for transformative change in cities which celebrate realization of inclusive and diverse, green and sustainable, safe and resilient, healthy and vibrant communities. Universal accessibility in public spaces is also a critical link in everyday life's mobility chain and contribute significantly to improve safety, health and resilience, as also explained in the eight interconnected domains of urban life of the WHO age-friendly cities Framework[3]. Practitioners should recognise the full spectrum of human rights, needs and preferences and design for such diversity 'right from the start' so as to ensure equality and non-discrimination, lessen the risk of retrofitting environments, reduce costs and champion inclusion, sustainability and resilience. Some of the main challenges ahead are shrinking public spaces, insufficient integration of the universal design principles in planning and design policies and practices, the lack of participatory planning with persons with disabilities and other marginalized groups, lack of inter-agency coordination at national and local levels, lack of inclusive budgeting, need for capacity development and knowledge sharing to adopt universal design strategies that benefits all society (UCLG, 2019).
In view of this, the World Blind Union, a founding member of the International Disability Alliance, and a representative organisation of the world's 253 million persons who are blind or partially sighted, proactively works in the urban development field, including in an agreement with UN-Habitat, knowledge production, policy development and towards increased engagement of Organisations of Persons with Disabilities in discussions and decisions guiding urban development.
On another level, City Space Architecture is promoting public space culture, in an agreement with UN-Habitat, with the intention to address urban complexity from a human-oriented perspective, applying an interdisciplinary approach and defining new methodologies and tools for effective design, implementation and long-lasting impact.

Producing quality, open access knowledge on universal design, accessibility and inclusion in public space

In August 2021, World Blind Union and City Space Architecture launched the Call for Abstracts for this Special Issue. The call invited a broad range of stakeholders, including academic researchers, professionals, policy makers, local authorities, and civil society organisations from across the globe

[3] Read more: https://extranet.who.int/agefriendlyworld/age-friendly-cities-framework/

to submit articles, case studies and viewpoints. The requested submissions were intended to capture good practices, opinions, and applied research around accessibility, universal design, and inclusion in relation to public spaces. The call was seeking contributions able to evidence learnings and demonstrate levels of progress towards achieving public spaces that are accessible to and inclusive of all, in line with development frameworks and human rights instruments, with a particular focus on:

- Effective and appropriate measures to identify and eliminate obstacles and barriers to accessibility and ensuring equality and non-discrimination in public spaces including parks, streets, sidewalks, and footpaths that connect, playgrounds of recreation, marketplaces, etc;
- Critical role of inclusive and accessible public spaces in enabling enjoyment of human rights, improving quality of life and access to services, ensuring independent living and mobility including during emergencies and building back better after disasters, conflicts, or pandemics;
- Co-creation process, strategies and mechanisms to ensure meaningful participation and engagement of diverse marginalised groups, including all persons with disabilities in line with CRPD General Comment 7;
- Effective implementation and monitoring of adequate accessibility standards across various forms of public spaces and across main areas of accessibility including the physical environment, information and communications (including systems and technologies), transport, etc.;
- Strategies to address accessibility, reasonable accommodation, and universal design together with key considerations such as intersectionality, gender equality, resilience, health, economic, engineering, cultural, environmental, maintenance and safety issues, etc;
- Learnings and experiences on how to promote a universal design approach and mainstream accessibility into local policies, plans, budgets, programs, and practices related to public spaces;
- Capacities, data and tools needed to assess and address accessibility gaps/pitfalls, measure impact and guide the design and realisation of inclusive and accessible public spaces at local levels.

In response to the call for abstracts we received more than 89 proposals, as research articles and case studies, but only 18 were selected and authors were invited to submit the full papers. The selection was made according to one clear purpose: deconstruct preconceived ideas/stereotypes and promoting an intersectional approach, overcoming misunderstandings and address the lack of efficacy in the application of the concept of universal accessibility in the drafting of policies and in the design of urban spaces. For this reason, we worked with the United Cities and Local Governments (UCLG) to direct invitations to local governments to contribute to the issue.

The double-blind peer review process[4] lasted several months and engaged experienced academic researchers and experts on urban planning, architecture, accessibility, and disability inclusion from across our networks. Authors received feedback on how to improve contents and were specifically asked to champion an intersectional perspective, considering the extent possible the inclusion of all persons with disabilities and other diverse groups and their intersecting identity characteristics, including age, gender, class, race, location, disability, educational status, migrant status etc. Authors were also encouraged to use appropriate language that do not reinforce negative stereotypes or stigma and align with relevant frameworks, and capture varying access requirements, including physical, digital, and social, and barriers to inclusion (e.g., attitudes, stigma), with reference to relevant frameworks and instruments, particularly the CRPD.

The contents of this issue are presenting:

- 8 academic articles, with research findings from Hong Kong, India, United Kingdom, Ecuador, Mongolia, Indonesia, Sweden, Kenya, United States;
- 7 non-academic articles, presenting case studies from New Zealand, Australia, Norway, Spain, Indonesia, and the Netherlands.
- 2 viewpoints sharing reflections, experiences, and recommendations from persons with disabilities and their representative organisations, from Kenya and Zimbabwe.

[4] Read about the double peer review process of The Journal of Public Space: https://www.journalpublicspace.org/index.php/jps/peer-review-process

We invited to serve as Guest Editor for this issue Dr Victor Santiago Pineda (2017), a global thought leader, urban planner, and distinguished scholar on inclusive and accessible cities, who is leading the work around the Global Compact on Inclusive and Accessible Cities. We asked him to, in his guest editorial, share reflections on the very concept of inclusion in the domain of public spaces. As we aspire to make available accessible versions of this special issue, contents are published through accessible PDFs, together with Epub and HTML-formats which are more user-friendly to screen-reader users.

As we launch this publication at the 11th session of the World Urban Forum in Katowice, Poland (June 2022) across multiple events, the journey does not stop here. The ambition of this Special Issue is to reach and stimulate discussions amongst broad audiences; on what works and what can be done differently towards making public spaces, and ultimately cities and urban communities, inclusive of and accessible to all. We believe that this Special Issue is a critical piece of the puzzle to inspire and support discussions and actions to leave no one, and no place behind in an urbanising world. We hope you enjoy the reading as much as we have enjoyed working with the authors who made this Special Issue a reality.

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EDITORIAL

What is Inclusive and Accessible Public Space?

Victor Santiago Pineda
World Enabled, United States of America
victor@worldenabled.org

As I write this introduction from Davos, Switzerland, on the side lines of the World Economic Forum's Annual Meetings, I am reminded of the intensity and volatility of change that we are living through. Olaf Scholz, the Chancellor of Germany declared that the global pandemic simultaneously confined access to traditional public space while expanding access to new virtual and distributed and decentralized "public" spaces. Traditional public spaces were shut down, and for nearly two years we had to reinvent what public spaces were, who they were designed for and how they would be accessed. With the emergence of the Black Lives Matter movement, accessibility and inclusion took centre stage.

Public facilities play an important role in every city, and they should be able to accommodate persons of all ages and abilities. Disability rights advocates argue that facilities and spaces such as schools, parks, civic or community centres, public safety facilities, arts and cultural facilities, recreational facilities, and plazas should be accessible to all, and equitably distributed throughout the city. They should be designed by, with, and for people with disabilities and older persons, and by doing so would be safe, and accessible by design.

In my book, *Building the Inclusive City* (2019), I lay a foundational framework for understanding the public-private, socio-economic, moral, institutional, interpersonal, cultural, and psychological underpinnings of accessibility.[1] Public space is not only a public good, or a collective resource, it is a medium for social exchange and common understanding. Public spaces are also not only physical but also virtual, and include traditional and emerging digital spaces.[2] According to the renowned geographer and urbanist Edward Soja, public space is more expansive and nuanced, recognizing a dynamic co-creation of what he terms a social-spatial dialectic. Society creates space and space shapes society. Manuel Castell also describes the space as a conduit of communication and "flows" of economic and social transactions and social and cultural transformations. These spaces of flows create a logic and generate value to the corresponding notes in the network.

[1] Building the Inclusive City: Governance, Access and the Urban Transformation of Dubai https://link.springer.com/book/10.1007/978-3-030-32988-4

[2] Online communities include those on WhatsApp (see Cities for All Global Communities), as well as others on virtually any other topic that are formed on Telegram and Discord. These virtual spaces are creating decentralized autonomous organizations or DAOs and accelerating our transition to third generation of the internet called the Web3 or metaverse. Billions of users access and create content that is inaccessible and excludes persons with disabilities on traditional social media, websites, and apps.

For persons with disabilities and older persons, "public spaces play a central role in the creation of inclusive communities and more specifically, in the formation of a public culture and in enriching cultural diversity" (Ravazzoli, Torricelli, 2017). Furthermore, public spaces are spaces and hubs for mobility, economic activity and exchange and should be accessible to all regardless of impairment type.

By denying or restricting access to train stations, airports, bus stops, micro-mobility infrastructure like shared bikes, and scooters, and other intermodal terminals we are denying and restricting our own economic and social development. Accessibility barriers in essence make these streets, sidewalks and bike lanes spaces of exclusion and congestion, or as social theorist Marion Iris Young would argue, public spaces of "oppression." In the urban environment, realizing the politics of difference means building spaces that do not create barriers or prevent participation and rather promote and defend the access of all groups. A city that does not prioritize the access and inclusion of people with disabilities has decided that disabled people do not have the same value or citizenship worth as those without disabilities. In *Rethinking Architecture: Design Students and Physically Disabled People*, architect and humanitarian Ray Lifchez wrote (1987, p. 1):

> "Building forms reflect how a society feels about itself and the world it inhabits. Valuable resources are given over to what is cherished—education, religion, commerce, family life, recreation—and tolerable symbols mask what is intolerable—illness, deviance, poverty, disability, old age. Although architects do not create these social categories, they play a key role in providing the physical framework in which the socially acceptable is celebrated and the unacceptable is confined and contained. Thus when any group that has been physically segregated or excluded protests its second-class status, its members are in effect challenging how architects practice their profession."

In other words, treating all people the same creates unequal results; cities that do not promote politics of difference choose instead to protect only what they view as normative. Popular memes on equity versus equality have made clear the argument that requiring all people to perform the same or undifferentiated tasks (such as climbing stairs to get into a library) is perhaps equal, but not equitable or inclusive.[3]

The climate crisis also elevates the need to create master plans that centre on walking and biking "in the design of sustainable mobility systems and the creation of sustainable and liveable cities" (Ravazzoli, Torricelli, 2017, p. 38). These authors cite the European Union's assessment that interventions that link sustainability to inclusion can create sustainable cities with "attractive open public spaces and promote sustainable, inclusive and healthy mobility" (European Union Regional Policy, 2011, p. vii).

Yet despite concerted efforts to link sustainability to inclusion (see Sustainable Development Goal 11), collectively cities and other stakeholders that value public spaces have failed to measure, assess, and operationalize "inclusion" through resilience strategies, "green projects", or municipal planning, and in city life.

[3] Equality means each individual or group of people is given the same resources or opportunities. Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome.

Conclusion

The articles gathered in this publication could not be more timely or important. In fact, this publication is a first of its kind and comes at the heels of a global coordinated effort to redefine politically, and publicly the future we want, and the cities we need. As you explore this special issue, a few themes emerge, namely that the creation of truly inclusive and accessible public spaces is an important aspect of realizing a just and sustainable world not only for older persons and persons with disabilities but for all of us. Just public spaces are designed by centring on the marginalized, or the least well-off stakeholder. Where environmental elements - and space itself - were conceived for the most part as fixed, immobile, and inflexible, planners did not see how their actions furthered stigma and exclusion. Out of the notion of normalizing or standardizing public spaces to a "normal" or "standardized" worker, a group of feminist theorists led by Martha Nussbaum (2006) criticized John Rawls's *A Theory of Justice* (1971) and began to centre human flourishing (and by extension inclusion and accessibility) at the centre of theories of justice. Accessibility and inclusion continue to be undertheorized and have until recently been technical or political objectives that are placed at the margins (or on the periphery) of public discourse. Public facilities are the most tangible expressions of the social construction of space, and of how society "justifies" space and makes justice tangible.

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Learning from Older Adults' Use of Urban Parks in Hong Kong's Low-income Areas

Caterina Villani, Kin Wai Michael Siu, Zi Yang
The Hong Kong Polytechnic University, School of Design
caterina.villani@polyu.edu.hk | m.siu@polyu.edu.hk | zi.yang@connect.polyu.hk

Abstract
Spatial justice, specifically accessibility, Universal Design and the fulfilment of human rights for vulnerable groups are increasingly deemed relevant issues in urban research and city-level agendas concerning public spaces. Although the development of older adult–friendly urban environments is part of the agenda to promote healthy ageing societies, public spaces (e.g., urban parks) often exclude those in the advanced age group in the community. This article offers a preliminary assessment of the older adult–friendly urban environments, hostile urban design elements and the everyday activities of older adults in urban parks by focusing on the extreme case of Sham Shui Po. This is a low-income, high-density and public space–scarce neighbourhood in Hong Kong, a city characterised by a rapidly ageing population and high socio-spatial inequality. Qualitative methods as environment audit, direct observations and video-recordings were used to investigate the physical environment and the older adults' social and physical activities. Two representative urban parks are selected, the Nam Cheong Street Sitting-out Area (NCSA) and Tai Hang Tung Park (THTP). NCSA, located in a congested vehicular street median, allows independent mobility and is predominantly for intergenerational social activities. It is part of the daily route of residents and inhabitants from different ethnicities. Hostile design prevents the full use of seating facilities. THTP is a site for older adults to engage in physical activities and also accommodates large groups and caregivers. Defensive architecture and design layout may affect the group size in the parks, while sittable edges may directly contribute to the park use by older adults with physical disabilities, particularly near street crossings. The findings from this deprived neighbourhood highlight the critical role of landscape infrastructure for healthy ageing societies.

Keywords: urban parks, spatial justice, healthy ageing, park use, everyday life

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Introduction

> *'Every morning, what we take up again, on awakening, is the weight of life, the difficulty of living, or of living in certain conditions.'*
> (de Certeau et al., 1998).

Globally, life expectancy is increasing at unprecedented and steady levels. The number of older persons is projected to double in the next three decades (vs 2019), reaching 16% of the global population by 2050 (UNDESA, 2019). East Asia and Southeast Asia are likely to see the most rapid increase in the number of older citizens between the current decade and 2050, and Hong Kong is expected to feature among the largest increases (UNDESA, 2019). The living environments of older persons, including the size and composition of their households and their living arrangements, are constantly changing. Poverty is a major threat to the wellbeing of older persons, and for a great portion of the population, ageing is associated with a higher poverty risk (UNDESA, 2015).

One of the most pressing ageing-related issues is health decline, which encompasses physical, psychological, social and cultural dimensions. Physical activity, even at a low intensity, supports the physical health of older adults. Similarly, social interactions improve their physical and psychological health (Wen et al., 2018). Open public spaces offer essential settings for the enjoyment of different physical and social activities, thereby decreasing morbidity and enhancing social interactions and ties. Thus, older adults engaging in different activities in public spaces can help generate in them a sense of community and place attachment, preventing social isolation and promoting social life and ageing in place (Levy-Storms et al., 2018). However, the size, layout, design and program of public spaces differ highly across neighbourhoods, which affects the type and variety of available activities.

Spatial justice (particularly regarding accessibility), Universal Design, and the fulfilment of human rights for vulnerable groups are increasingly deemed critical in urban research and city-level agendas concerning public spaces (Jian et al., 2020, 2021; Low and Iveson, 2016; Soja, 2010). However, they are often overlooked in the planning and redevelopment of these spaces, particularly in underserved local neighbourhoods (Ma et al., 2020; Xiao et al., 2021). In extremely dense and deprived environments, public parks are crucial for providing citizens with ecological, social and physical health functions (Low, 2016; Park et al., 2018). Urban parks are essential for the wellbeing of some vulnerable social groups, such as older adults (Wen et al., 2018). Given the limited mobility, local parks, i.e., parks located in the neighbourhood or within a short walking distance from home, are essential to enable older persons to engage in different activities and enhance social interactions, thus improving physical and mental health among the older population. Although the development of older adult–friendly parks is part of the initiative of age-friendly cities to promote healthy ageing societies and in line with the Convention on the Rights of Persons with Disabilities (Article 9, 19, 30), public spaces, including urban parks, often exclude those in the advanced age group (Loukaitou-Sideris et al., 2014). Without an in-depth understanding of the activities of older adults in low-income and high-density settings, policies aimed at improving public spaces will likely overlook the needs and habits of this group. Moreover, the agential

dimension of public space, reflecting how park design can contribute to or hinder the activities of older adults, is still unclear.

United Nations (UN) agencies have established a values agenda including principles that set a moral compass for planning for older citizens and their environment. The UN Decade of Healthy Ageing (2021-2030) brings together these agendas towards a better future for older people. It demonstrates that all societal forces should share accountability for "concerted, catalytic and collaborative action to improve the lives of older people, their families and the communities" (WHO, 2020). This article focuses on urban parks closely related to the lives of older adults. By observing the environment, the daily life and activities of older persons, we explore settings in urban parks that may not completely meet the needs of the older people in their everyday life to support further research on inclusive and accessible public spaces in a healthy ageing society. This article aims to provide a preliminary assessment of the older adult–friendly urban environments and the hostile urban design elements, and to reveal the variety of activities (social and physical) and everyday interactions of older adults in parks. This paper investigates Hong Kong, an increasingly socio-spatially unequal city in East Asia (Chen et al., 2018; Tang, 2017) that is also home to one of the most rapidly ageing populations in the world (UNDESA, 2019). By 2038, older adults are projected to comprise one-third of the East Asian population (HKSAR, 2019). We examine the revelatory case of Sham Shui Po. This neighbourhood represents an extreme case, characterised by a low-income and ageing local population, extremely precarious living environments and limited public spaces, which are major factors influencing the wellbeing of older adults.

Public space and age-friendly cities

Inclusive and accessible public spaces are crucial for ensuring the enjoyment of human rights, enhancing the quality of life and access to services and enabling independent living and mobility, particularly for older adults. The crucial role of public space is particularly evident during emergencies such as public health crises, natural disasters and conflicts. With the COVID-19 pandemic more acutely affecting vulnerable groups (Villani et al., 2020), it has become more vital to address the needs of older adults in public space planning. As stipulated by UN Sustainable Development Goal 11.7, the target is to ensure "[U]niversal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities". The principle of accessibility (CRPD) is particularly relevant in this matter as it aims to ensure that persons with disabilities and others enjoy the right to "equal access" to physical environment, transportation, information, public facilities and services. It reflects Universal Design principles promoting equitable use, usage flexibility, intuitive design, perceptible information communication, tolerance for error, design for low physical effort and ergonomic design (Clarkson et al., 2015). These are essential principles required for the safe and comfortable recreational use of facilities by older adults.

In addition, the development of specific age-friendly approaches in cities is vital to accommodate the global ageing urban populations. The WHO Age-friendly City Initiative recognises that inclusive and accessible public spaces are crucial for the wellbeing of older adults and suggests recommendations for promoting public space as a

pivotal part of the active ageing concept (WHO, 2007). Considering ageing from an intersectional perspective and understanding the contribution of Universal Design to all populations is the first step in planning public spaces that can empower older people. First, older adults should not be considered a homogeneous group. Intersection identity characteristics including disability, gender, age groups, economic and educational status must be considered in urban space planning, especially as individual diversity in cognitive and physical status increases with ageing. The WHO initiative recommends that open public spaces, in particular, parks, should be barrier-free, attractive, well equipped and accessible to older adults. For example, defensive architecture (also known as hostile design), including filtering mechanisms to make public space inhospitable for those groups whose presence is not welcomed (e.g. spikes preventing seating near commercial buildings) may affect park use by older adults and other users (Smith and Walters, 2018) and thus should be avoided. Environments built according to the abovementioned recommendations can enhance the mobility and independence of a large group of people with disabilities, including those in the younger generations. The Age-friendly City Initiative recommends the following environmental factors to ensure that older adults can venture into public spaces independently:

- Even pavement conditions
- Visibility of walking paths
- Presence of shading and moderate temperature conditions
- Seating spaces placed to ensure that older people can walk independently
- Toilet facilities
- Quieter and contained spaces
- Crossings with auditory clues

Space-time activities of older adults in public spaces

> *'In terms of public space, distributive justice based on equity would ensure that public space was available to all people and that everyone would have some degree of access. […] The concept of interactional justice is about the quality of interpersonal interaction in a specific situation or place. […] Accommodating the differences in the ways social class and ethnic groups use and value public sites is essential to making decisions that sustain cultural and social diversity.'*
> (Low, 2016, p. 298).

The exclusion of a specific group of people, such as older adults, in public green spaces is also affected by factors other than the presence of physical barriers. The failure of these spaces to accommodate the habits and activities of older adults can prevent them from fully utilising spaces and facilities. For example, older adults mostly engage in low-intensity physical activities such as brisk walking; dancing; practising tai chi and yoga (Loukaitou-Sideris et al., 2014); and sedentary social-oriented activities such as chatting with peers, sitting, resting and watching passers-by (idem). Older adults can also participate in small-group recreational activities, such as playing (and watching) chess, or large-group activities, such as playing a bocce game. However, age-friendly planning initiatives aiming to increase park use by older adults often overlook the diversity of the

physical and social activities of older adults. Consequently, small playgrounds consisting of only few standard physical activities equipment are built for older adults.
In highly dense East Asian cities, public spaces are also characterised by temporary patterns of use. Older persons most often visit the parks and engage in recreational activities in the morning (Pleson et al., 2014; Tu et al., 2015) given the local culture, the moderate temperatures and relatively low park population during these hours. In these locations, popular activities include group dancing (Chen, 2019), Tai Chi, bird-keeping (Leung, 2020) and playing chess (Siu, 2008), cards and mah-jong.

The context of Hong Kong

Ageing is a pressing issue in Hong Kong. Among developed economies, the city has one of the highest inequality rates. According to the latest poverty report, 391,200 older adults live in poverty, which corresponds to 32% of citizens aged 65 and above (HKSAR Census and Statistics Department, 2020b); that is, 3 in every 10 older adults live in poverty. This older group is likely to rely heavily on public spaces for their daily activities compared with other groups who have more income and experience less difficulties moving around. The available public spaces in Hong Kong are inadequate in size and quality and characterised by highly competing uses and users (Villani and Talamini, 2019, 2020, 2021). Nevertheless, over the past 30 years, some policies promoting accessibility and barrier-free access have been implemented to improve the access of people with physical disabilities to buildings and public spaces.
The 'Universal Accessibility – Best Practices and Guidelines' manual, published by the Architectural Services Department in 2004, is based on the concept of Universal Design and meets the requirements of barrier-free legislation to achieve universal accessibility in built environments. It provides design suggestions for aspects such as the layouts of facilities, paths, entrances, exits and elevators; passage connections; material selection; lighting; and signage. Similarly, the 'Universal Accessibility for External Areas, Open Spaces and Green Spaces' manual, published by the Architectural Services Department in 2007, indicates that the following architectural factors should be considered to ensure Universal Design: 'anthropometrics', 'continuity', 'connectivity', 'equality', 'safety' and 'sustainability'. The Hong Kong Planning Standard and Guidelines emphasises the importance of green space accessibility in Hong Kong, especially for older adults. In 2016, the Hong Kong Chief Executive's Policy Address featured developing an age-friendly community as a specific policy focus. The recommendations included enhancing pedestrian facilities through the introduction of covered walkways and other infrastructure, enhancing transport and public facilities and increasing the number of seats in some public facilities (e.g., indoor markets). However, the main policy direction for improving existing public spaces was limited to installing "*additional elderly fitness equipment"* in the outdoor leisure venues of the 18 districts. The provision of design elements compatible with a more diverse range of activities, as sedentary recreational activities or large groups physical activities, was not considered.

Materials and method

> *'Meeting other people, watching what is going on, seeing young and old […] ordinary daily street life, or the ever-changing human scene: these are the subtle, traditional joys related to life in public spaces.'*
> (Gehl, 1989, p. 8)

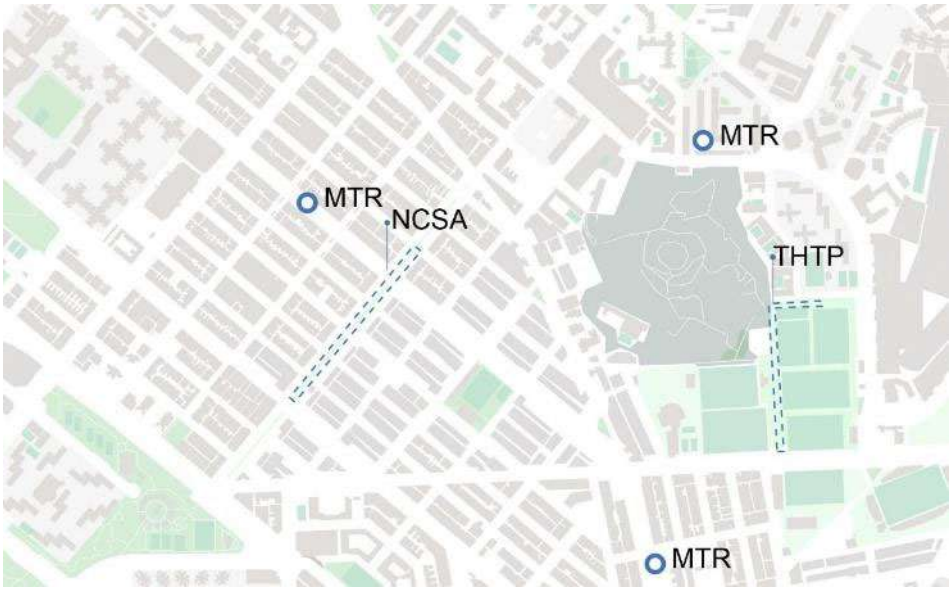
This research employs qualitative methods as on-site audit of the environment, unobtrusive direct observations; video-recording and note-taking in public spaces to assess the environment of two selected small urban parks' and to examine older adults' activities in them. Gehl and Svarre (2013) proposed that the core principle of public life studies is "to test the actual conditions in the city by observing and experiencing" (p. 99) and advocate that researchers should "walk around while taking a good look" (p. XII), observe the city at eye level "from the perspective of pedestrians" (p.78) to "better understand the needs of users and how urban spaces are used" (p.3). Previous studies adopted semi-structured direct observations to conduct empirical studies on social activities and behavioural responses on several forms of public spaces, as the high street (Mehta, 2009), streets median (Sankalia, 2014) or urban sidewalks (Loukaitou-Sideris and Ehrenfeucht, 2009). A vast urban design scholarship highlights that research on public space and public life should be based on the observation of how people use and walk around in public space. Thus, on-site audits of the environment and direct observations are considered important research method and decision-making tools in studying urban public space and public life. The reminder of this section introduces Sham Shui Po context and the two public spaces selected as case studies. Then, the data collection and analysis are presented.

Case studies selection

Sham Shui Po, the case study examined in this article, is a low-income, high-density old neighbourhood in Hong Kong with insufficient public spaces (Siu, 2013) (Fig. 1). According to the latest population census, this district features a high percentage of adults over 65 (15.9%; HKSAR Census and Statistics Department, 2016) and the second-lowest household monthly income across Hong Kong (HK$23,000; HKSAR Census and Statistics Department, 2020a).

Sham Shui Po is often referred to as 'hou2 dzaap9' ([好 雜] 'undesirably mixed'), which describes an area with/for poor people and misfits (Cheng, 2013). It is characterised by a high percentage of older adults, low-income inhabitants, poorly educated people, recent migrants, and inadequate living spaces in the form of subdivided units (idem). These precarious and bed-size living spaces are a result of the subdivision of larger apartments to fit in more tenants and increase rent revenue. These residential spaces do not have any common room or other private facilities that can cater to social of physical activities of residents. Moreover, this grassroots neighbourhood is also home to second-hand markets and fabrics and electronics stores and includes a rapidly redeveloping and gentrifying area with cafés and workshop spaces (He et al., 2021). In the past, the government implemented some pedestrianisation projects to enhance the amount of pedestrian space in these highly congested environments (Murakami et al., 2021). While few indoor public spaces are available in Sham Shui Po, as libraries and indoor food markets, regulations controlling access and acceptable behaviours prevent

any informal use of these spaces (e.g. prohibiting sleeping, playing games, loitering, among others).
The neighbourhood is characterised by a limited amount of public open spaces per older person (1.9 m2; Gong et al., 2016), below the city-level standard of 2 m2 per capita (Lai, 2017). The few available public spaces are limited in size and design quality and mainly include micro- or pocket parks, or parks whose sizes are akin to street spaces. Linear public spaces are a typical form of public space in this Hong Kong neighbourhood and more in general in East Asian cities (Pu, 2001). Thus, we selected two small parks characterised by a linear layout in the same neighbourhood (Fig. 1): the Nam Cheong Street Sitting-out Area (NCSA) and Tai Hang Tung Park (THTP). The distance between the two parks is approximately 950 m. NCSA was chosen as representative of a street-level mixed-use public space developed along the road-space in high density environments. THTP represents a linear park with sport facilities, surrounded by community and institution services. Both NCSA and THTP have older adult-friendly fitness facilities. Located near a highly populous areas, both parks are frequently used by older adults and other residents.



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

Figure 1. Map of Sham Shui Po and location of Nam Cheong Street Sitting Area and Tai Hang Tung Park. Source: authors.
Alt Text: The geographical location and surrounding environment of the two parks (NCPA and THTP) selected in this paper.

Data collection and analysis
In this paper, we highlight how the city operates at temporal (Nadimpalli, 2020) and spatial micro-levels by focusing on NCSA and THTP. Firstly, we based the on-site audit of the environment on The Age-friendly City Initiative recommendations. In both parks,

two authors independently gathered extensive notes and photographic material on the pavement type and condition, visibility of paths, availability of shading, availability and layout of seating spaces, location of quieter spaces, crossings auditory signals and location of toilet facilities. In case of discrepancies between the two observers on the gathered data, the material was discussed until the two observers reached an agreement.

Secondly, given that older adults prefer to use parks in the morning (Duan et al., 2018), we selected the morning hours (from 8 am to 11.30 am) as observational period for this study. We observed morning activities in the public spaces and adopted unobtrusive observations, repeated walkthroughs, video recordings and notetaking over prolonged field visits, between October 2020 and October 2021. The fieldwork took advantage and matched the first author's daily commute routes. Although COVID-19 restrictions have been strictly implemented in Hong Kong since the onset of the pandemic, public spaces in the city remained open (Chen et al., 2020; Villani et al., 2020, 2021) during the data collection period.

Findings present the main observations emerging after debriefing and discussion of the environmental audit data collected and the direct observations of parks' use.

Findings

Park characteristics and accessibility

NCSA is a linear public space approximately 600 m long and 12 m wide, and it connects Tai Po Road and Tung Chau Street (Fig. 2). It is located a few blocks away from the Sham Shui Po mass transit railway, thus the area has high pedestrian flow. The blocks that border the street have basic facilities such as public toilets. NCSA is in a congested vehicular street median and stops vehicular traffic from perpendicular roads from passing through Nam Cheong Street, thus allowing uninterrupted pedestrian connection between several blocks. This layout allows pedestrians, in particular the ones with lower mobility, to have a dedicated and continuous walking path across the neighbourhood. The path is mostly paved with non-slip bricks and the numerous street crossings connected to NCSA have dropped kerbs and auditory clues. While during the day the visibility of walking paths is high, it significantly drops after dark with areas almost completely in dark. Thus, fewer users, especially partially sighted users and seniors, can use the park after sunset.

NCSA includes six sitting-out areas: the landscape design from area 1 to 4 consists of a central curved walking path of varying width (2.8 to 7.8 m), while areas 5 and 6 feature a central flowerbed (3.3 m wide) and two straight walking side-paths approximately 1.8 m wide. The central curved path allows to have larger flowerbed and clearly separates the park from the surrounding car-traffic and its noise. The walking pavements are mainly made of non-slip bricks in area 1 to 4 (Fig. 3), while they are made of concrete in area 5 and 6. While the concrete pavement is non-slip, its surface is rough, bumpy, and in some places, uneven, making it unfriendly to users with reduced mobility (among others). The flowerbeds bordering the central walking path are raised 45 cm from the road level, creating a sittable edge of stone material, while making the flowerbeds inaccessible. Scattered along this small park are 49 standard benches with armrests, which provide users with additional spacious seating spaces. The number and location of benches, scattered along the main path, allows users to stop and take rest anytime.

Some of the benches are under canopies, providing shaded seating spaces, as well as quieter and contained spaces. However, benches are surrounded by raised flowerbeds, often leaving little or almost no space around the bench. This seating arrangement is particularly unfriendly to wheelchair-users and those relying on walking aids.
While most of the vegetation in NCSA consists of small bushes and palm trees, larger trees provide shade along the walking path. In areas 2 and 3, a micro play space is surrounded by two pebble walking trails, built primarily for use by older adults. Having a children' play zone, a low-impact fitness path for older users and a rest area in the same place, makes these zones usable by residents and visitors of different age-groups. Fences border most areas of NCSA (1–4) and entry points (open from 7 am to 11 pm). These entry points are connected to street crossings, and the sidewalk curbs are lower than those of the road and feature tactile hazard warning tiles with raised dots. Main street crossings also provide audible traffic signals, while smaller street crossings only provide dropped kerbs. A map is present at the entry point of each area, but these maps do not follow guidelines that ensure accessibility for people with visual impairment.
THTP is a linear public space approximately 340 m long with varying width (max: 35 m; min: 5.9 m). It is bordered by fenced sports fields (football, rugby and gate ball fields) and connects Tong Yam Street and Boundary Street (Fig. 2). The area surrounding the park contains schools, public housing estates and private housing estates, and a public facility building in the middle of the park has one food stall and public toilets. The environment is not noisy or congested. THTP comprises three main areas: the northern part (near the Tong Yam Street entrance), the central part and the southern part (near the Boundary Street entrance). The basic design includes a central concrete walking path connecting the two entry points (Fig. 3). THTP has high fences bordering the park and two fenced entrances, open from 7 am to 10 pm. The North entrance is connected to the sidewalk through a dropped kerb. The South gate is approximately 1 m above the street level, with a ramp and a guide path. While this South entrance is wheelchair accessible, it is connected to an inclined sidewalk (for emergency vehicle entrance) which is considerably steep. Thus, it could be dangerous, especially for users with reduced mobility. This entrance is connected to the zebra crossing providing auditory clues. The space is adequately illuminated even after sunset.
The main walking path has a rough concrete surface, which is uneven in some places (e.g. seams). Accessible flowerbeds border the main walking path. Near the northern entrance, a large flowerbed follows the right edge of the walking path, but trees do not shade the space during warmer hours of the day. In the central area of the park, trees and other shading devices are completely lacking. The southern part, with large canopy trees is the only area which is adequately shaded during the warmer hours of the day. In the southern part, an additional walking space runs parallel to the main path and provides a large empty shaded space for unplanned activities or uses. The large unshaded areas along the THTP walking path could make the space unfriendly to senior users, among others.
Long benches (three-seater) were installed in this park, but the singular seating space is smaller if compared to a standard two-seater bench. Approximately 40 benches with armrests provide seating spaces in the southern area of THTP. While in the northern area there is only one seating space and in the central part, the only resting option is a sittable edge. This seating arrangement, clustered in the southern area of the park, is not conducive to independent mobility of seniors and other users with reduced

mobility, who cannot stop and take rest while walking across this park. Moreover tree-canopied benches providing shaded seating spaces are only available in the southern part of the park. In the centre of the park, one older adult playground (274 m^2) is equipped with several exercise machines (one arm press, one air walker, three bonny riders, four shoulder wheels and two double arm stretches). Some benches border this playground and the surrounding empty space can accommodate users with reduced mobility.

Figure 2. Map of Nam Cheong Street Sitting Area No.2 to No.5 (left) and Tai Hang Tung Park (right)
Alt text: Map of the NCSA (left) and THTP (right), including their geographical location, characteristics, infrastructure, etc.

Older adults' everyday activities in Sham Shui Po parks

The NCSA provides a linear pedestrian connection along the heart of Sham Shui Po and is regularly used by older adults to navigate and walk to nearby destinations. Older adults walking alone or as couples use this park for their daily activities such as shopping at the grocery store, street markets or hawker markets. Older women regularly walk in the park in the early hours of the day, carrying bags of groceries or items to sell in the second-hand market. Wheelchair users visit the park independently, but usually they do not sit on the benches, which are embedded in the raised flowerbeds. Older adults and other users with canes or walkers who are walking in the park or waiting for the crossing signal stop can rest at the sittable raised flowerbeds within NCSA. This activity was frequently observed near the street crossings where seniors were waiting for the green light while resting on the flowerbeds' edges.

As the vast majority of the nearby residential spaces lack living rooms or other such private communal spaces, the park is a destination in itself. NCSA is used as a resting

area to read newspapers, scroll through apps on smartphones or snooze (Fig. 4 and 6). Users often perform their activities in the shade, resting on covered benches under gazebos (Fig. 5). While individual physical activities are typically performed near the pebble walking trail, placing their belonging or walking devices on or near the children's games (Fig. 7). Often seniors stop their exercise and take rest while on this trail. After using the trail, older adults sit on the flowerbed edges or stretch leaning on the trail's railings.

Figure 3. Accessibility and spatial features of Sham Shui Po parks. Source: authors.
Alt text: Comparison of NCSA and THTP base on seven aspects: sidewalk, seating, signals, shade devices, boundary, and entry.

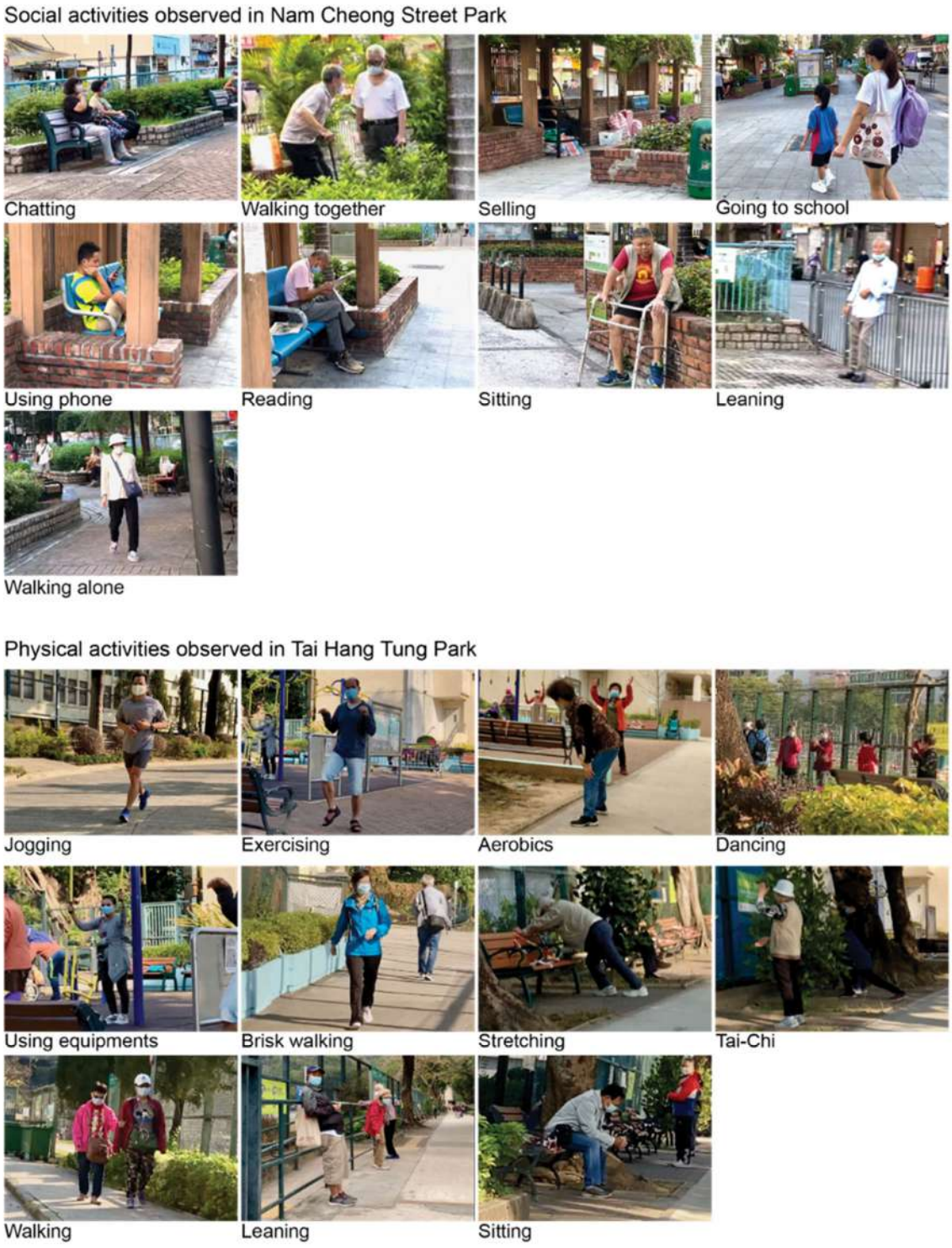


Figure 4. Activities observed in Nam Cheong Street Sitting Area and Tai Hang Tung Park.
Source: authors.
Alt text: The activities of older people in the two parks are different. NCPA has more social activities, and THTP is mainly for physical activities.

In the early hours of the day, THTP serves as an outdoor gym for older adults (Fig. 4). The southern part of the park contains two parallel walking paths, one of which allows various groups to engage in recreational physical activities. Here older women gather in groups of 10–15 to dance and engage in aerobics. These groups usually carry a speaker and rehearse their dancing choreographies. Other smaller groups or individuals engage in stretching routines. Some beat their arms behind their back, while others stretch their legs against a bench or a fence. In the central area of the park, some older adults use workout equipment to perform circuits or pull-down bars. Much older adults perform walking laps and are often accompanied by a domestic worker or family member. Seniors are rarely seen without a migrant domestic worker or a family member in this park, suggesting that older adults do not reach the park and use it independently.

The shaded southern area of the park appears to be more used than the central and northern parts, which have little shade and few benches. In these areas older adults pass by, but they are not observed using the space for recreational activities. In the central and northern parts, younger people usually jog, and accompanied older adults use the walking path to cross the park to their destinations. Fewer users sleep or engage in resting activities in the central and northern parts than in the southern area. Here, few seniors usually rest and read the newspaper after their physical exercises.

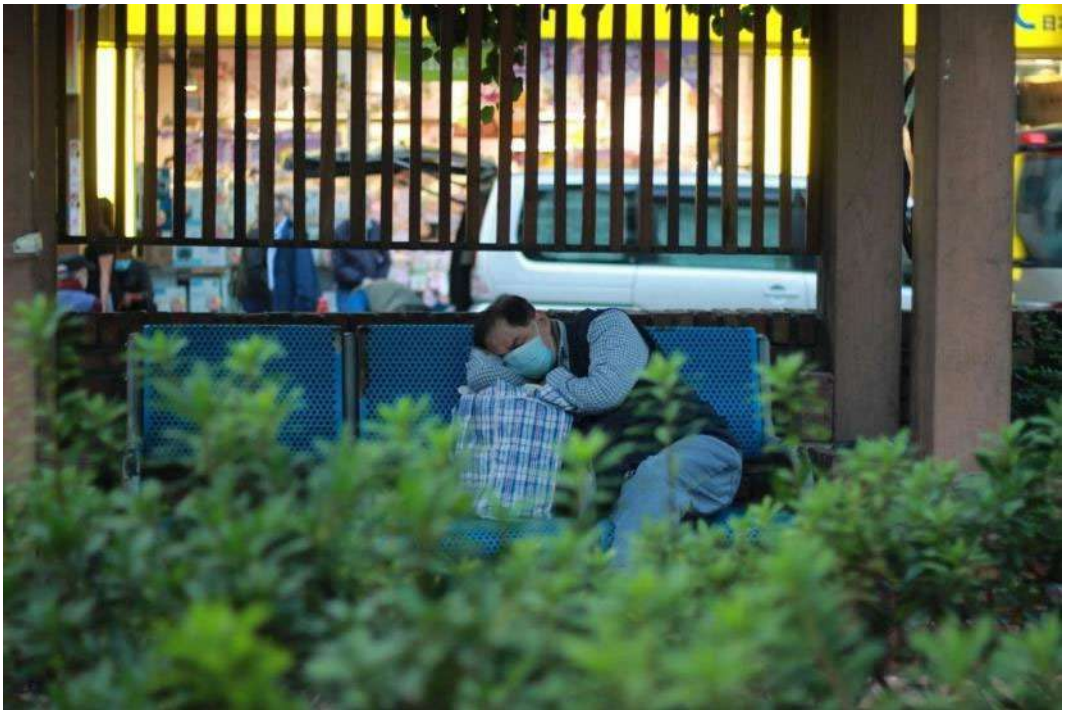


Figure 5. Older man resting in Nam Cheong Street Sitting Area
Source: Kasyap Sarvadevabhatla and Caterina Villani.
Alt text: An older man fell asleep leaning on his luggage on the NCPA's bench.

Figure 6. Women sitting on the curved sittable edge in the pebble walking trail (NCSA).
Source: Kasyap Sarvadevabhatla and Caterina Villani
Alt text: Two older women are sitting on the curved sittable edge and are chatting in the NCPA.

Figure 7. Older man exercising in Nam Cheong Street Sitting Area.
Source: Kasyap Sarvadevabhatla and Caterina Villani.
Alt text: An older man is doing exercise near the pebble walking trail while the other one is passing by.

Overlapping uses of space

Several uses and users are observed in both parks. Users of different ages, gender, class, nationality, disabilities and educational statuses are observed to gather, stay or pass by in the NCSA and THTP for various reasons or purposes. In particular, the proximity between play area and senior fitness corner seems to cater to children, older-adults and their caregivers sharing the same space in NCSA. Here, grandparents play with their grandchildren. In the same park, groups of young adults from the Indian subcontinent are observed socialising before lunchtime. During Sundays, older adults are sitting side-by-side migrant domestic workers, who gather *en masse* during their weekly day off. In THTP older and younger adults are observed training with different intensities. Younger adults train completing running lapses, while older adults use the low-impact equipment or dancing space. The seniors' caregivers, typically migrant domestic workers, usually sit on benches that encircle the older adults' playground, while socialising.

Beyond the 'Senior Playground'

Overall, both NCSA and THTP are vital spaces for older adults. NCSA is essential for their daily social activities, serving as a communal living room for low-income residents. NCSA is predominantly a site for social activities. It forms part of the daily route of residents, and people from different ethnicities mingle in the intergenerational space with old-time residents and children. Unaccompanied older adults with limited mobilities rely on NCSA to navigate the neighbourhood. While the NCSA design allows users to stop, seat and take rest, its hostile design of benches makes it difficult for older adults and other low-mobility users to fully utilize them.

THTP primarily functions as an outdoor gym for older adults. THTP is a hub for older persons to engage in physical activities. Larger groups in the park are often accompanied by caregivers. While seating spaces are pervasive in NCSA, in THTP, benches are mainly located in one area of the park and near the older adults' playground. This area of the park mainly caters to seniors. The shading area with seating opportunities is located in the southern area of THTP. As a result, older adults gather mainly in one area of this park. The foregoing observations from the Sham Shui Po parks agree with the findings of previous observational studies, particularly that morning is an active time for older adults in parks (Pleson et al., 2014). According to the WHO age-friendly recommendations, parks should contain some quiet and contained spaces to ensure that older adults can rest comfortably. Such spaces, with benches and shading are used for resting in NCSA (Fig. 5) and appear vital in a deprived neighbourhood, with underperforming living spaces. In THTP, the empty spaces of a walking path are highly used for group recreational activities, demonstrating the importance of flexible programming of public spaces. Defensive architecture (Smith and Walters, 2018) and inherent design layout may affect the older adults' use of the parks and the group size. In NCSA, while sittable edges may directly contribute to the independent movement of older adults with physical impairment, particularly near street crossings, they may prevent wheelchair users from gathering near the benches.

Limitations

This study is not without limitations. As a preliminary assessment, there are limitations in terms of quantity and extent of on-site data collected and in the analysis. The time-slot selected for the direct observations in this study is limited to the morning time. Wider observation period would allow more comprehensive findings.

Conclusion

The findings from the investigated extreme neighbourhood illustrate that parks fill in the fundamental function of providing space for the daily activities of older adults and other users (including providing physical exercise facilities and dedicated infrastructure for independent mobility and social interactions). Nevertheless, it is recommended that shaded, sittable and intergenerational space is considered in landscape planning, especially in similar urban environments. While the local policy-level agenda promotes older-adults friendly fitness areas, this preliminary assessment highlights other uses of the space, essential to Sham Shui Po older residents. Spaces for larger groups activities and zones for sedentary social activities seem to cater to this age group. Several studies have clarified the uses, needs and preferences of older adults in urban parks, highlighting the importance of physical and social activities; however, parks often fail to include spaces that cater to the wide needs of older adults. In several cities worldwide, policymakers and planners consider the inclusion of older adults in public spaces as an afterthought. Older adult playgrounds appear as the main design solution for the inclusion of older adults in urban parks. In Hong Kong and many other cities, these spaces are designed as very utilitarian (Loukaitou-Sideris et al., 2014), perhaps because the focus is on exercise, fitness and budget costs. While the design aims at active recreation, these places focus only on a limited set of physical exercises. The designs mostly fail to incorporate facilities for other social activities such as chess and card games and a layout of benches for interactive engagement. More spacious areas (or empty shaded spaces) with grass and trees would be ideal park locations for group activities. Additional research is needed to further examine the relationship between design, spatial features and usage by older adults. In this direction, a wider selection of case studies and data collected would enrich the research. The findings from the investigated extreme neighbourhood are relevant to highlight the critical role of landscape infrastructure and the need to provide inclusive and accessible public spaces for healthy ageing societies.

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A group of older persons playing draughts in Kwai Shing, a public housing neighbourhood in Hong Kong. Picture by Fabio Mantovani.

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Getting on Track: Accessibility Policy and the Design of the Mumbai Metro

Sara Rotenberg
University of Oxford, United Kingdom
sara.rotenberg@phc.ox.ac.uk

Irfan Nooruddin
Georgetown University, United States of America
in62@georgetown.edu

Abstract
In 1995, India passed the Persons with Disabilities Act - legislating requirements on accessibility for the first time. Since signing the UN Convention on the Rights of the Persons with Disabilities in 2007 and ratifying the Rights of Persons with Disabilities Act in 2016, these requirements have expanded to bold commitments on achieving universal design in all of India's public transit systems. Despite legal provisions for ensuring accessibility of public transport and strong harmonized guidelines, Mumbai's suburban rail network lacks adequate considerations for people with disabilities. From limited elevators and ramps to uneven surfaces and unmarked pathways, the suburban rail system remains dangerous for people with disabilities, and a recent audit suggests that fewer than 40% of railway stations are compliant with accessibility standards. However, inaccessibility is not limited to decades-old transit systems: even the recently constructed Mumbai Monorail and Metro Line One enact only some, not all, of the required accessibility standards. With its comprehensive Metro system currently under construction, Mumbai has a unique opportunity to prioritize universal design, which is a cost-effective, inclusive method, and to avoid previous accessibility mistakes, which are exclusionary and inefficient. This paper reviews the current state of transport accessibility across Mumbai's existing networks in the context of established best practices around the world to suggest ways to strengthen accessibility in constructing the new Metro. It argues that in order to achieve the government's publicly stated commitment to universal accessibility in this next generation of rail, the Mumbai Metropolitan Regional Development Authority should host consultations with people with disabilities, use architects with universal design training, and implement the guidelines for barrier-free built spaces outlined by the Central Ministry of Urban Development. These steps must also be complemented by applying the same principles in concerted effort to tackle the issue of inaccessibility on Mumbai's streets and existing rail lines to achieve universal accessibility and greater opportunities for people with disabilities.

Keywords: accessibility policy; Mumbai metro; transportation systems; disability-inclusive development

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Introduction

The most densely populated city in Asia, Mumbai struggles to meet the ever growing demands on its transportation infrastructure. Mumbai's suburban rail network is known for its overcapacity usage, and, while the newly opened monorail has limited ridership and connectivity, it represents an effort to modernize and improve Mumbai's rail network. Mumbai has mobilized over 330km of new metro construction of metro in the past few years, with over 171km currently under construction (Jha and Udas-Mankikar, 2019). The unprecedented scope and scale of construction promises to revolutionize Mumbai's congestion issues and increase travel options across the city. However, scale is not the only way Mumbai can be a leader for development infrastructure projects around the world. The new construction project also presents Mumbai with the opportunity to revolutionize its transport system for people with disabilities by integrating national and international accessibility standards into its design and construction.

Legal Framework in India

In 1995, India instituted the Persons with Disabilities Act. This Act outlines the standards and obligations for disability inclusion in India, especially for barrier-free transport systems. Specifically, Section 1 Clause 41B states that the government must provide "access to all modes of transport that conform the design standards, including retrofitting old modes of transport" (1996).

Since the Persons with Disabilities Act, 1995, several other legal frameworks have furthered the right to accessible transport in India. The UN Convention on the Rights of Persons with Disabilities (CRPD) was ratified by India in 2007 and the country implemented the Rights of Persons with Disabilities Act in 2016 to implement many of the CRPD clauses (Narayan and John, 2017). India's ratification of CRPD has several consequences for implementing accessibility, though various frameworks, such as Article 9 and General Comment 2 provide specific guidance on implementing universal design considerations (UN CRPD, 2014). Furthermore, the Ministry of Urban Development of the Government of India has created a set of harmonized standards from the Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons (1998), Manual on Barrier Free Environment (2002) and Annex D, National Building Code, Bureau of Indian Standards (2005) (Ministry of Urban Development, 2016). These policy frameworks were developed in consultation with people with disabilities and a range of government departments to enhance uniformity in application of accessible features across India (Ministry of Urban Development, 2016). These frameworks play important roles in not only trying to realize the obligations of UN CRPD, but also to implement key aspects of Sustainable Development Goal (SDG) 11, which has several monitoring indicators on transport accessibility for persons with disabilities (Vaidya, 2020, p. 80).

In Maharashtra, the State Policy for Persons with Disabilities was adopted in 2017 to facilitate greater multi-sectoral coordination, budgetary support, and policies to implement the goals of the Persons with Disabilities Act at the state level. Most importantly, the 2017 State Policy confirms an individual's right to accessibility and a barrier-free environment by prescribing modifications that make spaces - including transportation - accessible (*Maharashtra State Policy for Persons with Disabilities,* 2017).

Despite significant legislative protections for people with disabilities, the Persons with Disabilities Act, 1995 and the Rights of Persons with Disabilities Act, 2016 have noteworthy limitations. These weaknesses in the Act's language have allowed the Mumbai transport system's barriers for people with disabilities to persist in contravention to the spirit of the Act. For example, accessibility modifications are subject to economic potential and availability of funds (*Persons with Disabilities Act,* 1996; *The Rights of Persons with Disabilities Act,* 2016)[1]. This is a significant limitation: not only does the clause contradict the spirit of the Convention, but in practice it also means that accessibility is an afterthought rather than an imperative of design. This clause often makes it permissible to overlook accessibility, even though the exceptionally limited data on costs shows that including accessibility from the outset only adds about 1% to total construction costs (Metts, 2000). Furthermore, the legislation does not require any consultation with people with disabilities at any stage of construction. The consequence is that, accessibility, when enacted, is seen through an accessibility-design lens that seeks to modify an environment to be accessible as opposed to through a universal design approach, which has universal access as the guiding intention for design (Human Development Unit, 2005). For example, elevators to platforms are often located where they fit, as opposed to considering where might provide the most efficient, fewest-step path through the station for people with mobility impairments. Nor are there any considerations to the ways in which different identities intersect to compound exclusion: for instance, most trains have a limited number of women-only cars, but the location of these is not accounted for in the design and location of accessibility features. Women with disabilities seeking to access the rail network are thus effectively invisible to planners who ignore their intersectional challenges and consider either only gender (the designation of women-only cars) or disability (the creation of accessibility features), ignoring that the two intersect in substantively critical ways. No wonder then that Mumbai's public rail transportation systems have previously struggled with achieving universal accessibility. However, as Mumbai's public transport system undergoes a transformation with the construction of the metro, there is an opportunity to further universal accessibility in the city.

Existing rail line accessibility

Suburban Rail Lines

The British built Mumbai's rail system in 1925. Today, the Central, Western, and Harbour lines of Mumbai's famous suburban railway system see a daily ridership of upwards of seven million people (Collective for Spatial Alternatives and Indian Centre for Human Rights Law, 2017). Currently, the suburban railway network covers close to 319km, and makes up 88 percent of all travel activities in the city. The ageing transport system has struggled to keep up with rapid population growth and increasing ridership, which has made Mumbai's suburban rail system the most densely populated in the world, running at almost three times its capacity. To combat this growing problem, Mumbai has tried not only to invest in new forms of transport, as will be discussed later in the paper, but is also trying to invest resources into the existing suburban railway system to improve service delivery (Sehgal and Surayya, 2011). For example, the

[1] https://legislative.gov.in/sites/default/files/A2016-49_1.pdf

Government of Maharashtra and the Ministry of Railways jointly created the Mumbai Railway Vikas Corporation (MRVC) Ltd. which is tasked expressly with improving service, capacity, and traffic throughout the suburban railway network (Ministry of Railways, 2016).

The suburban rail lines need significant modifications to follow the contemporary accessibility standards. The inaccessibility of the suburban rail network was the subject of a 2014 Public Interest Litigation, but there have not been significant changes to accessibility since the accessibility audit was conducted in 2014 (Collective for Spatial Alternatives and Indian Centre for Human Rights Law, 2017). The audit identified eight areas that served as barriers to accessibility on the line, including:

1. **Entrance Areas** were evaluated based on how they accommodated various types of physical and sensory needs, including handrails, ramps, and surface quality. Overall, stations were found to have limited handrails and even fewer accessible routes to level changes;
2. **Ticketing counters** were assessed based on their signage, height, and lighting. While most stations had adequate signage, few had an accessible counter that could accommodate access needs and requirement for persons who are blind or partially sighted, persons who are Deaf, persons who are hard of hearing, persons who are using a wheelchair;
3. **Platforms** were inspected for safety and guiding elements, floor surfaces, level changes, and toilets. Platforms seem to be one of the least accessible parts of each station on the suburban rail, as there are few toilets, safety and guiding features, and almost no accessible routes to transfer platforms. Limited signage on the platform to indicate classes and female-only cars also make it challenging for persons who are blind and partially sighted to navigate independently. Here again the absence of an intersectional perspective ignores the particular needs of women who are blind or partially sighted seeking to board the female-only compartments;
4. **Circulation features**, how commuters move within a station, were examined and determined to be quite good in terms of amount of space and unobstructed pathways. However, there were limited surface quality markers for people who are blind and partially sighted, and those that are present are rapidly ageing;
5. **Level changes** were assessed based on size, quality, and type of level change available. Despite scoring well on size requirements, such as wide stairs, level changes are the most significant barrier to accessibility on the suburban railway. Almost all stations have stairs as the primary method for level changes, and even then, few have accessible features such as handrails, tactile pavers, or adequate signage;
6. **Toilets** were investigated for accessible features to help people with disabilities independently navigate the toilet, including safety features (like handles and alarm systems), signage, size and location. Many stations were found to not have accessible toilets, and most of those that did were either not serviced or not open for use. Limited numbers of toilets for women at train stations compounds these issues;
7. **Waiting Areas/Offices/Eateries**, including platform food stalls or counters, were appraised for their accessibility and found that, of the stations that had such services, the majority were inaccessible based on height of counter, space, and audio/visual aids;

8. **Parking/Drop-off Areas** were investigated to see if there were adequate visual indicators, unobstructed approaches, and appropriate distances and parking spaces for people with disabilities. While very few had accessible parking spaces, there were also very few unobstructed entrances for people with disabilities, and almost no trained staff to assist someone with a disability when they require it.

Additionally, the cars themselves provide significant challenges for people with disabilities. While many trains have a reserved car for people with disabilities, these cars offer limited accessible features and the other cars on the train do not offer any reserved seating for people with disabilities. The accommodation is principally the designation of a car for people with disabilities but the car chosen for this purpose is the same as any other and is not modified to enhance accessibility. For example, the significant gap between the platform height and the car (sometimes 15 cm or higher) is prohibitive for any person using a wheelchair or with reduced mobility to enter or exit the car. Within most cars, there is no way to secure a wheelchair safely during travel. Such challenges also demonstrate how all aspects of the rail network require attention to become accessible to all persons with disabilities.

Another barrier for accessibility on the suburban rail network is the congestion, particularly at high-volume stations and hours. With packed stations, platforms, and trails, it is challenging to have the space required to navigate the station platform as a person with a disability: it is so crowded that a person with visual impairment would find it difficult to use a white cane for navigation, for example. In particular, boarding the train during these high-volume periods is challenging and particularly dangerous for people with disabilities. The congestion requires swift entry and exit of tens of people, which does not leave sufficient time or consideration to enter or exit the train safely. Despite significant and necessary alterations for improved accessibility, investments in accessibility often compete with higher-priority projects, particularly on the suburban rail networks where overcapacity and inefficiency dominate agency priorities. Since India's disability laws require built environments to become barrier free only when financially feasible, accessibility projects have limited support, both financially and politically (*The Rights of Persons with Disabilities Act,* 2016). What is most interesting to note, however, is that the areas where the suburban railway fares well on accessibility are also the areas that serve to reduce congestion. For example, widened stairwells not only help to reduce congestion, but also make the space more accessible for people with disabilities to traverse. Therefore, greater care should be given to see how certain alterations to stations can combine the dual goals of reducing overcapacity and traffic and increasing accessibility, and policymakers should resist the tendency to treat universal design obligations as an "extra" that benefits only a limited segment of society.

Monorail

The Mumbai Monorail was constructed to alleviate congestion and enhance connectivity to main transit systems, including the Western Railway and, eventually, Metro Line Two. The first 8km of the Monorail opened in 2014, and the final part opened in 2019 to form a 20km corridor. Today, the Monorail's 17 stations can serve approximately 150,000 to 200,000 commuters per day (Mumbai Metropolitan Region Development Authority, 2019).

The Mumbai Monorail is the first major transit infrastructure project in Mumbai since India's passage of the Persons with Disabilities Act (*Persons with Disabilities Act,* 1995) and

The Rights of Persons with Disabilities Act (2016). Visiting the Monorail, some considerations for passengers with disabilities are clearly visible. For example, stations are equipped with elevators to aid with level changes, and warning pavers and fences assist passengers in safely entering and exiting the car. Within the car, the small gap, high-contrast maps, and priority seating for people with disabilities meet some of the harmonized guidelines for accessibility (Ministry of Urban Development, 2016). However, the Mumbai Monorail is by no means universally accessible or entirely in-line with the legal requirements; rather, several deficiencies persist. For example, tactile pavers are sporadic throughout the stations and often do not lead users to the train. There is typically a gap between the guidance and warning pavers, rendering blind people dependent on another person to navigate the entirety of the station. Limited signage through the station and low-volume announcements also makes it difficult to navigate the stations independently. Therefore, while the Monorail has been able to consider aspects of the Harmonized Guidelines, it still requires significant modifications to be universally accessible.

Metro Line 1

Mumbai Metro Line 1 opened in 2014 and serves as the main connection between the Western and Central Railways. While only 11km long, it is symbolically significant as the first metro line to open amid Mumbai's push to open thirteen lines across the city. Today, it serves an estimated 300,000 people per day (Mumbai Metropolitan Region Development Authority, 2019).

From an accessibility standpoint, Metro Line 1 is an improvement over the Monorail, but similar considerations still bear scrutiny. Within the station, the option for elevators, stairs, or escalators is available, with tactile pavers leading users from the street to the elevator to the car. Benches are staggered throughout the platform to provide a resting stop for people with reduced mobility or tired travellers. Within the car, a slight gap between the platform and the car, high contrast maps, and reserved spaces for the elderly and people with disabilities make it quite accessible. In fact, Metro Line 1 features two wheelchair spots per car that are equipped with handrails to steady a wheelchair user on their journey.

However, Metro Line 1 still lacks some basic accessible features specified in the harmonized guidelines. Entering the station, there is no accessible counter - one that is equipped with audio-visual aids and a lower counter height - to assist people with disabilities (Figure 1). Further, Metro Line 1 lacks accessible toilets in each station and has very limited signs guiding users to entrances, exits, and accessible routes. Moreover, while there is a limited gap between the car and the platform, it is not uniform in texture or size at each station (Figure 2). Additionally, the handrails at the wheelchair spot in each car are beneficial, but having rings and belts to fully secure a wheelchair would add another layer of protection for people with disabilities.

Figure 1. Ticket Counter at Ghatkopar West Station, Metro Line 1. The image shows two people at a marble counter that is at least 3ft high (depicted with a neon green arrow) with a glass barrier. Overhead, there is a poster with ticket prices. However, there is no accessible counter that is lower or has audio-visual aides to assist people with disabilities. Image Source: Sara Rotenberg.

Figure 2. Different gap textures on Metro Line 1. On the left, four people walk across the gap between the car and the station platform that has a small tooth-combed insert to bridge the gap. On the right, another station has a small gap (less than 5cm) between the car and the platform. Red arrows point to these features and illustrate the variable gap textures between cars and platforms at stations. Image Source: Sara Rotenberg.

The Mumbai Metro design includes several accessible features, but, as has been illustrated above, their implementation is not ideal for people with disabilities. The pavers are perhaps the most striking example of such oversight. For example, the tactile pavers that guide people through the station independently are only linked to the elevator, making the implicit assumption that a person who is blind or partially sighted would not be able to or want to take the stairs. Furthermore, while lifts are available at each platform, they are often on the far end of the platform, at quite a distance from the women's compartment or the destination car of the tactile pavers. For users with reduced mobility, these long distances can be arduous and difficult to navigate. While the few accessible features may have been instigated by the MMRDA, the oversight of other key accessibility requirements suggests that international companies who produce metro rail cars may have some standard accessibility features that support accessibility. This underscores the idea that, in addition to national, regional, and local laws on

accessibility, systems-level nudges, such as those from transportation vehicle manufacturers, could play an important role in further improving universal access around the world.

Finally, one of the most interesting gaps in accessibility on Metro Line 1 is the lack of consideration of accessibility in the women's compartment, underscoring the need for an intersectional approach to universal design. Set furthest away from the elevator, the women's waiting area and compartment are also far from station seating and benches. Within the compartment, the layout does not have any space for wheelchairs or other accessibility features, such as reserved seating. These choices force women to have to choose between accessibility and gender safety. This could have been easily overcome by additional signs and support in the women reserved carriage. It is worth underscoring here that accessibility safeguards, such as elevators, wheelchair spaces, and reserved seating, do not only benefit people with disabilities, but also expectant mothers, older women, and mothers travelling with their children. Therefore, the fact that the accessible features of the metro are so far away from the women's compartment signals shows that there are limited considerations for the functionality of such accessible modifications for women with disabilities, as well as for their positive benefits for many women without disabilities.

Best practices in accessibility in rail systems around the world

Transit systems around the world have begun investing in accessibility, often under pressure from legal mandates and political forces. Many metros around the world were built before accessibility standards or universal design principles were mandatory, or even recommended, and so significant work has had to be done to retrofit them to be considered accessible (Mead et al., 2017). For example, to prepare for the 2020 Summer Olympic and Paralympic games, Tokyo altered its metro and city streets to be more accessible (Organizing Committee of the Tokyo Olympic and Paralympic Games, 2017). New features include: large braille maps; increased signage that includes distances to entrances/exits/platforms; trained staff to assist people with disabilities, including setting up a transportable ramp for wheelchair users to enter/exit the carriage; reduced gaps and raised entrances to specially-marked cars for persons with disabilities that enable people to enter and exit a carriage independently (Oda and Grisdale, 2016). These features have transformed Tokyo's existing system into a notably accessible metro in the world.

Similarly, since the passage of the Americans for Disabilities Act in 1990, several transit networks in the United States have increased their accessibility. While cities like New York still have considerable ways to go to become more accessible, Washington, D.C. and Los Angeles' (LA) metros are 100% accessible (Mead et al., 2017). In fact, Los Angeles Metro Authority is one of the leading experts in accessible design. The LA metro has impressive accessibility features, like designated spots for people with disabilities; reduced fares; an accessible website, phone line, and application to assist with trip planning; notices and announcements about elevator closures; barriers between car gaps to prevent customers who are blind or partially sighted from falling between the cars and onto the track bed; and assistance buttons that are auditorily and visually accessible. A particularly impressive aspect of the Los Angeles Metro Authorities' approach is their ongoing consultation with people with disabilities: each

month they host sessions with a Metro Accessibility Advisory Committee to gain feedback on accessibility and they publish quarterly audits of wheelchair accessibility across their transport system. This sustained interaction with the disability community demonstrates a continued commitment to accessibility, which is why LA is widely considered one of the most accessible transit systems in the world (Los Angeles Metro Authority, n.d.).

Within India, Delhi's new metro is seen as the leader in universal design and accessibility. Before construction began, Delhi's authorities consulted with various groups of people with disabilities to examine how they could incorporate different access requirements into their design. Ramps, stairs with rails, and lifts enable universal access to the station, with frequent signs that indicate accessible routes guiding users through the station. Tactile pavers are strategically placed throughout the station close to handrails to provide additional support for users. In fact, the tactile pavers have multiple pathways so that people can choose either the stairs or the elevator at level changes. Throughout the car, seats for people with disabilities, and bracing for wheelchair users, are available, while small gaps and frequent audio announcements provide people with various disabilities the opportunity to navigate the metro independently. The modern design aesthetic of the metro enhances its accessibility—from the use of smooth stone flooring to its dynamic, wide entry stalls. Delhi's metro shows that accessibility features are not mutually exclusive to design and can be done in an aesthetically pleasing way (Raghupathy and Shreyas, 2018). Crucially, Delhi's experience also proves that considering accessibility and universal design at the time of construction does not add significantly to costs. In fact, it is estimated that such considerations at time of construction in Delhi cost less than one percent of total construction costs, compared to the costly process of retrofitting spaces (Human Development Unit, 2005). Delhi provides an excellent comparison and roadmap for Mumbai—both are megacities with similar budgetary, political, and geographic constraints within the Indian context. While other cities in India, such as Hyderabad and Nagpur (another Maharashtrian city) have also developed metros in the past decade, their relatively small scale makes them a less appropriate comparisons for development, but may be helpful for comparing the impact of accessible metros for persons with disabilities.

Path Forward to Universal Accessibility for Mumbai Public Transit

The path to achieving universal accessibility for Mumbai public transit is not without significant challenges and limitations. For instance, many posts and gantries present at station entrances along the suburban railways were implemented for crowd control and to keep cars and auto-rickshaws from using pedestrian walkways. The removal of such barriers would necessitate a cultural shift in driving practices and greater security measures amid an already congested station and roadway. Furthermore, enacting accessibility measures are exceedingly complicated due to the different jurisdictions involved in the different parts of the stations on the suburban railway network. While the metro and the monorail are under the sole jurisdiction of the Mumbai Metropolitan Regional Development Authority (MMRDA), first mile and last mile issues—those pertaining to how individuals get to and from the metro to their final destinations—remain a significant challenge for accessibility and an area where the MMRDA could

collaborate with sister agencies to ensure genuine accessibility to their services. Finally, investing the necessary resources into making universal accessibility a reality requires considerable political commitment, as there are numerous competing and more tangible ways to spend limited budgetary resources and precious political capital. Collecting data on user statistics, economic costs, and impact on the lives of persons with disabilities could also enable Mumbai to be a leading global example of how to design and implement accessible metros.

Such challenges notwithstanding, making Mumbai's transit accessible for its nearly one million people with disabilities is not just a laudable goal; it is an important legal mandate. Therefore, Mumbai should consider the following recommendations for both the new metro and existing transit systems to achieve universal accessibility:

- ***Host Consultations with the Disability Community –*** One of the most critical and effective things Mumbai can do to become more accessible is to consult with persons with disabilities on how to enact the Harmonized Guidelines and Standards. While the guidelines provide a framework for implementation, as the LA metro's experience underscores, consulting with the users to identify areas where the guidelines are less functional or and to receive suggestions for improvement can play a large role in improving accessibility. Furthermore, by involving people with disabilities in the process, one can increase awareness about the inaccessibility of built spaces and the efforts that Mumbai is making to eliminate these. Moreover, it empowers people with disabilities by manifesting that they are valued members of society and gives them the agency to advocate for themselves on other issues. Adopting an intersectional perspective is critical in these consultations. As discussed in this paper, women with disabilities face compounded challenges. Older individuals with disabilities likewise experience the rail system differently than their younger selves would have, and these perspectives are often ignored when planners focus only on a particular identity (e.g., disability status, gender, or age) at a time;
- ***Improve Online Information and Communication*** – Clear signage and information about the accessibility of spaces is imperative. Los Angeles has all of its accessible features and information on its website. Likewise, the MMRDA should invest in making information about accessibility available online so that it is not only available to prospective users with disabilities, but also to provide the international community with an example of a universally accessible metro in a lower middle-income nation. In the physical spaces, there should be clear maps and signs noting the distances between features and accessible routes to guide users through the station in a way that suits their needs. This should be supplemented by tactile pavers noting barrier-free routes (via both stairs and physically accessible routes) and loud announcements to communicate this information to passengers with audio and visual impairments;
- ***Increase Accessibility for the Women's Compartment –*** Given the existing metro's limited considerations for women with disabilities, Mumbai could begin its reforms by increasing accessible features in the women's compartment. This is particularly salient because of the secondary benefits of accessible features for expectant and new mothers and older persons. In particular, Mumbai should consider installing two elevators and more benches on each platform to make the distance between the various compartments and the accessible features equidistant. Particular attention should be paid to reducing the distance between the women's compartment and accessible platform features;

- ***Prioritize Projects That Have Accessibility as a Secondary Goal -*** Recognizing the additional financial capital required to enact accessibility measures, paradoxically, the initial focus of increasing accessibility should not be framed as the primary purpose of a project. Instead, the MMRDA and MRVC should prioritize projects that reduce congestion and increase efficiency but have secondary impacts on increasing accessibility such as widening pathways and installing ramps. By prioritizing such projects, there can be meaningful steps towards universal accessibility, while respecting political attention to higher-priority projects. However, such concessions should only be a short- to medium-term solution, rather than a long-term strategy, as anything short of dedicated focus on the needs of people with disabilities will be insufficient to achieve universal access;
- ***Create a Grievance Reporting and Monitoring System –*** Not all access barriers originate from permanent structures or planned maintenance. For instance, an elevator might be out of service, or a new garbage can might block the barrier-free tactile pavers. As such, there should be a system for passengers to express grievances surrounding accessibility. While other agencies use Twitter as a tool to monitor and respond to complaints (Los Angeles Metro Authority, n.d.), one possibility is to integrate these grievances into Aaple Sarkar--the flagship e-governance platform of the Government of Maharashtra. Since Aaple Sarkar already has a Grievance Redressal Portal (Shahaida, 2016), it could be expanded to include an accessibility field that could relay accessibility challenges related to transport networks directly to the relevant agencies to address the issues (Government of Maharashtra, 2019);
- ***Advocate for International Support for Retrofitting Projects -*** While the World Bank has committed to supporting disability-inclusive design in its new urban mobility and rail projects by 2025 (World Bank, 2018), there are no indications that this will support retrofitting of older infrastructure projects. Since Mumbai - and many other megacities in lower- and middle-income countries - are not only building new transport projects, but also need to maintain existing rail lines to meet demand, greater considerations and funding opportunities for retrofitting older spaces are required. As a recipient of donor funding for its metro, Mumbai could pioneer the acceptability of accessibility conditionality in an effort to lead the practice of mandating universal design in funding agreements to support metro construction. Furthermore, the need for such a funding mechanism is not isolated to cities like Mumbai, but also others like New York and Paris, which still have older transit systems that are unable to serve people with disabilities fully (Mead et al., 2017). Therefore, despite a demonstrated need for retrofitting old transit systems to be accessible, limited funding curtails such efforts, and so there should be an international funding mechanism to invest in accessibility.

Conclusion

Mumbai is at a critical juncture, with a once-in-a-generation moment in its infrastructure development to make the Mumbai Metro universally accessible. Beyond the legal requirements for universal design considerations, the economic savings of investing in universal design at the outset are compelling. Adding only 1% to building costs could have transformative impacts on the social and economic potential of persons with disabilities in Mumbai. Using this opportunity to collect data on building costs and the

impact for persons with disabilities could also provide much-needed evidence to catalyze accessibility in transportation systems around the world. However, the challenge is to engage the disability community adequately and adjust social norms to make the accessible features work the way they are designed. Furthermore, it is critical to remember that this is only one small part of the puzzle; limitations in other parts of Mumbai's infrastructure, like sidewalks, roads, and traffic stops, are significant first-mile, last-mile barriers for people with disabilities. Therefore, the metro should be seen as a first step to kickstart the journey to achieving universal accessibility in Mumbai.

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Pedestrians with Disabilities and Town and City Streets: From Shared to Inclusive Space?

Anna Lawson, Ieva Eskytė, Maria Orchard
University of Leeds, United Kingdom
A.M.M.Lawson@leeds.ac.uk | i.eskyte@leeds.ac.uk | M.Orchard@leeds.ac.uk

Dick Houtzager
Disability Studies in Nederland
dick.houtzager@gmail.com

Edwin Luitzen De Vos
CHAMP
edldevos@gmail.com

Abstract
This article highlights the importance of ensuring that accessibility and inclusion for people with disabilities, as required by the UN Convention on the Rights of Persons with Disabilities, is fully embedded in efforts to reduce the dominance of cars in city streets and promote more active modes of travel (including walking, wheeling and cycling) in line with global agendas. Drawing on emerging findings from the Inclusive Public Space research project, we present and critically reflect on types of difficulty associated with streets in which what is commonly known as a 'shared space' design operates, and those in which all or part of the available space is designated as primarily for pedestrian use. The data on which this analysis is based is qualitative, deriving from 83 semi-structured interviews about the experiences of our participants (a substantial majority of whom identified as having a disability) in two large UK cities and their wider metropolitan areas. The types of exclusionary experience described by our participants are organised into two broad overlapping categories – first, difficulties associated with navigating environments in which kerbs have been removed; and second, difficulties associated with interacting with vehicles (including bicycles) within and at the boundaries of shared or pedestrian spaces. Our findings are in line with those of previous projects that challenge and complicate claims that 'shared space' design, with its removal of kerbs and controlled crossings, enhances safety and mobility for all. Further, they demonstrate that many of the concerns associated with 'shared space' environments are also applicable to other types of street environment intended primarily for pedestrians. As well as highlighting and raising awareness of potential types of exclusion against which action should be taken, we draw attention to measures that could reduce the risk of such exclusionary barriers arising and persisting.

Keywords: shared space, pedestrianisation, accessibility, people with disabilities, exclusion, human rights

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1. Introduction

Commitments to increasing active travel, enhancing environmental sustainability and making town and city centres more vibrant and people-friendly have combined to generate powerful trends toward pedestrianisation and the opening up of streets to cyclists and people using other forms of micro-mobility (Parajuli and Pojani, 2018; Villani and Talamini, 2021). Such commitments are fostered and supported by Global Agendas such as the United Nation's (UN) Sustainable Development Agenda 2020-2030 (UN 2015) - particularly goal 11 of the Sustainable Development Goals (SDGs) on 'Sustainable Cities and Communities'), and the New Urban Agenda (UN 2016). The importance of ensuring that such initiatives produce spaces which are accessible, inclusive and to which there is 'universal access', including for people with disabilities (PWD), is highlighted in Target 7 of SDG Goal 11; and is a cross-cutting priority in UN Habitat's strategic plans for 2020-2023 (UN General Assembly 2020, para 76). It is also firmly embedded within the UN human rights system – most notably by articles 9 and 19 of the UN Convention on the Rights of Persons with Disabilities (2006) – henceforth CRPD.

Article 9 of the CRPD sets out the right to accessibility and requires States that have ratified the Convention to take 'appropriate measures' to ensure to persons with disabilities 'access, on an equal basis with others, to the physical environment' and 'transportation' and 'other facilities and services open or provided to the public". It goes on to specify that these measures should apply to 'roads' and 'transportation' as well as 'buildings, and other indoor and outdoor facilities' (CRPD, art 9(1)(a)). The UN Committee on the Rights of Persons with Disabilities (CRPD Committee) notes that implementing these rights is 'a vital precondition for the effective enjoyment of many rights covered by the Convention' (UN CRPD Committee, 2014 para 36) and that the CRPD envisages a world in which persons with disabilities can 'move in barrier-free streets' (2014 para 15). Article 19 sets out a right to live independently and be included in the community. Paragraph (c) of this requires States to take measures, including ones ensuring that 'community facilities for the general population', such as town and city streets, 'are available on an equal basis to persons with disabilities and are responsive to their needs'. In its general comment on this provision, the CRPD Committee repeatedly stresses that Article 19 requires that community facilities are accessible (2017 paras 14, 33, 38(d), 53, 54, 59, 79 and 98(b) and (d)).

Accessibility and inclusion should therefore be firmly embedded within initiatives to give greater priority to the needs of pedestrians, cyclists and others using different modes of active travel (Greed, 2011). In practice, however, there is a risk that new and possibly unanticipated forms of disabling barrier will be created – particularly in the absence of strong and effective mechanisms for involving persons with disabilities and their representative organisations in the early stages of planning and design (Park et al., 2019; Keates et al., 2003; Reuter, 2019) – a practice required by article 4(3) of the CRPD and recommended by UN Habitat Assembly 2019A (Annex paras 51 and 72 and 2019B (para H6)).

In this article we draw on emerging findings from the Inclusive Public Space project (IPS) – http://inclusivepublicspace.leeds.ac.uk. This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (advanced grant agreement No 787258). It is a five-year study, based at the University of Leeds with international collaborators in the Netherlands, India, Kenya and the United States of America. The authors of this paper all work on the project.

In this paper we reflect on various difficulties experienced by persons with disabilities and others in connection with shared space areas and other types of pedestrian environments with which our participants identified similar types of difficulty – notably pedestrianised spaces and pavements and pathways shared between pedestrians and cyclists. Difficulties reported include ones arising from design features as well as ones arising from the unlawful or irresponsible behaviour of cyclists or drivers. While the data presented here is UK-based, its implications for accessibility and inclusion are relevant to other countries, particularly those in Europe and the Global North. Our study makes a novel contribution in that it draws on extensive qualitative data which is neither confined to a particular street or type of pedestrian. Although we initially envisaged that the focus of this paper would be on shared space schemes, a close analysis of our data made it clear that participants understood the term 'shared space' broadly and that many of the difficulties they associated with it also have implications for other types of urban developments aimed at increasing pedestrianisation and active travel. Our findings and conclusions therefore have relevance beyond debates about shared space.

2. Shared space: Origins and UK Policy Context

Shared-space, in the mobility and transport context, is a form of street design developed in the Netherlands during the 1970s and 1980s by Hans Monderman, a Dutch traffic engineer. It aims to transform interactions between road users by creating environments in which drivers take cues from pedestrians and other road-users rather than simply complying with traditional forms of traffic regulation. In its conventional or pure form, it thus entails the removal of all traffic controls, including traffic lights, signs and markings, kerbs and physical divisions between pavements, roads and cycle paths. A range of measures (such as natural features, aesthetic objects and speed limits) are often used to promote positive driver-pedestrian interaction (Che et al., 2021). The element of uncertainty introduced by such schemes is intended to increase safety (de Hann, Nota, 2012) – the idea being that, if it is no longer clear who has the right of way, informal codes of human politeness will come into play (Kenniscentrum, n.d.). Road-users are thus expected to follow informal social protocols, act responsibly and cautiously and negotiate their right of way (Beitel, 2018; Havik et al., 2012; Havik et al., 2015).

Shared space design integrates vehicular traffic with pedestrians and other forms of human activity and aims to create environments which are not just part of the travel chain, but also pleasant spaces in which to be (Havik et al., 2015; Kaparias et al., 2015). They typically have limited or no formal traffic control (e.g. controlled pedestrian crossings and traffic lights), nor physical separation between vehicles and pedestrians (Hamilton-Baillie, 2008; Beitel et al., 2018; Che et al., 2021). The term 'shared space', however, lacks technical precision and is used to cover a range of different types of design. Kaparias and Li (2021) suggest that shared space should be regarded as a set of 'context-sensitive design treatments' aimed at creating pedestrian-friendly environments, noting that they range from the type of approach discussed above, which they refer to as 'naked streets' (because they have no or very little delineation between pedestrians and vehicles), to more 'light-touch solutions' involving, for instance, the replacement of controlled pedestrian crossings with uncontrolled ones.

There are some suggestions from the Netherlands (Kijkopkennis, 2018) and the UK (Swinburne, 2006) that the introduction of shared space can increase the safety of streets

– with traffic moving more slowly and the rate of major accidents declining. Shared space is also said to hasten progress toward a sustainable transport system (Hopkinson and Wardman, 1996; Wardman et al., 1997; Department for Transport (UK), 2011) and to better relationships between people, traffic and places (Hamilton Bailie, 2008; Hammond and Musselwhite, 2013). Because of perceived benefits such as these, the approach has been replicated extensively, including in the UK.

Nevertheless, shared space schemes have also raised serious concern. Evidence suggests that pedestrians face higher risks of collisions with pedal and electric bicycles (Paschalidis et al., 2016; Delaney, 2016; Hatfield and Prabhakharan, 2016; Poulos et al., 2015; Beitel et al., 2018; Liang et al., 2021). There is also growing evidence that they present particular risks for persons with disabilities and older pedestrians (Atkin 2010; Hammond and Musselwhite 2013; Matthews et al. 2015), many of whom therefore avoid such streets (Thomas, 2008; TNS-BMRB, 2010). This can lead to spatial and social marginalisation (Imrie, 2012), erode social infrastructures and entrench inequalities (Gharebaghi et al., 2018; Latham and Layton, 2019).

In the Netherlands, while shared space schemes continue to expand, concerns such as these have recently prompted a conversation amongst local authorities and road-users (Gerlag et al., 2015). A number of cities have strengthened traffic regulation in shared spaces, e.g. by prohibiting cyclists from using them between certain times of day. There are also examples of places in which shared space schemes are being completely abandoned (Maas, 2020).

In the UK too, recent years have witnessed a heightened profile for shared space in public debate. In 2017, a cross-party parliamentary committee (House of Commons 2017, para 170), noted widespread concerns about the extent to which the introduction of such schemes complied with the Equality Act 2010 – both in respect of the anticipatory reasonable adjustments duty and the Public Sector Equality Duty. One cause of the problem, highlighted by both that Committee (paras 172-175), and an earlier House of Lords Committee (House of Lords 2016, paras 323-324) was the lack of clear central government guidance on shared space. Such guidance as there was – in the Department for Transport's Local Transport Note 1/11 (2011) – was withdrawn in England in 2018, alongside the introduction of a government moratorium on the introduction of new shared space schemes, pending the publication of revised stronger government guidance. This was in line with recommendations from the House of Commons Committee (2017, paras 173-4 and 181) and others – including Holmes (2015, p 20) and the Disabled Persons Transport Advisory Committee (2018). Analogous steps have not yet been taken in Scotland, however.

3. Research Design, Methods and Analysis

This paper draws on qualitative data from the IPS project - a multinational study investigating problems caused by unequal access to city streets and the roles of law in shaping inclusionary, as well as exclusionary, environments. The study is ongoing and extends beyond the scope of this paper. For present purposes, only data from interviews with UK pedestrians were used – data collection from UK stakeholders and from both pedestrian and stakeholder participants in other countries being incomplete at the time of writing. This paper is based on a qualitative study of semi-structured interviews exploring participants' experiences of using streets in two large UK cities and their surrounding

areas – Leeds (England) and Glasgow (Scotland). Both these cities are vibrant conurbations with strong histories of commitment to equality and inclusion.

A total of 83 people were interviewed – 50 in Leeds and 33 in Glasgow. Participation in the study was open to any adult who had experienced difficulties using streets in these areas, although our recruitment strategies focused particularly on persons with disabilities, older people and parents/carers of young children. Invitations to take part were disseminated via social media platforms, gatekeeper organisations, personal networks, and snowball sampling. Participants were then selected using a purposive sampling strategy (Robinson, 2014) with a maximum variation approach, to ensure a wide range of experiences, practices and perceptions. The sample composition was therefore diverse; there were thirty-eight people who self-identified as female (Leeds, n=21; Glasgow, n=17), forty-five as male (Leeds, n=28; Glasgow, n=17) and one as non-binary. Participants' ages ranged from 18 to above 85. While people under 18 years of age were not included in the sample, the problems they encountered when using streets were presented by participants who were parents, grandparents or other carers. Participants were asked to describe their ethnicity and any impairment type – a process that resulted in a wide range of answers. While exact categorisation is therefore not possible, it is clear that there was a good degree of ethnic diversity (e.g. 'White British', 'German', 'English South Asian', 'African', 'Scottish', 'Caucasian English', 'White Asian' and 'human and highly melanated'). It is also clear that a substantial majority of the participants were persons with disabilities with impairment types including with vision, hearing, mobility, cognition and multiple impairments, mental health and long-term health conditions such as asthma, diabetes and chronic fatigue. Across all these groups, the pedestrian experience of street barriers ranged from occasional or minor obstacles to complete isolation. The wide range of sampling criteria allowed us to collect in-depth accounts of inclusionary and exclusionary experiences of streets and thus to achieve theoretical saturation (Guest et al., 2006). There was some variation between the Leeds and Glasgow based sample populations. Particularly noteworthy was the greater proportion of Blind and partially sighted (BPS) participants in the Glasgow sample. This appears to be linked to the fact that Blind and partially sighted participants were particularly concerned about various pedestrian-related developments in Glasgow, such as the 'Avenues' programme aimed at pedestrianising the city centre. Problems relating to shared space are raised much less frequently by Leeds participants – perhaps reflecting the City Council's longstanding commitment to minimising 'shared space' in the city.

Ensuring accessibility of the research tools and process was a high priority throughout the research process. Participants were invited to request project information in formats of their choice, including standard text, large print, Braille, audio and easy read, in hard copy or electronic format. Due to Covid-19 restrictions we were not able to conduct the interviews in person, as originally planned so, depending on the choice of the participant, interviews took place via phone or an online platform such as Teams or Zoom. Participants with cognitive impairments were interviewed by a member of the research team who has extensive experience of working with and alongside this population group, using techniques such as simple words and short sentences, asking one question at a time, various rephrasing techniques and self-directed reflections (Eskytė, 2019; Rodgers, 1999). The interviews gathered data about the participants' experiences of streets, but many of them indicated that they had not visited relevant areas for some time because of COVID-19 and other risks and difficulties associated with navigating the relevant space.

Participants also stressed that significant alterations were taking place in both Leeds and Glasgow at the time of our data-collection process. The aim of the interviews was not to gain an accurate and up-to-date understanding of the nature of streets in the two cities. Rather it was to gain an in-depth understanding of types of street environments which participants found problematic and exclusionary and the reasons for this.
Interviews using a semi-structured topic guide lasted 30-90 minutes and were conducted by phone (Leeds, n=22; Glasgow, n=17) or online (Leeds, n=28; Glasgow n=17). Interviewees were asked to reflect on types of streets and pedestrian journeys they found challenging, as well as on what made such journeys more accessible for them. A wide range of challenges were identified, which will be addressed in subsequent publications. The focus of this paper, however, is purely on difficulties associated with shared space schemes and other types of pedestrian environments often referred to by participants as 'shared space' and raising similar types of difficulty for them. This focus was selected because of the frequency with which such difficulties were mentioned by our interviewees and the importance they attached to them.
With the participants' consent, all interviews were audio-recorded, transcribed, and pseudonymised before undergoing thematic analysis (Ritchie and Spencer, 2002). Initial thematic coding was carried out independently by two team members – IE and AL -– with emerging themes then being compared and discussed within the broader team to promote rigour and facilitate consensus regarding coding choices (Blaikie, 2010).
Ethical approval was obtained from the University of Leeds Business, Environment and Social Sciences joint Faculty Research Ethics Committee (19-004); and the European Research Council Ethics authority.

4. Findings

Two key overlapping themes connected with shared space environments emerged: first, difficulties associated with navigating environments in which kerbs had been removed; and second, difficulties associated with interacting with vehicles within and at the boundaries of shared or pedestrian spaces. These two themes will be used to organise this section. After discussing each of them, we will reflect on the strategies used by participants to address the challenges posed by these types of streets.
To provide context to readers, where reference is made to a participant, we generally include codes to indicate the relevant city (Glasgow – GL, and Leeds - LD) and the impairment type of the participant in question (blind or partially-sighted – bps; and mobility impairment – mi). Where these codes are not used, relevant contextual information will be provided in the text.

4.1 Difficulties Associated with Navigating Environments Without Kerbs

Many Blind and partially sighted participants commented on the importance of kerbs as an orientation cue, and the difficulties caused by their removal in shared space and other pedestrianised environments. For example, William (LD, bps) noted that:

> The main difficulty is when they do like block paving straight across, […] and you've got no differentiation between the roadway and the pavement. That is problematic.

Similarly, Jeffrey (GL, bps) explained:

> There are no kerbs. So, the road is completely flat so it's really difficult to understand where I am. Whether I am standing on a pavement. Whether I am standing on a traffic island, or, whether I am standing in a cycle lane or whether I am in the road because there is very little to guide me about that, because the kerb in a sense has been removed. And where there are tactiles, there aren't enough of them and where they have been placed isn't that helpful.

Neil (GL, bps) also stressed that the tactile markings provided were insufficient for locating particular features within a street with no kerbs, noting that:

> I mean at the traffic lights now yes you've got the dimples to raise awareness where the traffic lights are and that's fine. That's brilliant. But getting to the traffic lights is a different matter.

Several participants described how the removal of kerbs affected navigating with a guide dog or a long cane. Richard (GL, bps) noted:

> Most shared spaces I find very difficult to navigate. My cane can make contact with lots of things because there is not as many raised or obvious tactile delineation of maybe where pedestrian walkways or cycle paths or indeed roads [are], so it mostly blends together. A lot of the time it can be big open spaces. Also, with my guide dog, you know, they are trained to walk in the middle of the pavement and you come to a large open area, they very much struggle to figure out where they are supposed to be walking because it is all just one big open space.

Wendy (GL, bps), after recognising that "having the kerbs was a huge thing for us", explained that shared space environments might be:

> great for lots of people but they are very disorientating because we don't have a kerb to go by. You could be anywhere in that full vicinity of from one side of the road to the other […] and yes, you're telling your dog where to go and what to do but if she finds that there's something in front of her she'll go the easiest route which might end up taking you in a completely different place to where you expect to be. I would automatically think I was coming to the lights at the right-hand side. But if she's done a few detours, I could be on the left.

Similarly, Neil (GL, bps) told us that:

> if you're up there with a cane and you're totally blind you just would not have a clue where you are. There's nothing to get a reference off. Like there's no kerb, there's no edges, nothing. It's just flat. It's fine in an architect's ideal world. Reality is it's no working.

Blind and partially sighted participants also drew attention to the additional difficulties in navigating shared or pedestrianised streets created by awkwardly positioned street

furniture and other obstacles. Several drew attention to how this prevented them from being able to follow building lines (e.g. with a long cane), which is particularly important where there is no kerb to follow. Larry (GL, bps) told us that:

> I can't use my high street because all the café furniture is along the building line and that's where blind people follow. With a white cane you need something to follow and that usually is the building line. So when there's café furniture up against the building line, we then have to work our way around all the tables and chairs. And we can't socially distance when there are people sitting at chairs and we get our cane tangled up with tables and chairs.

Wendy (GL, bps) also noted:

> You're going to have to make detours. So instead of keeping your shops on your left hand side or your right hand side and knowing your shops, you're having to move out and go towards the centre. So I find it very confusing, I find it very difficult because you can end up in amongst chairs and trees and wires and things instead of next to your boundary which is so important for us [and] if you lose your boundary you lose your bearings completely. And it's very difficult to get that back.

Such problems could be at least partially mitigated by measures such as clear tactile way-marking that could be followed by cane-users or by appropriately ring-fencing café furniture with solid barriers which would then effectively become an extension of the building line.

Other problems were also created by the positioning of street furniture. William (LD, bps) noted:

> The shared space areas are terrible to deal with. […] And you do have this with these pedestrian areas as well. Where it is wide and then you got stuff in the middle. It is keeping your bearings depending on where you are going and the weather conditions and how much crowds there is and all that stuff.

Richard (GL, bps) also observed:

> If you are going in a shared space, I run the risk of completely losing my, place and space essentially. […] I find the street furniture, that is a bad problem in most streets but shared spaces seems to be an excuse for people to put up any and all you know, street furniture, whether it be trees and bins and electric boxes and any other number of things they want to throw up there, very frustrating, I don't understand it, or why it needs to be there.

Participants also expressed concerns about badly positioned structures such as bollards, statues, arty marble blocs, planters, etc., when used either for practical purposes (such as separating pedestrians from cyclists or to carve out rest spaces) or simply for aesthetic reasons. The unpredictability of such artefacts may pose additional barriers to navigation, potentially leading to physical injury, as made clear by Ian (GL, bps):

> They put in all these weird little just blocks, marble blocks which were, to me they probably come up to […] just below my knee and they, they are murder when you smack into them, you know, because they are randomly placed. So you have got a solid marble block, you crack your knee off or you crack your shin off and it is excruciating …

Interestingly, this point was echoed by Nicole (GL, mi) who, unlike the participants quoted above, has no visual impairment but does have a mobility impairment which causes balance problems:

> They try to beautify it with lovely hanging baskets and things which then puts another pole in the middle of the walkway where people are going to be going past.

She stressed that, while additional pedestrian seating would be helpful, it should be positioned carefully so as not to create additional obstructions:

> What would be good is maybe more benches for people to sit down but in a proper area rather than sometimes it just seems like random areas.

In summary, the removal of kerbs without clear alternative route-finding tactile markings, as well as badly positioned or inappropriately ring-fenced street furniture and other obstacles, were the key navigational barriers caused by shared and pedestrianised space that emerged from the data.

4.2 Difficulties Associated with Interacting with Vehicles

In this second theme, we present participants' reflections on interacting with vehicles when using shared space and related areas (including pedestrianised environments and pavements with attached cycle-ways). There was evidence that pedestrian-vehicle interaction within such spaces was often problematic, as was identification of the boundaries between such spaces and those through which cars, bicycles or other vehicles travelled at speed.

Several blind and partially sighted participants expressed feelings of alarm, frustration or exclusion because of the proliferation of shared space schemes in which controlled crossings were removed and safe pedestrian-driver interaction depended instead on making eye contact. In the words of Stephan (GL, bps):

> And also, some of the crossings, […] they've actually now made it that there isn't even really any place where you could reasonably look for the control box for the button because all you have is a great big space which I suppose traffic and cyclists and everybody else are supposed to mingle in and the pedestrians, certainly the blind pedestrians are right down the bottom of the list of consideration.

Similarly, Larry (GL, bps), referring to a town outside Glasgow, explained:

> My local town, they've taken away all the traffic lights and controlled crossings at a four-way junction. Now nobody knows who has right of way where in fact nobody has. And people like me simply avoid the area.

He added:

> That is the basic concept of shared space. You make eye contact and the driver stops, that's the theory. But practice is different.

Similar concerns were expressed by Arthur and Ian, respectively:

> I know a lot of cities are looking at shared spaces with pedestrians and cyclists altogether but the whole thing about that is about eye contact and drivers and cyclists and pedestrians don't work unfortunately. That doesn't apply to blind people. (Arthur, GL, bps)

> What they say is that the drivers should slow down and, you know, they should be more aware and watching for pedestrians and you don't manoeuvre until you can see the driver's eyes and the driver can see your eyes but that is fine when you can see but if you can't see that is a problem and the trouble is that because there is still a throughway for vehicles, you will get some drivers who will just fly along and go through at normal speed and don't even consider it. (Ian, GL, bps)

A number of participants mentioned interacting with motor vehicles in spaces primarily designated for pedestrians. Tom (GL, bps) stated:

> A problem that I face quite a lot in pedestrianised areas is from traffic, especially from motorised traffic; trucks, cars, vans that are serving buildings and doing maintenance emptying bins and things. I can't see them to get out the way.

Eric (GL, mi), a wheelchair user who does not have a visual impairment, commented on a street in Glasgow city centre:

> Basically, it has got the shared space and they have designed it wrong, and, it is now dangerous for me but, more dangerous for anyone that is blind […] because a lot of the cars don't bother slowing down. And, if you have a collision with a car they tend to win; they might be in the wrong but you end up in hospital.

Ally and Wendy also highlighted the anxiety and risk associated with the unexpected presence of delivery and service vehicles in what they assumed to be pedestrianised space. These encounters happened more at certain times of day, exacerbating a sense of unpredictability and confusion:

> On the main high street I have experienced it with delivery vans …. I mean just really not expecting to kind of have to dodge vans and cars along the area because I thought it was all just a pedestrianised space. (Ally, GL, bps)

> And the fact that you have, you have delivery vans on the streets from certain times. I know it's certain times but if you've got them and you don't know that they're there, I would say that's probably [one of] the most dangerous things that you've got to watch. (Wendy, GL, bps)

Several participants had experienced difficult encounters with people using micro-mobility devices such as scooters and skateboards. The sense of precarity generated by such experiences is apparent from the following words spoken by Ian (GL, bps):

> Generally, the guys with the skateboards will wiz passed no problem but it is anticipating them, you can hear them coming <laughs>, they are coming quite close to you but you don't know if it is going to hit you, you don't know […] if they've seen that you can't see, so that can be a problem.

Kathleen (LD, bps), who has a guide dog, described feeling "as if we're invisible", in her interactions with e-scooters. Significantly perhaps, in the following passage she makes no distinction between her encounters with e-scooters and cyclists:

> The scooters and the bikes should stay on the outside near to the road. But they don't, they are all over the place. They are zooming up and down. And I don't hear them coming. There are no bells. Sometimes I hear someone on a mobile phone when they are riding. But it is a nightmare, an absolute nightmare. […] you get the scooters and the bikes, and they are just drifting past all over weaving in and out. It's a license for them to just get mobile, really mobile. And I understand these scooters can go up to twenty miles an hour. But it is quite scary. It is unnerving. They are weaving in and out. They are not all like that, but some just don't care. They want to get on and get moving. But it is quite scary when you don't hear them. You don't hear them coming. And then you know it is quite rude when they are moving across in front of you. If someone is coming around you, and then across you and they are seeing you with a guide dog, surely they realise that I must be visually impaired.

Mary, a wheelchair-user from Leeds who has learning disabilities, also drew attention to the hazards of encounters with scooters:

> It can get really dangerous around here and with scooters as well you know, peoples' mobility scooters even they, they can be quite dangerous as well sometimes a lot of the time when I'm going on the path if they're on the path as well they won't let you get past and they'll just drive into you so you've got to kinda get out of the way of them.

The type of road-user with which participants most commonly reported having problematic encounters was cyclists. The speed and silence of bicycles makes sharing space with them particularly challenging for Blind and partially sighted people. As Arthur (GL, bps) observes, 'one of the problems for most Blind people is bicycles because you can't hear a bike.' Because of this, he adds, 'most of the near misses I've had in the streets of Glasgow have been with bikes, just missing maybe because I don't see them coming.'

Near misses with cyclists were also reported by other participants with various impairments:

> The main traffic problem that I've had in localised areas is from cyclists in our shared spaces. And I've often had either a cyclist coming up taking me unaware and frightening me or because, going past when I'm walking forward and because I can't see them, and they haven't taken in the fact that I have a white cane or have a guide dog with me that they just think that they can go straight past me. And I've had a couple of near misses. (Tom, GL, bps)

> But then suddenly out of this glare you'd have a cyclist on the pavement coming straight at you. Now that could get quite stressful. (Luke, LD, bps)

> Yeah, I might have had a near miss with a cyclist come round a corner and nearly hit me. (Trevor, LD, heart condition)

Anxiety about such encounters was also expressed by Brenda – an older person from Leeds who did not identify as a 'person with a disability':

> Especially I worry about, I mean I do worry about them coming up behind you. They come up behind you and they know you're there but you don't know they're there.

Many, but by no means all of the participants' difficult interactions with bicycles involved inconsiderate, dangerous or unlawful behaviour by cyclists. In the words of Arthur (GL, bps), 'there is a lot of responsible cyclists I must admit but there are just some, who aren't responsible, really-really dangerous.' He describes an encounter with cyclists on a pedestrianised street in Glasgow City Centre, 'they must have been going about thirty/thirty-five mile an hour. It was frightening'.

Ally (GL, bps) spoke of 'really frustrating experiences with cyclists on what I thought was pavement areas', many of whom were delivery cyclists who 'tend to be quite focused and they've also they've got a time limit, and seem completely blinkered of what is going on around them'.

Ronald, a wheelchair-user who enjoys taking his dog for walks on the walkway along the Clyde (Glasgow), noted that, 'the thing that is most difficult about that is that it's also a cycle lane. Sometimes cyclists think it's their cycleway and you go, "no it's actually a walkway for everyone"'.

Eric, another wheelchair-user from Glasgow, when describing the danger presented by cyclists, noted:

> The cyclists are meant to stop and give you way but, the cyclists don't bother. The cyclists are meant to get off their bikes but, the cycle lanes are straight and there are four or five areas where they are meant to get off and walk with the cycle. But, you never see them do that, they just cycle through and so, if anyone goes across and they don't get a perception of the speed and things like that you end up with a collision. Cyclists are worse than drivers most of the time.

Observations such as these highlight the danger faced by all pedestrians, but especially, of crossing fast-moving cycle-ways without controlled crossings. Many Glasgow participants spoke of the difficulties they had experienced when trying to cross cycle lanes which run between bus stops and pedestrian spaces – a design often referred to as a 'bus-stop bypass' or a 'floating bus-stop'. Larry (GL, bps), who has a visual impairment, likened the experience to playing "Russian roulette" and added:

> Not many people are prepared to cross a cycle or a two-way cycle lane to get on and off a bus. And if we consider even mothers with a buggy when they come off a bus, they tend to come off backwards so they're coming off and backing straight into a two-way cycle lane.

The second type of problematic traffic interaction mentioned by participants concerned poorly demarcated boundaries between shared or pedestrian space and fast-moving vehicles. Such boundaries can broadly be divided into those which are lateral and those which are linear. All shared and pedestrian space has lateral boundaries marking its limits, but other lateral boundaries, typically created by more standard roads intersecting shared or pedestrian spaces are also fairly common, featuring in many of the accounts of participants, particularly in Glasgow. Linear boundaries, typically where cycle lanes or roads run adjacent to pedestrian space, also caused problems for many participants. Boundary identification issues typically entail interaction with other road users, hence their discussion here, but it is important to acknowledge the thematic overlap with orientation and navigation problems discussed above. The following words of Richard (GL, bps) neatly demonstrate this overlap:

> I don't know whether I am on the pavement, whether I am on the cycle path, or whether I am on the road a lot of the time.

As regards lateral boundaries, several Blind and partially sighted participants indicated that it was impossible to identify with any certainty whether they were walking on the correct side of the boundary between pedestrian and road space, because of the absence of kerbs and appropriate tactile markings. As Larry (GL, bps) explained:

> Normally you would come to the edge there and there would be a dropped kerb and you would have some tactile marking there to let you know that you're coming to the end of the kerb, dropped kerb. And you would cross the road carefully. Well, what they're doing now is raising the road, the side road up to the same height as the pavement. So we don't know whether we're on the pavement or on the road. And this is again, it's kind of part of shared space.

This point was also made by Wendy and Ian respectively, who both highlighted the dangers arising from the absence of continuous tactile markings to indicate boundaries between pedestrian or shared space and roads:

> I would say the highest risk is when they've got rid of the pavements and it's a crossing. You could miss that and be halfway across the road before you realise you're actually on the road. And it's not for the lack of crossings or boxes that they put in because they pretty much have a box at each side. So they do have

> plenty of crossings. But I can't see the crossings so it's very much luck of whether you go on the tactiles. […] And I would say that's probably the most dangerous bit. (Wendy, GL, bps)

> You've got three or four roads that cross that pedestrianised street and very, numerous times I've gone there […], and struggled with the crossings because they are not obvious. If you don't hit the tactiles next to the crossing poles then you can easily drift onto the crossroad without realising you are on the crossroad. (Ian, GL, bps)

As regards linear boundaries, a key concern to participants was poor differentiation between cycle lanes and pedestrian spaces. The lack of accessible information to indicate the existence and position of a cycle lane was highlighted by a number of Blind and partially sighted participants:

> … there is nothing to distinguish between the pavement and the cycle path itself. So Blind people can walk onto it. […] the same applies with the road itself, there is no kerb, you can walk right onto the incoming traffic [and] when you come off a bus you are right onto the cycle way, there is nothing, there is not a kerb or anything to tell you, you are on that cycle way. (Arthur, GL, bps)

> They have made the pavement wider and then they have put in a two-way cycle lane and then a bus stop, a separate raised pavement for stopping. No delineation between the pavement and the cycle lanes. [And] there is a twenty-millimetre lip on the pavement, that's all the kerb that's there, twenty millimetre which is almost indiscernible with a white cane. (Larry, GL, bps)

> Now one difficulty that you have is you know when you get cycle ways, and you get a white line down the pavement. That can be problematic because dogs are taught to work centre pavement. This is no good because you know you can't differentiate which side of the line you are supposed to be. And you know one side is the cycle way and the other side would be the pedestrian walkway. Now the difficulty is knowing where you are, you know, because there is nothing – if there is just a painted line on a pavement that doesn't really help you, you know. So it is difficult it is very difficult. (William, LD, bps)

Some Blind and partially sighted participants also found that obstacles in pedestrian spaces made it more difficult to avoid drifting into poorly demarcated cycle lanes:

> you've got to be mindful and have to stick to the left, but when you stick to the left, you end up with overgrown bushes sticking out on the left. So, yeah, you're having to go round them but then you're mindful that cyclists might be coming down and you've got to step out. So, you know, it's kind of like stepping out into the road, you know, something much quicker and bigger than you might be coming. (Sandip, LD, bps)

> Once you cross the cycle path there is a tactile pavement so you can then walk down the kind of reservation, where the bus stops are but there is also, at the bus stops, at the bus shelters there is racks to put bikes on, you've got to try and get round that and you are right on the cycle way. (Arthur, GL, bps)

Some Blind and partially sighted participants highlighted the increased dangers associated with navigating unfamiliar or newly designed shared spaces:

> So the first time I tried to navigate that I came off the bus and I walked backwards along to where, I was going to [a coffee shop] and I didn't realise I was walking down the centre of the vehicle aspect of that shared space and it wasn't until somebody pointed out that I was indeed walking down the middle of the road with a long line of traffic. (Ian, GL, bps)

> Cause I know which one's a cycle path and which isn't, you know, it's not so bad for me, but if I was to cross the road and I'd get to the other side and have the other tactile markings to tell me I'm on the pavement, there's a cycle lane and then you have to walk a bit further and there's a white dividing line, which has a little bit of a bump so you can sort of tell it's there if you concentrate. And then it's the walking path, but I could guess if you didn't know the cycling path was there, you'd just start walking on the cycling path. It's the first bit of pavement that you come to that's not on the road, you might not know that there's a second section further along which is for pedestrians. (Sandip, LD, bps)

Similar problems were also mentioned by two participants with other types of impairment. Justin from Leeds, who has a neurological impairment, noted:

> Well that is very problematic with the cycle lane because it is the same colour as the pavement and so, you can very easily step into the cycle lane, […] you can't see that it is a cycle lane. So, again, it is separating cyclists from the road but, it doesn't separate the cyclists from the pedestrians so, it is just complete thoughtlessness again. I have a bit of a fear of this when I am walking along, and, I have constantly got one eye on the cycle lane, don't step into it, don't step into it. In places it is the same height and there is no demarcation at all.

Mary, a Leeds-based wheelchair-user who has learning disabilities, told us about her local cycle lane:

> The problem is we're not able to tell which is which so you don't know which is the cycle and which is the pedestrian lane in certain parts. It's like they have like a little sign on the floor, but on most of it there's no signs so quite a few times when I've been out for a walk with my carer now, been on the wrong side. I might have been on the cycle one not knowing it was a cycle lane and I've had abuse telling us to move out the way and that we're in their way […] But the thing is if, it's not labelled properly, how are people supposed to know what side to go onto - because I don't want to get into anyone's way but I wasn't sure which side you know is the best side for me to get onto. And the problem is there's a big

> concrete like a step sort of thing that goes in between the two paths so even if a bike did come my way I wouldn't be able to move out of the way because if I moved, my chair would've been tipped over, because it's like a slanting lip in between, so if anybody like went over there, your chair would just like tip over.

These accounts highlight the importance of clear information, in visual and tactile form, allowing all pedestrians to identify and negotiate boundaries between pedestrian and cyclist space. Such tactile boundaries should be of a type that is obvious to Blind and partially sighted people but easily navigated by people needing to escape from or cross over cycle lanes. Whilst there was recognition amongst the participants of the importance of keeping cyclists safe, their testimonies powerfully demonstrate the danger and anxiety that interactions with fast-moving cyclists generate for many pedestrians with disabilities – interactions which multiply when they are required to share space with cyclists or to cross cycle lanes without the help of controlled crossings.

4.3 Avoidance of Problematic Shared Space Environments

Participants reported employing various strategies to deal with barriers in shared spaces. These include using relevant streets outside rush hours and being accompanied by others. However, when accessing public space independently, the dominant strategy was to avoid problematic areas altogether, and use alternative routes instead.

> To be honest it is much easier just to do a thirty-minute avoidance route than it is to cut through the shared space which takes two/three minutes, you know, and that is fine on a nice day but it is also, it is not good if it is crap weather, it is not good if it is, you know, night-time and it is dodgy dark streets. You want to cut through the middle of the area that is well lit and has the security cameras. You don't want to cut through the dodgy dark streets to avoid the anomalies you are going to face cutting through the shared space. (Ian, GL, bps)

This has more wide-reaching implications for the participation of persons with disabilities in society. Not only does it restrict their pedestrian participation, but it also affects their participation in other activities – such as engagement with retail markets as a consumer:

> I would definitely alter routes if possible, […] and maybe go the long way round or decide to, if it's a choice that I'm meeting somebody someplace, no we won't go to that restaurant, it's too difficult to get to, let's go to another one. (Sheila, GL, bps)

> So if I lose my bearings in that respect then I very quickly get fed up to be quite honest <laughs>. I get fed up just like oh do you know what, I'm just going home, I'll get it the next time and I just don't bother going. I'm not a great shopper so anything like that just puts me off and I think "no, I'll just no bother, I'll just leave it today". (Wendy, GL, bps)

While persons with disabilities, particularly persons who are Blind and partially sighted, are undoubtedly affected by these exclusionary aspects of shared and analogous space, Larry and Ian note that in some situations the exclusionary impact extends to the population more generally:

> They've taken away all the traffic lights and controlled crossings at a four-way junction. Now nobody knows who has right of way where in fact nobody has. And people like me simply avoid the area altogether. And that doesn't help local business. The town is now a ghost town. Shops are closing. (Larry, GL, bps)

> The first thing you are taught when you are a small child with your parents is not to step off the kerb into the road, you know, so kids are going to struggle with that but then you've got the other end of the scale, you've got maybe adults with learning difficulties, who are really going to struggle with that because they are not going to realise in some cases that they are on the road or you've got elderly people with Alzheimer's or with dementia. There are so many different people from different aspects of life who it is going to affect. It is not just me as a blind person. (Ian, GL, bps).

5. Discussion

There is global recognition that many cities are becoming more 'sprawling, fragmented, unwalkable … car-dependent, and unsustainable (UN Habitat Assembly 2019B, para K1). This has a particular impact on the mobility of people who are poor, elderly, children, and who have disabilities, with the risk that their 'democratic right to access the city and the city's public spaces' will thereby be undermined (UN Habitat Assembly 2019B, para K1). There is therefore an urgent need to develop road planning that promotes mobility through active travel (such as walking, wheeling and cycling) rather than cultivating dependence on cars (UN Habitat Assembly 2019B, recommendation H3(3); UN Habitat 2020, p 3). It is this need to which shared space schemes and pedestrianisation initiatives seek to respond. Despite the evident importance of their aims, our findings demonstrate that the environments which are shaped by such policies sometimes fall far short of providing access for all.

Shared-space is often viewed as a compelling concept, offering a sustainable and flexible solution to public space design and interaction between different road-users (Greed, 2011; Barr et al., 2021; Che et al., 2021). Our research, however, supports earlier work in highlighting discrepancies between the theoretical ideals of shared space and its operation in practice (Bates, 2008; Moody and Melia, 2014; Parajuli and Pojani, 2018; Villani and Talamini, 2021). While shared space environments presented particular challenges for our blind and partially sighted participants those with mobility, cognitive and neurological impairments also experienced problems using it. Its underpinning principles of mutual observation, eye contact and social protocol were regarded by many as based on ableist assumptions about the capacities of 'normal' pedestrians – and as being akin to the rules of a game for which they were not fitted and in which the stakes were set too high.

Our findings indicate that types of difficulty associated with conventional forms of shared space were also experienced by participants in other types of environment – particularly ones which were fully or largely pedestrianised with adjacent cycle lanes and intersecting roads or cycle lanes. Hence, there is an urgent need and opportunity for learning about disability inclusion in the shared space context to inform the active travel agenda more broadly. Unless this happens, there is a risk that assumptions, which have been

contested in the shared space context, will be permitted to build exclusion into other types of city space.

Another key finding is that shared and pedestrianised spaces often pose particular challenges in terms of navigation and orientation for Blind and partially sighted people. In line with other studies (Bates, 2008; Havik et al., 2012; Imrie, 2012), our findings suggest that a major cause of these problems is the removal of kerbs. Way-finding using alternative methods was often not possible – because of cluttered building lines or the absence of appropriate tactile markings. Risks associated with these navigation difficulties extend beyond inconvenience and pose a risk of serious injury – for instance of a person inadvertently walking into the path of oncoming vehicles. They are also likely to result in other forms of isolation and exclusion (Church, Frost and Sullivan, 2000).

The absence of controlled crossings, and the location of bus-stops on the other side of busy cycle lanes, are other examples of design features which many participants found extremely problematic. So too are items of street furniture or ornamentation, particularly when positioned in unexpected places without clear markings. Accessibility barriers are commonly thought of as being positive obstructions, such as flights of steps, high kerbs, uneven or lumpy surfaces, street furniture or overhanging vegetation (Clark and Gallagher, 2013; Campisi et al., Smith et al., 2021). Importantly, however, the absence of features (such as kerbs, tactile markings, boundary fencing and pedestrian crossings) was also experienced by many of our participants with disabilities as a form of accessibility barrier causing disorientation, injury, anxiety, and avoidance strategies resulting in reduced participation and increased social isolation (Bates, 2008; Moody and Melia, 2014; Villani and Talamini, 2021). The importance of introducing, maintaining and retaining such features, where context does not make doing so impossible, therefore merits emphasis in the type of accessibility standards and guidelines mandated by article 9 of the CRPD.

Some of the problems reported by participants arose, not from the presence or absence of particular features in the physical environment, but from the reckless and possibly unlawful behaviour of other road users – including people riding bicycles and scooters. Addressing such problems would entail clear and well-publicised regulations about road-user behaviour, backed up by strong and effective enforcement. The importance of "efficient regulation" of "mobility innovations entering the urban space", together with the need to build the capacity and resource to make this possible, has been acknowledged by UN Habitat (2019B, recommendation H5). Thus, although streets will not be inclusive without good physical and infrastructural design, an exclusive focus on design issues will not suffice. Regulation too is key.

As with other areas of policy and practice, effective consultation with persons with disabilities and their organisations in design and planning processes is likely to minimise the risk of exclusionary barriers becoming part of city streets. It is for good reason that requirements to involve people with disabilities lie at the heart of the CRPD. Establishing and operating such consultation and involvement processes is far from straight-forward, however, despite the helpful guidance offered by the CRPD Committee in its General Comment No 7 (2018). This is particularly so where attaining accessibility and inclusion for all entails identifying and negotiating different types of need which sometimes pull in different directions. We therefore urge cities to ensure that issues relating to effective involvement and consultation remain part of ongoing processes of capacity-building and best practice sharing (UN Habitat Assembly 2019B, recommendation H5).

6. Conclusion

Developing our towns and cities in ways that are accessible is a key requirement of the UN CRPD and a cross-cutting strategic commitment in relevant global agendas. It is therefore essential that initiatives to reduce the dominance of cars in urban spaces are designed and implemented so as to make streets useable by and inclusive of pedestrians with disabilities as well as those without. Innovations, such as 'shared space' design can and do result in the unintentional creation of new disabling barriers. Our findings add to the weight of other research projects which challenge suggestions that 'shared space' design enhances pedestrian safety and well-being. Many of our participants with disabilities – particularly, but by no means exclusively, those who were blind or partially-sighted – experienced such design as confusing, dangerous and exclusionary. Interestingly, it was clear from their interviews that many of the problems commonly associated with shared space design were also encountered in other environments intended primarily for pedestrian use.

Attentiveness to both physical design and regulation are key to the creation of urban environments which enable people with disabilities, safely and confidently, to navigate around town and city streets and to interact with other road-users within them. So too are effective processes for early and ongoing consultation with and involvement of persons with disabilities and their representative organisations. These are all issues that merit a high profile in existing (and future) efforts to build capacity within town and city planning bodies, share good practice and engage in mutual learning.

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Visions of a City for All.
Resources, Choices and Factors Supporting and Impeding Universal Design in the Urban Development Process

Lilian Müller
Lund University, Sweden
lilian.muller@certec.lth.se

Stina Ericsson
University of Gothenburg, Sweden
stina.ericsson@svenska.gu.se

Per-Olof Hedvall
Lund University, Sweden
per-olof.hedvall@certec.lth.se

Abstract
Despite laws, policies and visions to create cities and societies for all, barriers still exclude persons with disabilities from using buildings and public places. Our study aimed to identify choices made during the urban development process that include or exclude users in the built environment; how and when these choices arise during the process; and what is needed to implement universal design (UD) as a strategy and tool to secure all users equal opportunities in the built environment.
The study involved employees and private actors in city development processes. The participants were asked to identify impediments and support of UD in completed building projects to shed light on choices made during the process and on conditions needed to implement UD along the process. Four workshops were followed by qualitative interviews with key players. The analysis was based on qualitative data from workshops and interviews. Aspects impeding and supporting UD and conflicting visions and goals were identified in all phases, as well as the need for tools to implement UD. The findings show that accessibility for all users is dealt with (too) late in the process, often giving rise to special solutions. Urban trends such as densification and high exploitation can cause the exclusion of some users, and an unbalanced view of sustainable development prioritising ecological aspects puts high demands on users' abilities. The findings also show how UD appears more clearly in remodelling projects than in new constructions. A strong vision from the start to build for all users clearly supports UD throughout the process. Other factors such as pre-studies that include human diversity, allocation of resources and experts' early opinions also prove to be clear drivers for UD.
Overall, the findings reveal a demand for solutions that can maintain early visions and goals throughout the processes. We conclude by providing seven recommendations for addressing these challenges.

Keywords: universal design, urban development, accessibility, public space

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Introduction

This article deals with the issue of how, when and why choices are made in the urban development process that might lead to the inclusion or exclusion of some users. What conditions there are for using universal design (UD) (United Nations, 2006) as a strategy and tool in the urban development process, to secure all users equal opportunities in the built environment, is addressed from a Swedish perspective. In this article, UD is used synonymously with inclusive design (ISO/IEC, 2014). The article is based on a study carried out in Gothenburg, Sweden, in 2021.

From previous research, we know that it is not only architects' choices that have an impact on whether the environment will be inclusive or not, but that it is also a concern for all actors involved (Heylighen, Van der Linden and Van Steenwinkel, 2017). However, the use of UD or other inclusive design approaches in relation to the built environment is still limited (Zallio and Clarkson, 2021; Van der Linden, Dong and Heylighen, 2016), and UD is still not adopted as a driver for a more inclusive architecture (Grangaard, 2018).

How buildings, walkways and public places are designed is based on choices and strategies, affected by laws and policies but also by the practitioners' knowledge and experiences. Different choices made during the urban planning process can have inclusive or exclusive effects by supporting or impeding certain people or groups in their use of a building or public space. A wide range of conditions, from topography, available space, time pressures and the economy of the project, down to detailed decisions on selected materials, colours and contrasts, can impact how different persons may use the built environment. There is a need for increased knowledge on what resources, choices and factors are supporting or impeding UD throughout the urban development process.

The rights of persons with disabilities to access and use the built environment are emphasised in the Convention on the Rights of Persons with Disabilities (CRPD), which assigns States Parties far-reaching responsibility to implement the treaty's provisions (United Nations, 2006). Accessibility should be addressed in all its complexity and should include the physical environment, transportation, information, communication and services. What is open or provided to the public must be accessible to all (United Nations, 2014, p. 13). In addition, with the establishment of the New Urban Agenda, the signatory States are committed to reducing inequalities and promoting inclusive, participatory and accessible cities and human settlements (United Nations, 2017).

The CRPD was adopted in 2006. One of the general obligations stipulated in the treaty is the requirement to support and promote UD in research and development of universally designed goods, services, equipment and facilities, as well as in the development of standards and guidelines (United Nations, 2006, Art. 4f). Another commitment is to provide all stakeholders with training on accessibility for persons with disabilities. Related to the built environment, professionals such as urban planners, architects and engineers, along with authorities that issue building permits, are mentioned as examples, since the lack of accessibility is considered to be a result of insufficient awareness and technical know-how (United Nations, 2014, p. 19). Accessibility is stated to be a "precondition for persons with disabilities to participate fully and equally in society" (United Nations, 2014, p. 1).

UD is regarded as an essential driving force for inclusive urban development (Steinfeld and Tauke, 2002). Knowledge of UD is still limited among practitioners, and there is variation in the way the concept is understood and used (Erdtman, Rassmus-Gröhn and

Hedvall, 2021). Something that may also limit the perceived applicability of UD, and therefore its perceived usefulness, is the conception of UD as a legislative term connected to accessibility laws and special needs (Ryhl, 2014). Furthermore, there is often a strong focus on addressing physical accessibility challenges (Zallio and Clarkson, 2021), and accessibility is addressed late in the process (Kirkeby, 2015). Kirkeby states how this can be related to the accessibility requirements in building legislation, which constitutes a form of context-independent knowledge (Kirkeby, 2015). Van Der Linden, Dong and Heylighen point out that the focus on legislation also inhibits a broader understanding of the user, and that more design-oriented formats are needed to understand user needs. To change the mindset of practitioners, they suggest a shift from accessibility to a greater focus on people's spatial experiences (Van Der Linden, Dong and Heylighen, 2016). Old thought patterns are challenged by UD when moving the focus from norm-deviation to diversity (Hedvall, 2022).

Despite laws, policies and visions to create a city for all, barriers still exclude people from using buildings and public places (Egard, 2022; Carvalho de Souza and de Oliveira Post, 2015). The lack of accessible environments is still a significant problem, not least in housing (Plouin et al., 2021), creating particular challenges regarding the ageing population, which calls for large-scale and systematic actions (Granbom et al., 2016). The reasons behind this situation have been described and discussed in previous research, based on several possible causes. Architects have been criticised for focusing on the "normal" or "average" body when designing (Imrie, 2003; Hamraie, 2012; Jones, 2014). A lack of communication between actors, authorities and phases is suggested to be a part of the reason (Frandsen et al., 2012). Other explanations have been sought in urban planning trends, the increased influence of market forces on the planning and construction process, and unequal categorisations of users at early stages (Müller et al., 2021).

In Swedish legislation, the power over spatial planning has lain exclusively with the municipalities for a long time. However, in practice, this power is shared with a wide range of actors from the public and private sectors (Cars and Hedström, 2006). Although dialogue with the citizens directly concerned is formalised in the planning phase by law, the planning monopoly may contain a built-in contrast to user-centred design and co-creation as part of UD processes. The law clearly states which citizens are concerned and invited to leave comments on a plan, and there are undefined limits on how the municipality should handle the received comments.

It is specifically stated as public interest in Swedish building legislation that all planning should support a built environment that is accessible and usable by all citizens (Swedish Parliament, 2010). In this context, it is also interesting to look at what the shift in planning trends and theories might mean to persons who are at risk of being excluded from the built environment. With the shifts in dominant planning theories, a change has also occurred in who defines a public interest. In rational planning theory, it was the planner as expert who could define the public interest; in neoliberal planning theory, it is the market. In postmodern planning, it is questioned whether public interests can exist at all (Allmendinger, 2017, p. 174).

Some special conditions of particular interest are the demands for high exploitation, associated with consequent densification, the use of land previously deprioritised for housing construction, and actual demographic development. In Gothenburg, the politically set goal is to build housing corresponding to a population growth of around

30 per cent until 2035. This is the overall strategy for urban development in the city. At the same time, forecasts show that nearly one in five inhabitants will soon be 65 years or older, which puts high demands on the city to provide accessible and adequately designed housing (Granbom et al., 2016).
The aim of this study was to identify choices made during the urban development process, resulting in inclusive or exclusive environments in the completed building or place; how and when these choices arise during the urban development process; and what is needed to better support implementations of UD. The term "choices" includes both conscious and unconscious choices, as well as missed opportunities for choices. The research questions were the following:

> RQ1: What choices and factors in the surveyed urban development processes contributed to the exclusion of users, with special regard to persons with disabilities, and in what phases did they arise?
>
> RQ2: What tools and support were useful for employees and private actors in the implementation of UD in different phases of the process?
> The findings of the study are important both for the city and from the citizens' perspective. Identifying underlying causes in the process and behind excluding and including environments is essential knowledge when implementing UD as a tool for inclusive planning.

Methods and materials

For this article, data were collected in workshops and interviews, which were analysed qualitatively (see Figure 1). The study was based on these two different methods of data collection in sequential order. The method is reminiscent of what has been described as sequential research design (Creswell, 2003) with an explanatory-sequential design (Bryman 2018, pp. 762-764), with the difference that only qualitative methods were used in this study.
In the first phase, four workshops were held, where selected key actors from the urban development process participated. Based on the analysis of the outcome of the workshops, six semi-structured interviews were held with six selected participants with different professional roles in the urban development process. In both workshops and interviews, photos were used to contextualise the questions and help participants reflect on the discussed issues (Harper, 2002).
The overall analysis is based on materials from workshops and interviews.

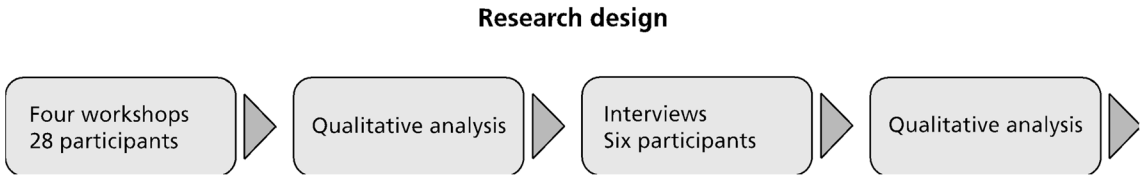

Figure 1. Overview of the chosen qualitative research design

The urban development process, described by the City of Gothenburg in twelve stages, was divided into four stages, to comply with planning and building laws and regulations (Swedish Parliament, 2010).

1. Early stage – the visionary and general planning stage
2. Planning phase – the detailed development planning and design phase
3. Building permit phase
4. Construction and completion phase

This division was made at an early stage, and was helpful when recruiting participants for the study, as it matched both organisation and working methods among public and private actors.

Data collection

Workshops

The workshops were chosen for their possibilities to involve the different actors in common, open and equal discussions; and to create a shared ground for reflections for future solutions (Soini and Pirinen, 2005). Participants in the workshops were selected based on their professional roles as municipal employees from different departments in the city administration, as representatives from the private business sector in the construction industry, and as a representative from the local umbrella organisation for persons with disabilities (OPD). In total, 28 people participated in the workshops.
The participants were specifically selected to represent each stage of the urban development process. Participants from the city, the industry and OPD were present in all four workshops.
Each workshop lasted 3.5 hours, with 9 to 15 participants at a time. Each participant took part in the relevant workshops depending on each person's professional role.
The workshops were organised from the end to the start of a project, going backwards. As the last phase of the process was discussed in the first workshop and the first phase in the last workshop, there were possibilities for the participants to assess the whole chain of events in the process, from the most evident stage back to the early, visionary stage.
In the workshops, participants with their professional roles linked to the actual stage of the process were given the opportunity to reflect upon the presence and absence of UD in selected cases of recently completed buildings, places and urban development projects. Each selected case was part of a previous multiple case study on UD in the built environment. For this study, 16 photos from the case study were selected as starting points for the discussions among participants on what, and when in the process, decisions and choices were made that had a significant impact on the result, seen from a UD perspective. The participants were asked to identify how UD was supported or counteracted in the examples, to shed light on design choices that arise during the process, and on the conditions required to promote a more inclusive design. What kind of support or tools were needed in order to improve the working methods was another main question handled during the workshops, discussed in smaller groups.
Discussions were moderated by representatives from the City's Real Estate Department. Documentation from the four workshops took the form of notes written

by members of the project team, and the notes were also shared and discussed in the evaluations after each workshop.

Interviews

After the analyses of the outcomes from the workshops (see the analysis section below), six qualitative interviews were conducted by Lilian Müller. The purpose of the interviews was to gain a deeper picture of the responses that emerged from the workshops. The selected interviewees were key players from various phases of the urban planning process, from the city and the industry. The interviews served as a method to deepen the understanding of and explain the outcomes of the workshops. Analysing the outcomes of the workshops provided a basis for selected themes in the semi-structured interviews.

This type of interview was chosen as it leaves room for follow-up questions and openness for the participants' reflections, while still being focused on the selected themes (Bryman, 2018, p. 563). The flexibility of the interview method offered opportunities to let the participants contribute in-depth reflections and thereby ensure rich data; this was also strengthened by the varying competencies among participants (Maxwell, 2009; Yin, 2011, pp. 84-87).

Key topics linked to each phase were formulated into questions that focused on why things happened during the process, and how other ways of working could improve the outcome in the form of a more inclusive built environment.

The interviews followed three months after the workshops. Five of the six interviewees had participated in at least one of the workshops. They all represented different phases of the process: an urban planning officer working in the early stage, an architect working in the planning phase, a project leader at the traffic department, an administrator at the building permit office, a project leader employed by a private company in the building industry, and a building inspector responding to the final approval of building projects. The interviewees were asked to give an expanded picture of the conditions and circumstances outlined in the workshop discussions. The interviews were based on photo elicitation as a method, to bring about a deeper discussion on the cases' results and their causes, and to validate the discussions from the workshops (Harper, 2002). The interviews were designed for each phase and each actor's role, with questions formulated based on findings from the workshops and photos.

The six interviews lasted between 30 and 60 minutes. All of them were audio-recorded and transcribed by Lilian Müller

Analysis

The analysis was qualitative, based on data collected from the workshops and interviews, in the form of notes from the workshops, transcriptions and recordings of the interviews. Findings from the workshops and interviews were also further validated by the timelines created in the discussions of cases.

In the first step, the workshops were analysed. Based on the explanations given by the participants, the photos were linked to the phase in the process where decisive choices and decisions were made. To seek an answer to the question "when" the including/excluding design choices took place, the replies were sorted along a timeline (see Figure 2 in *Findings*). The analysis of the participants' statements was organised and

sorted inductively (Yin, 2011, pp. 97-99), ending up in the main critical aspects and stages.
In the second step, the results including the interviews were organised and analysed from transcriptions and recordings. Finally, an overall analysis was made from the complete collected materials.
The answers to RQ1 were drawn from the participants' interpretation of selected photos from completed projects, and the timelines revealing the critical aspects and stages (Harper, 2002). RQ2 was answered by the experiences and requested support as expressed by the participants, divided into the different phases and areas of support, and also sorted into sub-categories and main themes (Graneheim and Lundman, 2004).
It was important in the study to create an open climate for discussions where everyone was able to contribute, without the risk of ending up in a defensive position. The structure and selected cases were therefore not directly linked to participating individual employees or companies.
The chosen research design can provide increased understanding through the selection of participants with varying knowledge, experiences and insights into different parts of the planning and construction process. The selection of participants with different professional profiles and roles, and connections to different parts of the process, was of importance to encourage various competing views and possible explanations to emerge. The chosen research design and materials in the form of notes, recordings and documentation throughout the process helped to increase the reliability and richness of data supporting validation, with the amount of data and possibilities to assess competing explanations (Maxwell, 2009; Yin, 2011, p. 85).

Findings

In this section, the results are presented in three sub-sections:

1. Critical choices and aspects
   Identified choices and aspects linked to the process are presented along a timeline. Additionally, it is also shown how informal decisions in the transition between phases can have an impact on the final result.
2. Conflicting visions and goals
   This sub-section highlights some of the most important conflicting visions, goals and interests that were identified by the participants. Such conflicts were found between departments and between public and private actors.
3. Critical resources – Needs for support and tools
   The last sub-section highlights the participants' views of what kind of support and tools they might need to improve the urban development process towards a more UD-related planning and building.

RQ1 is answered by the first and second sub-section, and RQ2 by the third sub-section.

Critical choices and aspects

"Critical choices and aspects" should be understood as choices, conditions and actions during the process that have a clear impact on the result in terms of UD, accessibility and usability for all users; and how design choices, decisions and actions can result in environments that either include all users or exclude some users.

Among the findings, critical choices and aspects that might lead to unequal buildings and spaces, through their exclusive design, were identified. According to the interviewees, discussions on issues essential to secure UD and accessibility were postponed in the process, often until it was too late to deal with them. Lack of time, a high tempo in the processes, and difficulties to maintain a holistic approach throughout the process were pointed out as some of the reasons for this and can be added to findings in previous research (Frandsen et al., 2012; Kirkeby, 2015).
Participants in workshops and the interviewees were asked to identify the critical stages when design choices were made that led to the results shown in photos from the case study. The results from the workshops were confirmed by the interviews, which also gave a deeper understanding of the underlying causes. The participants had clear answers on design choices that had emerged in the latter part of the process, while patterns that could be traced to earlier phases elicited more discussions. In the analysis of answers from workshops and interviews, it was clear that the earlier phases, especially the planning and projecting phase, were critical, where most decisions and design choices took place that could result in either an inclusive or exclusive design. One of the interviewees stated that UD and accessibility had to be integrated at the latest in the pre-projecting stage. If not, they risked being lost (Interview 5). Excluding design choices in the latter phases were mainly attributed to mistakes arising from carelessness or lack of knowledge.

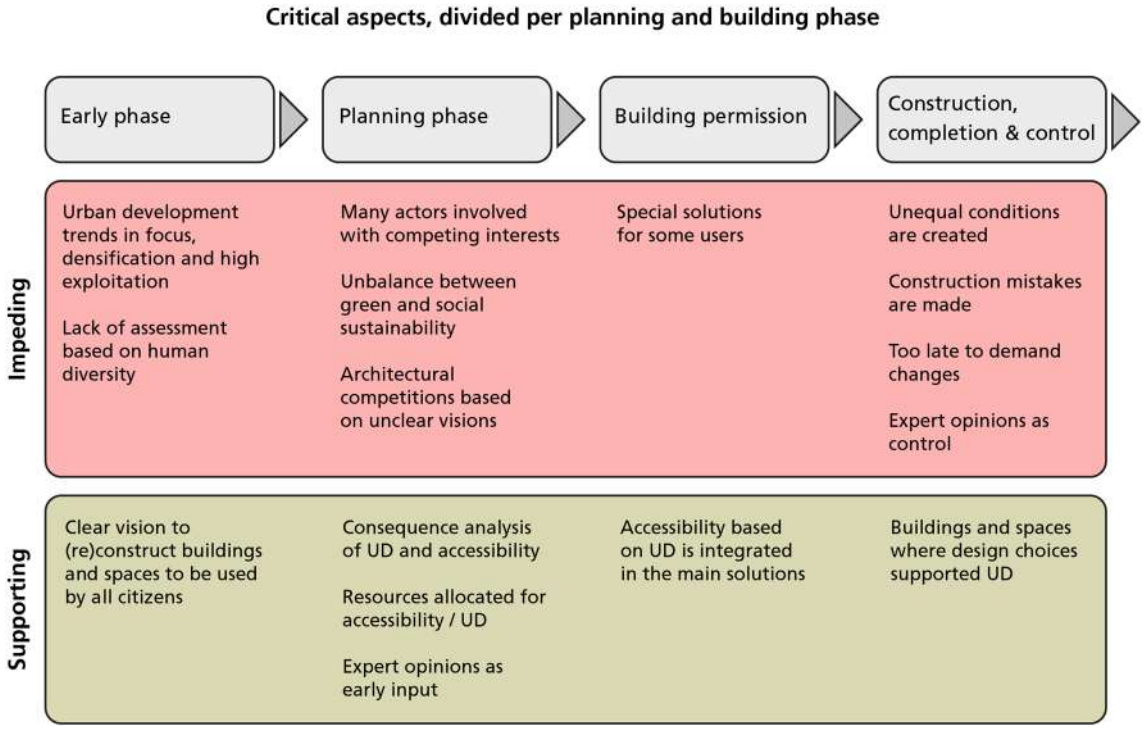

Figure 2. Critical stages and aspects during the process

The stages presented in the timeline in Figure 2 correspond to the four identified phases of the city development process. The timeline is divided into choices and aspects that impede or support UD, respectively. The presentation of findings below begins with impeding

choices and factors, going from early to later phases, followed by supporting choices and aspects.

Densification and expectations of high exploitation appeared among aspects impeding UD perspectives in the early phase. From a human diversity perspective, the lack of assessment of such contemporary urban development trends was highlighted. When planning for a densified city, there is a risk of losing the vital quality of space and solutions to overcome topographic challenges. Space is often an essential quality for design solutions to overcome level differences, combine stairs with ramps or lifts and create accessible entrances.

In the planning phase, the design choice to prioritise closed blocks with shops in the basement of the apartment buildings caused new challenges to accessibility and usability. The difficulties of placing closed blocks on hilly terrain created a greater need for compensatory measures to ensure accessibility for all users compared to a more flexible view of the location of buildings. On flat terrain, the different requirements of ceiling heights for shops and housing in the building legislation were cited as one reason behind new level differences, creating unequal conditions for the residents' opportunities to move around in the area.

Another factor that contributed to creating these new barriers concerned the visions of car-free streets and a clear division between the residents' private sphere and street life. Despite high ambitions of sustainability, the social aspects are lagging.

Competing interests among the many actors involved had adverse effects on planning and building with human diversity in focus, i.e. in areas of safety and security, visibility, inflexibility of transport modes and mobility. Unclear goals and demands in architectural competitions and public procurement can impede UD, not least in the way priorities are shown. What is not expressed can be judged as it is not asked for.

In the building permission phase, the acceptance (based on building regulations) of special solutions for some users can result in stigmatisation of users. It is clear that, when reaching this phase, the possibilities to apply UD are severely limited.

In the construction phase, mistakes are often unintended due to the pressure of time frames, economy and insufficient knowledge. At this stage, it is too late to change mistakes from the planning phase, and expert controls are limited and rarely lead to action.

Among the UD-supporting aspects, it is of vital importance to have a clear vision and goals for planning and building for *all* citizens in the early stage. Achieving this objective requires knowledge, resources and methods to bridge the different phases and the diversity of interests among actors. Projects with fewer actors involved and a conscious focus, including resource allocation for accessibility and UD, resulted in design choices supporting UD in the buildings and spaces.

When accessibility, as required by building regulations, is based on UD integrated into the main design solutions, there is a reduced risk of making mistakes in the building permission and construction phases.

It was also clear that critical aspects emerged in the transitions between the specified phases. Several risk factors were identified in handovers between phases, departments and actors. Some challenges were said to be a lack of a mutual overall picture and goal for each project, and a lack of coordination and shortcomings in the handover between phases. It was stated that the holistic approach was at risk of being lost at an early stage, partly due to conflicts of interests between departments, and between the city and private actors in the transition from the first visionary phase to the detailed planning phase.

The need to adopt a more holistic approach along the process was also mentioned, along with ensuring that visions survive through the whole process, that conflicts of interest are resolved, and that human diversity and universal design are set as high priorities.

Conflicting visions and goals

The interviewees identified conflicting visions and goals that risked negatively affecting the result from a UD perspective. A significant proportion of these could be traced to the city itself, while clear competing goals between private and public interests were also evident. Some areas where conflicting visions and goals arose were in departments' different views of desirable design choices, unbalances between green and socially sustainable development, and in urban design trends. This sub-section is about:

1. Conflicts between quantity and quality in urban development and how the ideal of a densified city is challenging necessary conditions for accessibility and UD-related solutions.
2. Conflicts of interests and ideals between city departments.
3. An unbalance between green and socially sustainable development.
4. Urban design trends that challenge design choices supporting UD.

Participants outlined the *conflicts between quantity and quality* in the urban development processes. Leading politicians in the city set high volume requirements on housing construction, which coincides with interests among private actors but can reduce the space for action when it comes to design choices. One of the interviewees described the difficulties in influencing the quality of what is being built: *"There is no focus on who will live in the new homes, only how many new citizens the city will get."* (Interview 1)

Figure 3. One of the discussed cases, where the conditions to create an outdoor environment accessible and usable by all residents is strongly limited by the choice of land and the requirement of high exploitation.

Participants expressed concerns about new challenges from a UD perspective that will arise from building on land with significant height differences and a smaller area per inhabitant, and the risk of excluding effects. The level of exploitation drives a lack of

space that makes it difficult to compensate for the level differences. A UD perspective is not yet included in assessments regarding which land is buildable or not.
Conflicts of interest and ideals between city departments were highlighted as examples leading to shortcomings in creating public spaces for all. The trend of creating "shared spaces" was discussed in connection with a photo from a newly built hub for public transport.
In front of the terminal, a bicycle lane crosses a pedestrian zone with no warning signs or contrasts. The possible design choices had been discussed intensively during the process. The two involved departments had two completely different views on traffic safety in this kind of environment, which led the building department to try to sidestep the policies of the traffic department: *"We are thinking **safety**, while they are thinking **security.** We do what we can to get around their policies here."* (Interview 2)
Ambitions to improve safety in the city were also identified as an area of conflict when it comes to other design choices supporting UD. Outdoor elevators have been classed as unsafe areas by one department. In this hilly city, this policy has produced excluding outdoor areas, and the reluctance to build outdoor elevators has not, so far, led other departments to reach a consensus on solutions that can be accessible and usable by all.

Figure 4. In front of the public transport terminal, a bicycle lane crosses the pedestrian area, with no warning signs or differences in materials, colours or contrast. The two departments involved have different views on such solutions.

In some examples, design mistakes could be traced to an *unbalance between green and socially sustainable development.* This phenomenon was further explained by an interviewee who referred to a routine procedure demanded by the Department for Climate and Water as a protection against flooding: *"This demand has been integrated into detailed development plans for years, but no one has thought about the accessibility challenges it creates."* (Interview 5) This raises questions about combining climate actions with goals such as UD, accessibility and usability.
Finally, *contemporary urban design trends that challenge UD-supportive design choices* were highlighted in workshops and interviews as potential conflict areas causing excluding

environments. One of them was the trend of including stairs in the planning of outdoor public places, also where the terrain was originally not hilly. In combination with the policy to avoid the installation of outdoor elevators, this creates excluding public environments. Other potentially excluding trends were the policies to build closed blocks and place the buildings' facades on the property boundary. These principles are perceived as urban environmental qualities but can create barriers and reduce possibilities for an inclusive design.

Figure 5. The standard requirement to create a level difference between the entrance level and the street level is an underlying factor, resulting in a special solution, separating people at the entrance. Still, there is a clear possibility to create an equal solution by bridging the level difference with a ramp inside the store.

Critical resources – Needs for support and tools

During the workshops and interviews, several suggestions were highlighted as possible areas of development to reach a more inclusive and UD-inspired urban development. The participants were also asked to define their possibility of influencing important design choices in the presented cases; and what tools and support are needed to foster more inclusive planning and building.

The need for support and tools varied in the different phases, but in general, some of the common areas were:

1. Developing knowledge and skills, such as how to care for human diversity in planning and building, put UD into practice, understand the consequences of different choices and measures, gain more knowledge about building legislation on accessibility, and raise awareness of the consequences, from a human diversity perspective, of different decisions and choices made during the process.

2. Coordination to reach common goals, a holistic view along the process, and the contextualisation of detailed development plans within the surrounding areas.
3. Cooperation for improving the handovers between departments and between actors, and shaping routines and documentation to this end; as well as the need to create procedures for feedback on experiences, and to find better ways of engaging in dialogue with civil society.
4. Developing tools, strategies and practices such as social consequence assessments and follow-up procedures. Emphasis was also placed on the need to combine environmental and socially sustainable development, and promote social consequence assessment as a tool in the planning process.
5. Clear requirements in public procurement and contracts with developers.
6. Analyses from a UD perspective in the different phases might counteract the postponement of important design choices along the process. Such continuous analyses might also create possibilities to "hit the brake" earlier in the process. Today, this function is placed at the end of the process when it is too late to demand changes (see Figure 2).
7. Clear demands at an early stage, such as demands from politicians, and better use of land allocation as a tool. *"With stronger demands from our politicians – that the city must be built for all – it should be easier for us to assert requirements towards the industry."* (Interview 3)

Accessibility and usability were mentioned as examples of issues that occurred late in the process and were reduced to the building legislation's pronounced minimum requirements (Ryhl, 2014). Participants suggested that a stronger focus on UD might raise important questions from a human diversity perspective earlier in the process, resulting in changed attitudes and a broader picture of the user.

In retrospect, it can be observed that the limited representation in the workshops, from a human diversity perspective, indicates a need for a more active and in-depth dialogue with a broad range of citizens and civil society.

Concluding discussion

Visions in the early stages to create a city for all citizens are not consequently followed up in each stage of the process. The study has outlined a pattern of critical aspects and choices that contribute to the exclusion of users in the built environment; and what conditions would support UD implementation throughout the process.

The findings show a great need for in-depth efforts in the entire planning and building process in terms of improved working methods and procedures and greater knowledge and awareness (Kirkeby, 2015; Heylighen, Van Der Linden and Van Steenwinkel, 2017; Erdtman, Rassmus-Gröhn and Hedvall, 2021). The latter applies not least if the States' commitments to respect the obligations of the CRPD and to achieve the Sustainable Development Goals become possible (United Nations 2006, 2014, 2017). UD will not be accomplished through changes in legislation but rather through changed mindsets (Hedvall, 2022; Van der Linden, Dong and Heylighen, 2016). The participants have outlined what support they need to contribute to change. The findings demonstrate the possibility of using UD to bring about change by raising awareness among planners, architects and other actors involved to plan for human diversity instead of an average body (Imrie, 2003;

Hamraie, 2012; Jones, 2014), and of UD becoming a driver for inclusive architecture (Grangaard, 2018; Steinfeld and Tauke, 2002).

The findings also reveal the criticality of the planning phase, where many of the essential design choices are made. Many different actors are involved, and conflicting visions and goals in this phase can explain the existence of excluding environments in the built environment (Egard, 2022; Carvalho de Souza and de Oliveira Post, 2015; Plouin et al., 2021). Furthermore, the findings indicate that the implementation of UD can be a crucial tool and bridge between interests in the planning process, as contemporary planning discourses are at risk of being "disability-blind" when public actors do not step forward and defend public interests (Allmendinger, 2017). From the city's perspective, this is an urgent need, especially when taking the demographic change into account (Granbom et al., 2016).

A number of preconditions identified in the study would need further attention. In conclusion, we highlight measures to implement UD in the process and improve the realisation of policies and early visions to achieve a corresponding result in the completed built environment.

1. Set precise requirements in public procurement and contracts. Clear objectives that can be followed up and evaluated may minimise the risks of changes along the process, resulting in apparent mistakes from a UD point of view. Public procurement is a robust tool for the city but is still underutilised. For a major land and property owner such as the city, this great power can be wielded for the cause of creating a city for all. Private actors need a clear view of the city's expectations, as well as the conditions for creative solutions to ensure that the city is built for all users.
2. Reduce conflicting visions, goals and guidelines through stronger cooperation between the city's departments and adaptation of a common design policy, linked to statements such as *A city for all* (Frandsen et al., 2012). A UD approach in planning and building needs a common vision and commitment.
3. By implementing a UD approach in all phases, existing tools and procedures, considerations linked to human diversity will be present in moments of priority. It can be a supportive tool when special solutions for some users are about to be created due to established thought patterns (Figure 5) (Hedvall, 2022; Müller et al., 2021). A common long-term perspective and holistic thinking are needed.
4. Provide opportunities for all involved staff for increased knowledge and awareness on how to put UD into practice, how to care for human diversity in planning and building, and to learn more about the consequences of different decisions and choices from a UD perspective (Heylighen, Van Der Linden and Van Steenwinkel, 2017; Zallio and Clarkson, 2021; Van der Linden, Dong and Heylighen, 2016).
5. Create and develop procedures for assessment, handovers between phases and departments, and handling feedback and experiences from one project to another. Improve follow-up and control in each phase. At the last stage of the project, it is too late to make changes.
6. Provide measures to "hit the brake" when confronted with a choice that will have negative/impeding consequences in terms of UD. Thorough pre-studies and analyses with UD and human diversity as important conditions will reduce the risks of situations where it is necessary to hit the brake.
7. Find well-functioning ways to engage in dialogue with civil society, co-creating the *city for all* together with citizens. Reaching out for the expertise and engagement of

persons with disabilities is a precondition to achieving accessibility and usability through UD together.

The planning and building process is complex, and projects are realised over long time frames. Many important changes in regulations and policies occur during the period from vision to a completed building/place and after. Critical aspects linked to operation and maintenance were not part of this study, but it is an important area to highlight in further research. For the future, it is also important to continue to identify patterns that support or impede UD in planning and building. Developing tools and support that can be used to maintain UD all along the process is essential to realise the vision of a city for all.

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Public Open Spaces: Enabling or Impeding Inclusive Evacuation During Disasters

Andrea Pacheco Barzallo
Universidad Politécnica de Madrid & Universidad Internacional del Ecuador
anpachecoba@uide.edu.ec

José Fariña, Eva Álvarez de Andrés
Universidad Politécnica de Madrid
jose.farina@upm.es | eva.alvarez@upm.es

Abstract
The objective of this research is to identify the main barriers that public spaces pose during disasters for persons with disabilities within informal settings, where poverty, stigma and the lack of technical know-how regarding critical inclusion aspects such as universal accessibility intersect. This conflict could impede persons with disabilities from, among other aspects, evacuating, finding safe areas and meeting with the community. For this purpose, a phased design using multiple methods was employed. The first phase focused on the review of universal accessibility and disaster risk management standards. This phase allowed the building of an instrument for the observation of three case studies or neighbourhoods in the Metropolitan District of Quito: Atucucho, Carapungo and Auqui de Monjas. The territories of all the cases are highly exposed to disaster risk mainly due to their geographical locations. The second phase focused on an in-depth observation of public open space in all three neighbourhoods and the collection of quotes and experiences from older people with disabilities, their families and their neighbours, which was achieved through focus groups. The third phase focused on analysing and interpreting the data, which yielded three sub-themes concerning the barriers posed in public spaces: physical and informational accessibility; public space connectivity or the ability to generate a close network within the community; and social and cultural aspects, as persons with disabilities feel that public spaces are only being occupied by other groups, such as young people.

Keywords: universal accessibility, pedestrian mobility, inclusive shelter, autonomy, at-risk populations

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Introduction

The United Nations Convention on the Rights of Persons with Disabilities (UN CRPD) establishes that States Parties shall promote universal design to make products, environments, programmes and services usable by all people, to the greatest extent possible, without the need for adaptation or specialised design (Art. 2). It also determines that States Parties will promote universal accessibility to enable persons with disabilities to live independently and participate fully in all aspects of life on an equal basis with others (Art. 9). These countries should also take all the necessary measures to ensure the protection and safety of persons with disabilities in situations of risk (Art. 11) (United Nations, 2006). During disasters, the lack of such conditions or their poor implementation puts persons with disabilities at higher risk of being left behind or abandoned (United Nations Department of Economic and Social Affairs, no date). For example, when Hurricane Katrina struck, many wheelchair users drowned in their beds and chairs, even within specialised care settings; during the 2011 earthquake in Japan, the deaths of persons with disabilities were proportionally double those of the general population, and similar data are observed regarding disasters in Haiti and Indonesia (Aldrich and Benson, 2008; United Nations Office for Disaster Risk Reduction, 2016).

The lack of universal design and accessibility are not the only factors that increase the disaster risk for persons with disabilities; cultural attitudes, stigma and barriers to their full participation in society have the same impact. This was shown in a UN survey conducted in 126 countries, which found that only 14 per cent of people with disabilities had been consulted about disaster risk management in their communities, implying that their risk reduction needs have been ignored (United Nations Office for Disaster Risk Reduction, 2013; Hunt et al., 2015; Nunnerley et al., 2015; Stough and Kang, 2015; Skøt et al., 2016). This is particularly worrying given that, as a result of climate change, the number of disasters is expected to increase over the next few years (United Nations Refugee Agency, 2017), and therefore the disaster needs of older people and persons with disabilities should be urgently addressed.

The New Urban Agenda, the Kyoto Protocol and the Sendai Framework for Disaster Risk Reduction (DRR) have called for States Parties to establish urban and land use management policies for disaster risk management, which could be a very powerful tool through the identification of hazard-prone areas (Burby, 1998; United Nations, 2015; United Nations Human Settlements Programme, 2016), the organisation of spare capacities and urban evacuation networks (Brand and Nicholson, 2016; Sharifi, 2019), and the planning of the availability, distribution and design of public open spaces (French et al., 2019), among others. During disasters, public spaces, such as streets and sidewalks, must enable people to evacuate (Zuo, Zhou and Lin, 2015; Brand and Nicholson, 2016; Gülgün et al., 2016; Chaiyachati et al., 2018), provide the community with a common place to meet and seek shelter until the return to normal conditions (Pizzo et al., 2013), and connect vulnerable areas with safe open ones (León and March, 2014). The lack of such spaces makes cities more vulnerable to natural hazards (Hounakzahi and Fanni, 2019). For this reason, the potential of public open spaces in terms of disaster risk management should be further studied (Koren and Rus, 2019) by considering the needs of all population groups and the different needs for disaster risk reduction among societies and countries (the World Bank, International Food Policy

Research Institute and Global Facility for Disaster Reduction and Recovery, no date; Alejandra and Lara, 2019).

The particular interest of this work is to analyse the main barriers that public open space poses for persons with disabilities, impeding them from using it to reduce their risk during disasters, specifically within informal settings. In such contexts, the lack of technical know-how leads to the poor implementation of construction standards, a lack of universal accessibility, and the presence of several barriers to the mobility of persons with disabilities and older people and their use of public spaces (Food and Agriculture Organization of the United Nations and United Nations Human Settlements Programme, 2008; Mitra, Posarac and Vick, 2013; United Nations Committee on the Rights of Persons with Disabilities, 2014). In the Metropolitan District of Quito, the capital of Ecuador, a large part of the informal territory is highly exposed to disaster risk as the country is located on the west coast of South America, an area with some of the highest tectonic complexity in the world (Food and Agriculture Organization of the United Nations and United Nations Human Settlements Programme, 2008). Quito was built on geological faults (Aguiar, 2017), and it is estimated that 296,100 of its 423,000 hectares could be seriously affected by the occurrence of different phenomena derived from their geographical location (Municipio de Quito, 2015). From the latest disaster records available, with the last event being an earthquake that took place in April 2016, some data show that people with disabilities are among the most affected groups (*La República*, 2016; Secretaria de Gestión de Riesgos, 2016), particularly in poor and informal areas where vulnerability and exclusion intersect (Vicepresidencia Ecuador, 2012).

Methodology

The research uses a mixed methodology and includes three phases with a multi-case approach. It must be mentioned that this methodology was used in a research project focused on several aspects for inclusive disaster risk management. In this work we present the results referring to public space. Findings from other aspects of the study will be reported elsewhere.

Phase 1: Literary review

The literary review process focused on collecting national standards about disaster risk reduction and universal accessibility from documents such as the NTE INEN-ISO 21542 Standard on the Accessibility and Usability of the Built Environment, which was adopted in Ecuador in 2014, and the Ecuadorian Construction Standard (NEC), as well as local guides from Ecuador's National Secretariat for Risk Management. The set of standards collected concerns pedestrian accessibility; the availability and quality of ramps and walkways; the availability of tactile flooring and pedestrian crossings; the proximity of public transportation facilities; and the availability of inclusive signage, among other aspects. An indicator of pedestrian urban proximity was necessary for the analysis, and it was set at 200 metres by the research team as no inclusive parameter was found in the existing literature; deeper analysis is thus required in future studies.

Phase 2: Case selection, focus groups and spatial audits

The case selection focused on identifying informal territories in Quito with the highest exposure to disasters based on their locations. The final selection of cases was also

marked by the willingness of community leaders to participate in the study. Three neighbourhoods were selected: Atucucho, Carapungo and Auqui de Monjas.
In each neighbourhood, focus groups were held to collect perceptions and experiences from older persons with disabilities, their families and their neighbours regarding public open spaces and the use of such areas during disasters. As no contact information for potential participants was initially available and no organisations of persons with disabilities (OPDs) were identified within the case studies, invitations to join the sessions were made by community leaders, which resulted in the following numbers of participants: 21 in Atucucho, 12 in Carapungo and 16 in Auqui. Among these, 27 were older people with special healthcare needs, only 13 had legally recognised disabilities, 8 had physical disabilities, 2 had visual disabilities, 1 had a hearing disability, and 2 had multiple disabilities. People with intellectual disabilities did not participate. Eight people required mechanisms or devices in their daily lives. The remaining participants were neighbours, family members or caregivers. It was decided that the sessions would not be filmed or photographed; instead, the conversations were recorded and notes were taken. In addition, no personal data or individual-specific health information was requested. All the sessions were held in the communal houses of each case, where ramps and different verbal and written communication channels were provided. Before starting the meetings, the participants were informed of the study's objectives and signed an informed consent letter.
Spatial audits were carried out in all the public open spaces, such as in the parks and squares of all the neighbourhoods and their entire street network. The spatial audits were carried out by professors, students in their final year and architects of the International University of Ecuador, who visited and walked around all the streets and public open spaces of the case studies.

Phase 3: Data analysis

The qualitative data from focus groups were studied following thematic analysis, which yielded three sub-themes concerning the characteristics of public open spaces that prevent persons with disabilities and older people from using them and decrease their disaster risk reduction needs as established in the results section.
The data of the spatial audits were first quantified to obtain global results describing the actual conditions of public space. Then, to further interpret these data and map them within the territories of the public space of the case studies, they were aggregated and categorised into three levels – "favourable interactions", "likely to be blocked interactions" and "blocked interactions" – following similar risk and inclusion models, such as the methodology for Disability Inclusion in Hospital Disaster Risk Management (INGRID-H) (Pan American Health Organization, 2018) and the Ecuadorian methodology for developing universal accessibility plans, which was recognised as a best practice model by the Design for All Foundation (Europe, 2015). These three levels are an abstraction of the interactions that could occur within a disaster scene between public spaces and people with disabilities. The categorised results were subsequently mapped in the two case studies of Atucucho and Carapungo; an updated cadastral was not found for Auqui de Monjas.
The "blocked interactions" level indicates that the evaluated space does not meet any or minimum inclusion and disaster risk management standards. The "favourable interactions" level indicates that the evaluated space satisfies several or most of the disaster risk

management and inclusion standards. The "likely to be blocked interactions" level indicates that the space meets some of the standards but not others, impeding the creation of accessible chains within the built environment. To establish the quantitative limits of each level, identical values were granted to each standard, and minimum and maximum numerical values were set for each level.

Limitations

The main limitation of the methodology concerned the impossibility of directly observing a disaster. However, considering the notion that "what does not work properly in normality will not work well in times of crisis; it will only get worse" (P. Burbano, interview, 30 September 2019), the analysis was performed within daily life scenarios where people face physical and cultural barriers and define their risk disaster needs. A second limitation regarded the lack of contact information for potential participants and the fact that no local OPDs were identified. As a consequence, only older persons with disabilities participated thanks to their enrolment in physical and recreational activities in the community.

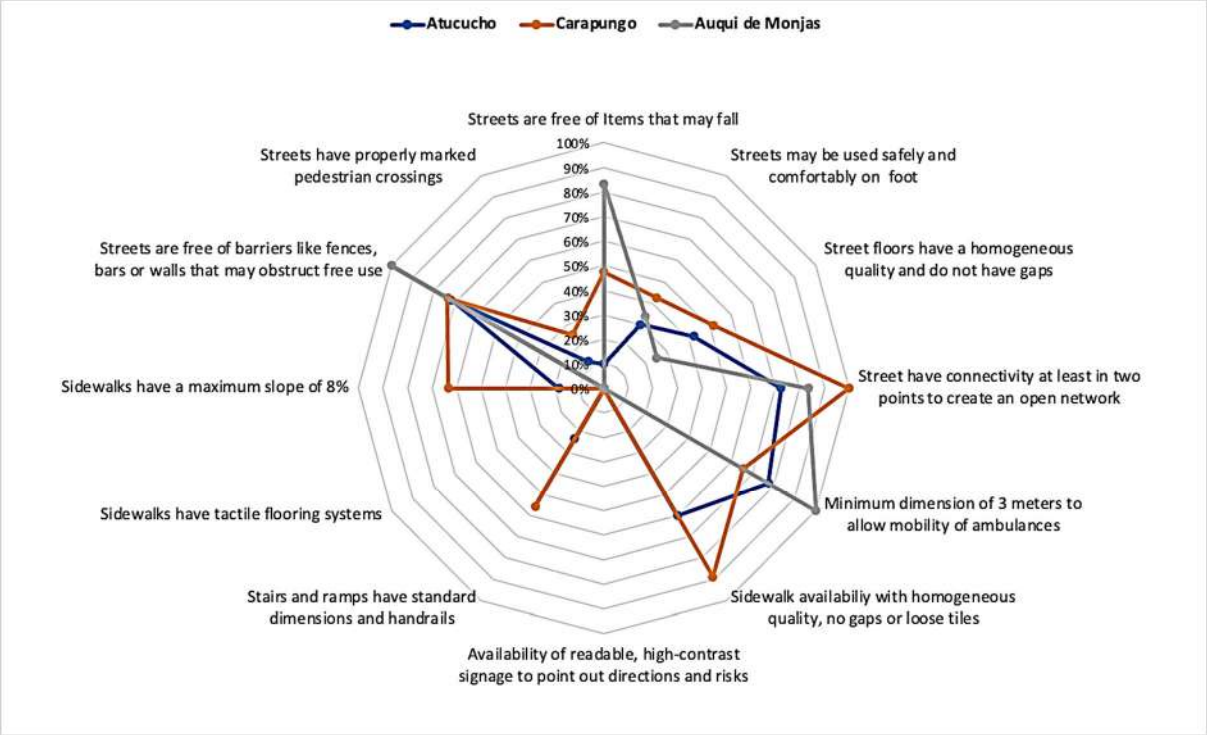

Figure 1. Results of physical and informational environments in street networks.

Results

The results obtained from the focus groups indicate that the characteristics of public open spaces that prevent older people with disabilities from using them to reduce their disaster risk are related to three different dimensions: first, physical and informational elements, which must comply with universal accessibility standards; second, public open space

availability and connectivity within the entire community; and third, social and cultural aspects, such as exclusion attitudes and stigmas that still rule within all case studies. Atucucho is a neighbourhood whose beginnings date back to the 1980s (*El Telégrafo*, 2014) and that nowadays has around 20,000 inhabitants (*Quito Informa*, 2022). Similarly, Auqui de Monjas was established in 1966 by its community (Carvajal Flores, 2013). In contrast, Carapungo was formed in 1984 as part of a governmental programme to provide 84,000 homes (*El Universo*, 2009); however, to date the neighbourhood is not congruent with its initial design, and its population has multiplied to the extent that it is now being considered a micro-city within Quito (*El Telégrafo*, 2015).

Accessibility to physical and informational environments

The results from the analysis of public open spaces indicate that physical and informational environments create several barriers to inclusive disaster risk reduction. Figure 1 shows the descriptive results obtained from the observation of street networks. These have many shortcomings in terms of universal accessibility or risk management standards, with the lack of sidewalks with tactile flooring systems, and the lack of readable, high-contrast signage being the two main barriers in all case studies. Table 1 details the descriptive results of the conditions of public open areas such as parks and squares. All cases lack inclusive signs and tactile flooring. Also, the quality of slopes and pedestrian crossings present major universal accessibility issues.

Standard	Atucucho	Carapungo	Auqui de Monjas
Public open spaces are free of items that may fall	48%	67%	67%
Public spaces can be entered safely and comfortably on foot	31%	43%	27%
The floors of public spaces have a homogeneous quality and do not have gaps or loose tiles	37%	58%	33%
Availability of a bus stop within 200 meters from public space perimeters	20%	53%	100%
The access to public spaces has the minimum dimensions for the entrance of an ambulance (3 free meters)	36%	76%	0%
Availability of readable, high-contrast signage to point out directions and risks	5%	3%	0%
Stairs and ramps have standard dimensions and handrails	20%	69%	17%
Walkways inside public spaces have ramps, if needed, and have tactile floors	0%	0%	0%
Walkways have a maximum slope of 8%	32%	67%	33%
Public spaces are free of barriers, fences, or any other elements that may impede free access	44%	57%	100%
Near the entrance to public spaces, there are properly marked pedestrian crossings	8%	4%	0%

Availability and connectivity of public open spaces within the entire community
This aspect of the analysis focuses on the distribution and availability of a network of public open spaces such as parks and squares for the entire community within the territories of the case studies.

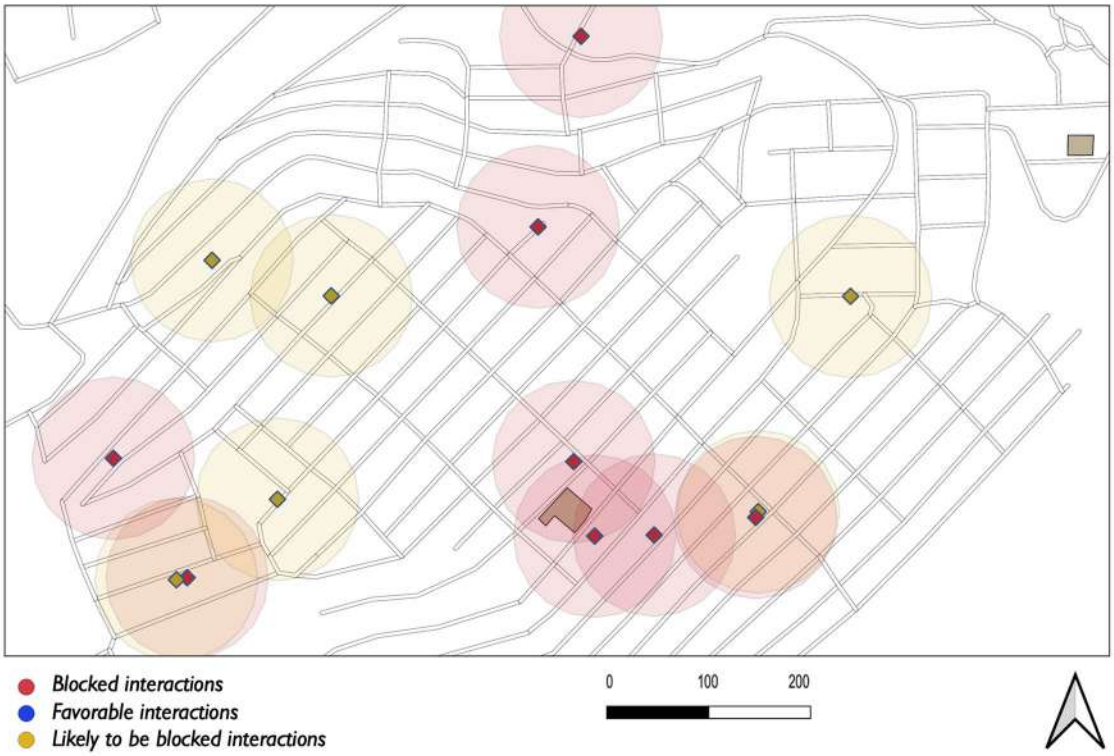

Figure 2 Map with the categorized results of public spaces in Atucucho. Discussion available below.

Figure 2 is a map of Atucucho and all its public spaces, which are mostly located on the outskirts of the neighbourhood, while the central part of the territory lacks open areas. Of these public spaces, eight are blocking interactions with older people with disabilities, six are likely to be blocking such interactions, and none of the public spaces favour these interactions. Around each space, a radius of 200 metres showing the proximity area has been marked, revealing how most of the territory does not have a public open space nearby. The participants of the Atucucho focus group mentioned how it was very difficult for them to access public places because they are far away, because they have complicated topography, and because the quality of the sidewalks is not good. In Carapungo, the network of public spaces shows a substantial improvement in comparison with Atucucho. This neighbourhood has a much wider network of public open areas distributed throughout the territory. However, as indicated on the following map, 30 of these areas are yellow, which means that these are likely to be blocking interactions with older people with disabilities during disasters. Of the remaining public areas, 27 are red and blocking such interactions, and 6 are blue, which means they favour the interactions. These results are linked to the flat topography of the territory, and the main accessibility issues are related to the lack of maintenance of walkways, the absence of tactile floors and the lack of informational elements.

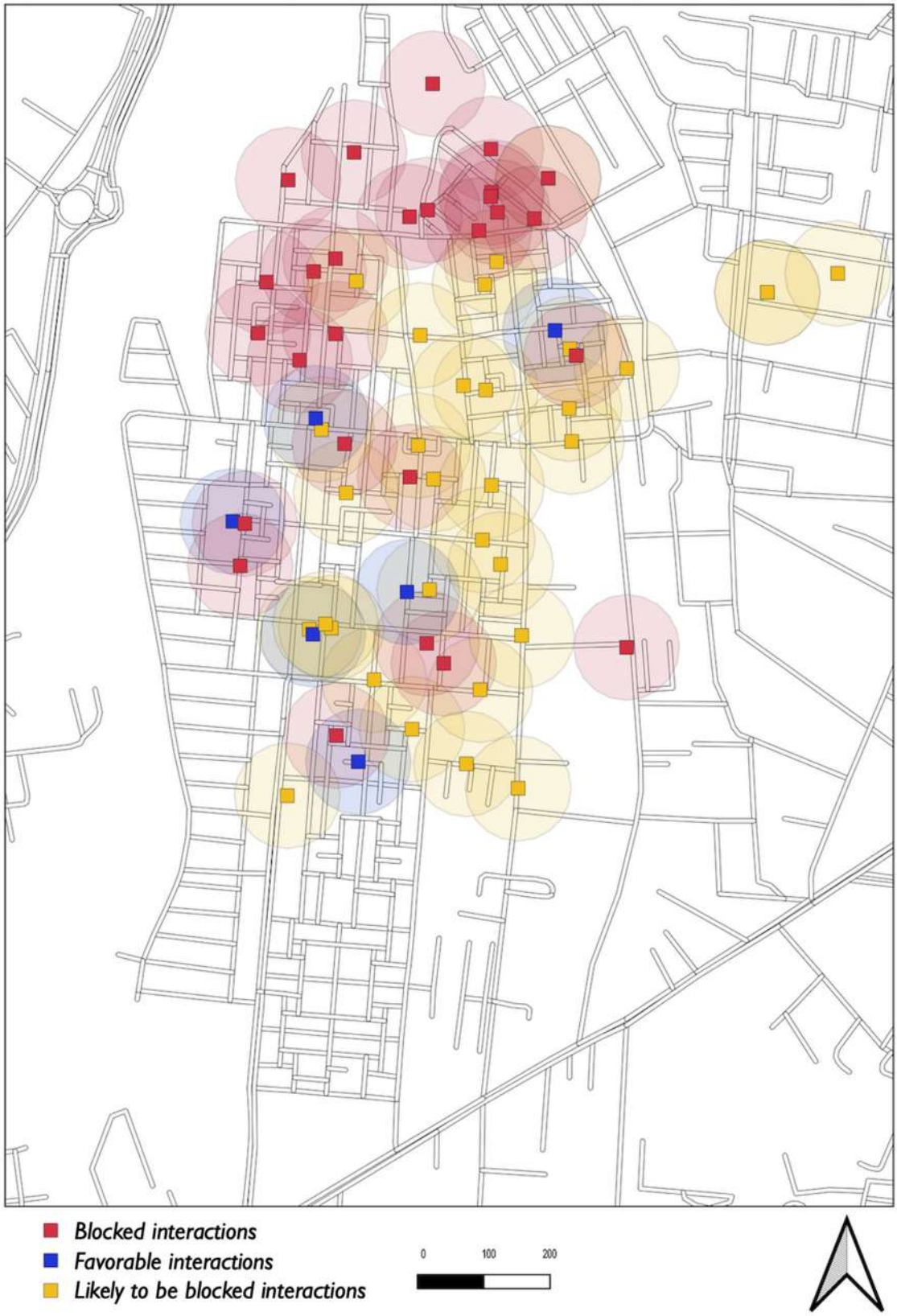

Figure 3. Map with the categorized results of public spaces in Carapungo (Source: Author, 2021).

Social and cultural environments

Beliefs, attitudes and stigma towards older persons and people with disabilities remain an important issue in all the case studies. Just as there are different definitions of disability, there are also different models of disability. The functional model sees an individual as having a problem, whereas the social one sees society as the root of the problem in terms of not being able to accommodate everybody (Oliver and Barnes, 2012; Christian Blind Mission, 2017; Levitt, 2017). During the focus groups and in all the cases, it was possible to identify how the functional model prevails in the community; persons with disabilities are seen as defenceless and in need of help to reduce their disaster risk, and their autonomy and self-protection rights are ignored. The dominance of this functional model is also present among persons with disabilities who, faced with constant barriers, have developed a dependency and fatalistic ideas about their possibilities for acting and protecting themselves in case of disasters. Some participants mentioned the following:

> *"… in those cases … the police could help. And there are also some groups, like the Red Cross … if there is an earthquake, they would have to see exactly how they can help people who cannot fend for themselves …" (Participant from Atucucho, July 2019)*

> *"… we do not coordinate that … the neighbourhood committee links vulnerable groups with the relevant institutions, and they help them there …" (Participant from Carapungo, July 2019)*

> *"… in an emergency, I would stay at home. How scary to go out! If my family came later, they would not find me …" (Participant from Auqui de Monjas, November 2018)*

> *"… where I live, it is not paved, and I have to walk a lot for everything … it is pure mud, and it would be chaos in the event of an earthquake. I don't know if I could get out …" (Participant from Atucucho, July 2019)*

Another cultural barrier identified is linked to the mobility model heavily based on private vehicles, which is detrimental to pedestrian mobility and inclusion. In all the case studies, sidewalks are repeatedly hampered by the presence of infrastructures to facilitate the entry and exit of vehicles from homes. One participant mentioned the following:

> *"… here, everything gets congested, that's the law, it's going to happen in the case of a disaster … also, the number of vehicles is large, and there are just a few routes to evacuate … I mean, this one here …, it's paved, and the one over there I think is also paved …" (Participant from Atucucho, July 2019)*

Finally, during the focus groups, older people mentioned that the behaviour of other population groups is a major obstacle that blocks their interactions with public spaces and even prevents them from trying to access them. In addition to attitudinal barriers, there is a tendency to create extra barriers to the access of public spaces in all the neighbourhoods, as several parks, alleys and even some streets have fences, doors or

padlocks, which some neighbours have installed in an attempt to control their use based on alleged problems with regard to insecurity or cleanliness.

> *"… in those cases, you feel frightened when you go out because sometimes you do not know how to get somewhere or where to go because most of the parks are used by younger people. For old people, there are only a few spaces, and they may also be locked …" (Participant from Atucucho, July 2019)*

> *"… there are parks, there are also courts, but for older people there are not many spaces … young people are sometimes drinking there …" (Participant from Atucucho, July 2019)*

Conclusion

Three sub-themes have been highlighted regarding the characteristics of public open spaces that could prevent persons with disabilities and older people from using them and decrease their disaster risk reduction needs: physical and informational accessibility; connectivity and availability within the entire community; and social and cultural aspects. This last one is of major relevance as stigma and negative concepts towards disabilities shape the ways societies design, create and use their public spaces.

Apart from evidencing the poor implementation of local disaster risk management and universal accessibility standards, spatial audits highlight the conditions of exclusion that people with disabilities face in daily life, and during disasters, which impede them from evacuating and meeting the community. Particularly, for informal settings, the audit results call for urgent urban policies and projects targeting inclusion, with active participation and political representation of persons with disabilities. It is very important to deepen the analysis of the scope that national and international policies may have in informal contexts since, at the time of this investigation, the standards used seemed completely alien. In this sense, specific projects for the implementation of the UN CRPD and the new urban agenda in these types of communities should be strongly encouraged.

Even when disasters cannot be directly observed, the analysis of public spaces based on people's daily lives allows an understanding of some barriers that persons with disabilities and older people could face, to a greater extent, in case of disaster. Daily negative experiences reinforce stigmas and dependency and block autonomy, and this will not change during an emergency. Therefore, inclusive disaster risk management should pay special attention to the autonomous daily life conditions of persons with disabilities and not only to technical efforts, such as drills and institutional responses.

It is transcendental to deepen the study of the messages, ideas and perceptions that people construct from their interactions with the physical and informational environments. The ideas collected during the focus groups indicate that older people with disabilities have a negative view of public spaces.

Regarding the methodology implemented for the analysis, it should be mentioned that the techniques used for the observation of the public spaces, as well as the categorisation of the results, are consistent with the social model of disability, observing the conditions of public spaces as a result of social exclusion. This approach is congruent with the UN CRPD and its adoption should be encouraged. In future studies,

it would be important to complement the set of standards collected and further analyse the categories established for data interpretation.
Finally, although the case studies were selected based on their high exposure to risk and their conditions of informality, it is crucial to mention that the barriers to the use of public spaces during disasters are not isolated issues and that the results represent what is happening in several territories, cities and other countries in Latin America.

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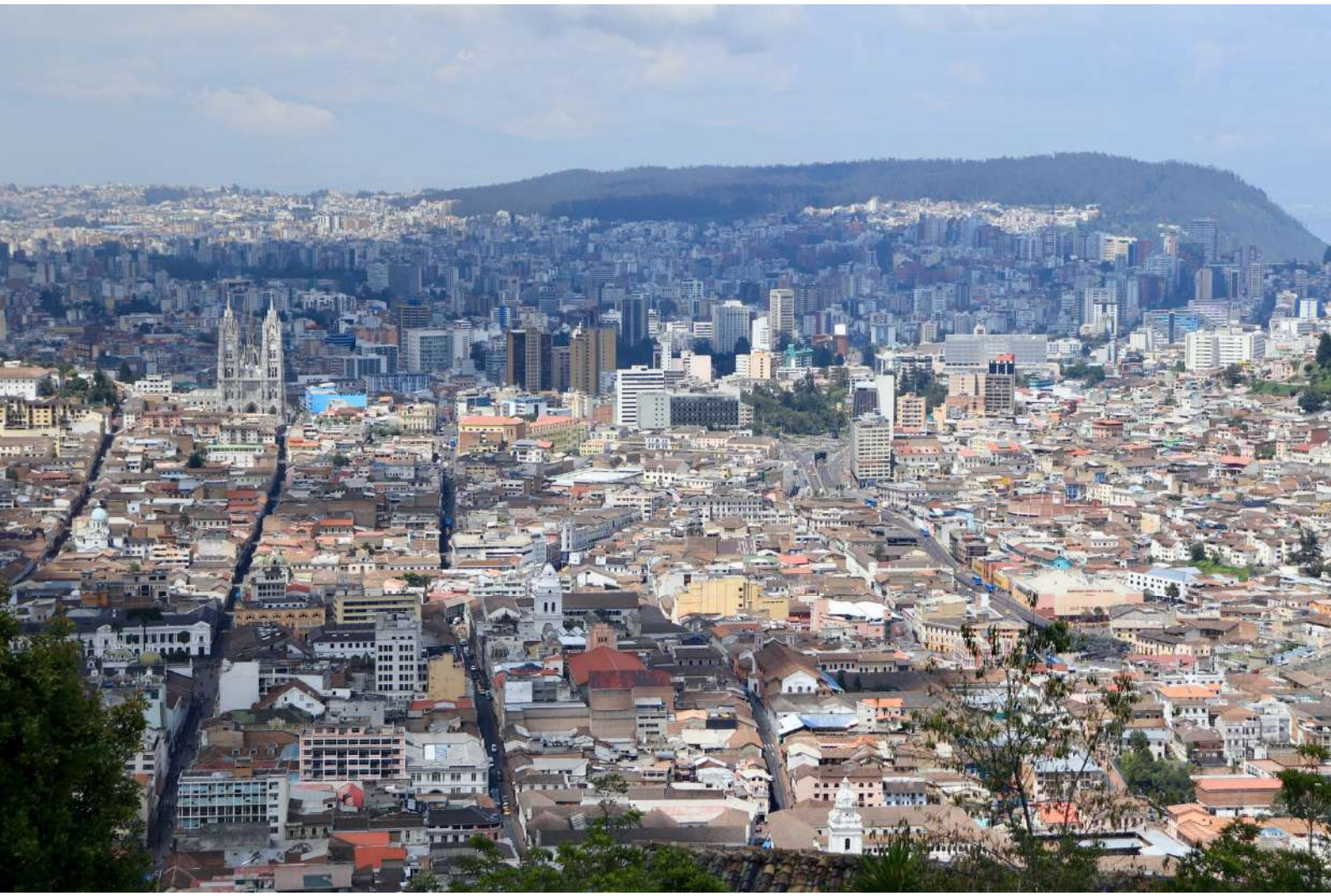

View of historical Quito from Virgin Mary statue "El Panecillo".
Photo by Alejandro Alfaro M on Unsplash

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Co-creating Inclusive Public Spaces.
Learnings from Four Global Case Studies on Inclusive Cities

Mikaela Patrick, Iain McKinnon
Global Disability Innovation Hub, University College London, United Kingdom
mikaela.patrick@ucl.ac.uk | i.mckinnon@ucl.ac.uk

Abstract
This paper presents some of the findings from a global research study on inclusive infrastructure and city design (AT2030 - Inclusive Infrastructure) and will focus on inclusive public spaces. Persons with disabilities can experience multi-dimensional exclusion from urban life, including but not limited to physical, attitudinal, and social barriers. Public spaces, including recreational and social spaces, are often not prioritised. Inclusive public spaces are fundamental to participation and inclusion in society. Including persons with disabilities in the design and planning of the built environment while applying an intersectional approach, supports equal rights and helps identify people's aspirations for inclusive environments.
Four city case studies will be discussed in this paper: Ulaanbaatar, Mongolia; Varanasi, India; Surakarta, Indonesia; and Nairobi, Kenya. Research participants and objectives are organised by three stakeholder groups:

a) *People*: first-hand experiences of persons with disabilities living in the city and their aspirations for a more inclusive city
b) *Policy*: the awareness and understanding of inclusive design among policymakers
c) *Practice*: the awareness and understanding of inclusive design among practitioners including barriers to implementation, opportunities, and the relationship with assistive technology

Methods include document reviews, interviews, photo diaries and co-design workshops with participatory and inclusive engagement of persons with disabilities throughout. Findings on public spaces are discussed in three ways:

1. The types of public spaces valued by participants in each of the four cities.
2. The barriers and challenges experienced by persons with disabilities in the public realm.
3. Aspirations and opportunities for more inclusive public spaces

The paper concludes by discussing how the targeted stakeholder groups of people, policy and practice help represent three essential dimensions of inclusive city design and form a framework for successful implementation and delivery – that supports targets set out in the UNCRPD, New Urban Agenda and the UN Sustainable Development Goals (SDGs).

Keywords: inclusive design, urban planning, disability, accessibility, inclusive public space, inclusive cities

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Introduction

This paper presents findings with a focus on inclusive public spaces from a global research study on inclusive infrastructure and city design. The research study is producing city case studies through participatory research with urban stakeholders on the challenges and opportunities for inclusive environments in cities in the Global South. Persons with disabilities can experience multi-dimensional exclusion from urban life, including but not limited to physical, attitudinal and social barriers (The World Health Organisation, 2011). The global population of persons with disabilities is over 1.2 billion, which constitutes around 15% of the population (WeThe15, 2021). It is essential that urban development initiatives are inclusive of this group. The targets set out in the UN Sustainable Development Goals cannot be met without genuine inclusion and participation of persons with disabilities. 80% of persons with disabilities live in lower-and-middle-income countries (Harper, Essig and Youssefian, 2021), where urban development can be more challenging due to limited resources and in many cases, a lack of climate and crisis resilience. People continue to migrate towards cities, and figures suggest that 60% of the infrastructure that will exist in 2050 is still to be constructed (C40 Cities, 2021). There is a great opportunity to influence this development to be inclusive for all. While definitions vary, public space is one of the fundamental mediators of urban life and to experience inclusion in urban life, public spaces must be inclusive and accessible to ensure persons with disabilities are not excluded.

Given the context set out above, this research project (AT2030) focused on cities in lower-and-middle-income countries, connected to other parts of the AT2030 programme, to understand the current state of inclusion and accessibility for persons with disabilities and what opportunities for inclusive design exist. The case studies discussed include Ulaanbaatar, Mongolia; Varanasi, India; Surakarta (Solo), Indonesia and Nairobi, Kenya. Each city case study is developed in partnership with local organisations including Organisations of Persons with Disabilities (OPDs), NGOs and research institutions and methods include interviews, photo diaries, workshops and document reviews. While the AT2030 research study focuses on the city as a whole, this paper will present analysis focused on the dimensions of inclusive public space only.

In this paper, public space is predominantly discussed in an urban context. Recognising that public space is a diverse, multi-faceted, contested and evolving term, we frame public space through Mehta and Palazzo's discussion of how access to public space is representative of the social, cultural and political life of a city:

> *"The access and availability to public spaces can show how public spaces are, or not, an arena for public life: a place for individual and group expression; a forum for dialogue, debate, and contestation; a space for conviviality, leisure, performance, and display; a place for economic survival and refuge; a site for exchange of information and ideas; and a setting for nature to exist in the city and to support the well-being of its inhabitants."* (Mehta and Palazzo, 2020)

In this definition, access to and availability of public spaces are part of defining public space – implicitly bringing forth concepts of inclusion and exclusion. Historically, literature on public space has focused on cities in the Global North, particularly North American and European cities, where Western ideologies and politics influence the production of the built environment to reflect prevailing narratives of inclusion and

exclusion (Jacobs, 1992; Gehl, 2011; Mogilevich, 2020). However, a positive turn towards recognising and embracing diversity in the built environment and a body of literature that explores perspectives of public space from historically excluded groups is evolving, including but not limited to: discussion of the right to the city (Harvey, 2012), public spaces and the feminist city (Kern, 2021), public spaces in Global South (Madanipour, 2010; Lemanski, 2019; Ye, 2019), public spaces and migration, public space and older people (Stahl, 2019), public space and disability (Imrie, 1996; Rebernik, Marušić and Bahillo, 2019; Pineda, 2020) and intersectional ideas of collective access (Hamraie, 2013). This work helps create space for a more inclusive and diverse understanding of public space.

There is often a disconnect between research and practice, with research translating to action on the ground only in limited circumstances. Equitable research, that is co-produced and locally-adapted, needs close participation between researchers and people on the ground (Marrengane, Croese, 2021) – in other words, a participatory and inclusive approach. Further, research and evidence must find its way back to local communities and practitioners on the ground, including local governments who have a key role in shaping the built environment (ibid). Including these stakeholders in research activities can ensure tangible and long-term impact. Inclusive design processes have value here, as an inclusive design approach is first and foremost a people-centred approach to research and design, where empathy, trust and building relationships form an essential part of knowledge production. Inclusive design is often discussed in purely technical terms, as a set of physical standards for designing spaces, but it is much more than that: it is a mindset, a way of thinking that champions inclusion and ensures that everyone can experience the world around them in a fair and equal way (Global Disability Innovation Hub, Queen Elizabeth Olympic Park and London Legacy Development Corporation, 2019).

These case studies are also grounded in inclusive design as a theoretical approach. Inclusive and accessible public spaces are not limited to the physical dimensions of urban form and design but are complex entities that integrate social, political, cultural, environmental and spatial factors. Understanding the wider contextual factors of how people inhabit space and what their aspirations are can identify design opportunities that will have greatest impact on people's day-to-day lives and ensure that persons with disabilities experience equity of rights, participation and inclusion on a par with their non-disabled peers.

From a policy perspective, inclusive design of public space can be guided by international, national and local legislation. Within international frameworks and contemporary urban development agendas, public space is commonly discussed as demonstrated in both the Sustainable Development Goals (SDG11) and the New Urban Agenda (NUA):

> *"By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities."*
> SDG11.7 (UN, 2022)

> *"We commit ourselves to promoting safe, inclusive, accessible, green and quality public spaces, including streets, sidewalks and cycling lanes, squares, waterfront areas,*

> *gardens and parks, that are multifunctional areas for social interaction and inclusion, human health and well-being, economic exchange and cultural expression and dialogue among a wide diversity of people and cultures, and that are designed and managed to ensure human development and build peaceful, inclusive and participatory societies, as well as to promote living together, connectivity and social inclusion."*
> ('New Urban Agenda', 2017, p.13)

Under the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), public space is not explicitly mentioned. However, under Article 9 (Accessibility) the UNCRPD stipulates the accessibility of all buildings, transport, facilities, services open to the public, including environments managed by *private entities* open to the public (United Nations, 2006). Furthermore, the Convention's general principles set out the fundamental rights to dignity, equal participation and inclusion in society and accessibility. The Convention also recognises the diversity and intersectionality of disability, which the inclusive design of public spaces can celebrate. This paper will discuss findings of the AT2030 research study with a focus on public spaces and concludes by discussing the implications of the findings and how the targeted stakeholder groups of people, policy and practice also help represent three essential dimensions of inclusive city design and begin to form the basis of a framework for successful implementation and delivery, supporting inclusive global development targets.

Methodology

Four city case studies, taken from the AT2030 research programme, will be discussed in this paper:

1. Ulaanbaatar, Mongolia – in partnership with AIFO, Universal Progress ILC, Tegsh Niigem and Asian Development Bank;
2. Varanasi, India – in partnership with the National Institute of Urban Affairs and Kiran Society, support by Varanasi Municipality and Smart City Mission;
3. Surakarta, Indonesia in partnership with Kota Kita;
4. Nairobi, Kenya in partnership with Kilimanjaro Blind Trust and Kounkuey Design Initiative.

A multi-city, global approach was chosen to be able to develop shared learnings and opportunities that can contribute to inclusive design practice internationally. The wider study aimed to identify what works for implementing inclusive design in different contexts. The cities were selected to represent a wide geographical region and were cities where strong partnerships were already in place through the wider AT2030 programme, to be able to develop insights on both assistive technology and inclusive design. In each city, local partners helped define data collection approaches and contributed to 'Inclusive Design Research Guidelines'. Final project outputs were translated into local languages and presented back to communities and stakeholders. The research methodology for each case study is consistent to support comparison. Methods include semi-structured interviews, photo diaries, co-design workshops and document reviews. Inclusive design research guidelines were developed to support the research activities and these were co-developed with local partners with activities adapted to local contexts. In interviews participants were asked about their day-to-day experiences, their aspirations for change and their knowledge and understanding of

inclusive design and the policy landscape around disability inclusion. In the photo diaries, participants with disabilities were prompted to capture images of places they spend their time, how they move around the city, places they like to go and places they find challenging to visit. Participants were recruited from three key stakeholder groups:

- *People*: persons with disabilities living in the city
- *Policy*: policy stakeholders working in the country/city
- *Practice*: industry professionals including architects, urban planners, inclusive designers, project managers and engineers working in the city

These three groups also represent the three main objectives of the research and form the basis of a working framework for enabling inclusive environments:

a) People – to understand the experiences of persons with disabilities living in the city and their aspirations for a more inclusive city
b) Policy – to understand the awareness and understanding of inclusive design among policy-makers and the opportunities for inclusive cities
c) Practice – to understand the awareness and understanding of inclusive design among built environment practitioners including barriers to implementation, opportunities and the relationship with assistive technology

Diagram 1. People, Policy and Practice Framework

Data collection took place between April 2020 and February 2022. Each case study began with participatory stakeholder mapping with local partners to identify key participants to be engaged. A total of 128 people participated in the case studies including 71 persons with disabilities and 57 policy and practice stakeholders, 12 of whom also identified as persons with disabilities. The following table illustrates the participant demographics across all three stakeholder groups. Participants were intentionally recruited from different parts of the city to help capture varying perspectives, with particular attention to also recruit participants living in informal settlements.

Table 1. Stakeholders participating in case study research

Persons with Disabilities											
City	Participants	Gender		Disability			Age Range				
		Male	Female	Physical	Visual	Hearing	18-29	30-39	40-49	50-59	60+
Ulaanbaatar	15	8	7	8	1	1	4	4	1	1	0
Varanasi	21	15	6	18	3	0	8	12	1	0	0
Solo	15	10	7	6	5	4	4	9	1	1	0
Nairobi	20	12	8	9	7	4	7	8	3	2	0
Total	71	45	28	41	16	9	23	33	6	4	0
Policy and Practice Stakeholders											
City	Participants	Gender		Disability			Age range				
		Male	Female	Physical	Visual	Hearing	18-29	30-39	40-49	50-59	60+
Ulaanbaatar	15	9	6	0	0	0	0	5	6	3	1
Varanasi	11	11	0	1	2	0	1	3	4	3	0
Solo	16	6	10	1	0	0	1	4	9	1	0
Nairobi	15	9	6	4	4	0	*	*	*	*	*
Total	57	35	22	6	6	0	2	12	19	7	1

Thematic analysis was used to generate themes relating to inclusive environments following Braun and Clarke's approach (Braun and Clarke, 2006). Analysis was conducted in collaboration with local partners and findings were also presented to participants in multi-stakeholder workshops for validation. For this paper, a secondary analysis was conducted to examine the data with a particular view to findings specifically related to inclusive public spaces.

Limitations for the study include:

- Challenges due to the COVID-19 pandemic including remote collaboration and essential health and safety restrictions around face-to-face activities
- Diversity of disability representation, to ensure consistency across all case studies, participants were recruited to represent three impairment groups (mobility, visual and hearing) which does not fully represent the rich diversity of disability.
- Further research is needed to understand the specific experiences of neurodiverse people including people with intellectual disabilities. Participant recruitment was challenging at times and there is an overrepresentation of people with mobility impairments.
- Gender diversity, participant sampling aimed to represent an equal gender balance, but this proved to be challenging, particularly in Varanasi, India.
- A diversity of age ranges was recruited with the study focusing on adults and not children. However, there are limited numbers of older participants (50+). The specific experiences of children with disabilities and older people in public spaces warrants further study.

- It was challenging to recruit stakeholder participants (i.e. local government officials or practitioners) who also identified as a person with disabilities.

Case Studies Overview

Case Study 1: Ulaanbaatar, Mongolia

Ulaanbaatar is the capital city of Mongolia, home to around 1.4 million residents according to official statistics (Mongolian Statistical Information Service, 2016). Mongolia historically had a moving capital that reflected the country's nomadic culture. The city of Ulaanbaatar was created as a mobile monastery in 1639, with buildings primarily consisting of yurts or 'Gers' (Menard, 2020). The capital city of Ulaanbaatar has been sedentary since 1778 (Diener and Hagen, 2013) and the city is now located in a valley on the Tuul river. Its climate is harsh with prolonged winters that reach -40°C while the summer can be hot (25-30°C). The harsh climate means the city has a short construction period throughout the year, with the majority of construction confined to summer months when the ground is not frozen (Patrick, McKinnon and Austin, 2020). This is reflected in the city's infrastructure where much of the built environment is built above ground. Substations and infrastructure often occupy the ground level with many buildings having raised main entrances creating immense accessibility challenges. Around 60-70% of the city's residents reside in unplanned settlements called the 'Ger Areas'. These areas are largely made up of Ger huts (yurts), the traditional dwellings of Mongolia's nomadic population. Some do not consider the Ger areas informal settlements as they have existed for a long time and are formed of a traditional vernacular architecture. However, these areas often lack access to basic infrastructure such as paved roads, running water and electricity.

With regard to disability inclusion, according to official statistics, there are 35,600 persons with disabilities living in Ulaanbaatar: 19,700 male and 15,900 female (Government of Mongolia and JICA, 2017). Mongolia ratified the UNCRPD in 2008 and developed its first accessibility standard MNS6055 in 2009. However, the accessibility standards are not mandatory and therefore building control enforcement is minimal. Mongolia's law to protect the rights of persons with disabilities was renewed in 2016 and the country is in the process of developing an accessibility law and reviewing its accessibility standards. OPDs are very active in Mongolia.

Case Study 2: Varanasi, India

Varanasi is a city in Uttar Pradesh, India, with a population of circa 1.2 million people. However, the last census took place in 2011 and the actual population is estimated to be much higher. The city has great significance in Indian culture and is a site of pilgrimage and tourism for people from all over India and the world, with an estimated 5-6 million visitors per year (Patrick et al, 2021). The city is widely regarded as one of the oldest cities in the world (Singh and Rana, 2017) and its renowned heritage sites such as the riverfront Ghats present numerous accessibility challenges. There are many infrastructure challenges in Varanasi and it is estimated that 34% of its population live in informal settlements (Jha, Harshwardhan and Tripathi, 2016). Many residents lack access to basic infrastructure such as clean drinking water and rely on public sanitation facilities. Additionally, the old city suffers from extreme congestion with pedestrians and

motorised transport options often conflicting, particularly in the constrained and densely populated areas surrounding heritage sites in the old part of city.
In terms of disability inclusion, there are 96,924 citizens with disabilities registered in Varanasi, 54,297 male and 42,627 female (District Wise Population of Disabilities, Official Website of Empowerment of Persons with Disabilities Department, Government of Uttar Pradesh, India). India ratified the UNCRPD in 2007 and has national disability laws such as The Rights of Persons with Disabilities Act (2016). New guidelines for national accessibility standards have recently been published: 'Harmonised Guidelines for Universal Accessibility in India 2021'.

Case Study 3: Surakarta (Solo), Indonesia
Surakarta, Indonesia, known as Solo to local residents, is a city in Java, Indonesia. The population of Solo is 557,606 and the city is widely regarded as a friendly place for persons with disabilities to live. Solo became home to numerous rehabilitation centres following the civil war (1946-1950) and is still a place people go to seek rehabilitation services (UNESCO and Kota Kita, 2018). This has created an urban environment where disability is more visible, and residents report lower feelings of stigma and better social inclusion in comparison to other Indonesian cities. On the policy level, the city is also considered progressive with strong city level regulations around accessibility. In terms of liveability and city infrastructure, many residents live in informal settlements, but there is a high level of planning and organisation at different scales in the city, with block and neighbourhood scale community representatives that feed into city planning. While disability is still not greatly represented at this level (Patrick et al, 2022), other aspects of social exclusion such as gender are addressed quite comprehensively through grassroots action.
In terms of disability inclusion, a survey conducted by AT2030 partner Kota Kita in 2018 determined there are 1,167 persons with disabilities in Solo, but it is likely the figure is higher. Indonesia ratified the UNCRPD in 2011 and has national disability laws: Law on Disabilities (No. 8/2016). City-level legislation pre-dates the ratification of the UNCRPD: 'Local Law No. 2/2008 on Disability Rights' and Surakarta City Regulation No 9/2020 concerning Protection and Fulfilment of the rights of persons with disabilities (2020). Since 2002 construction laws have stipulated the need for accessibility such as: Law No.28/2002 on the Construction of Buildings (ILO, no date). The most recent national regulations regarding accessibility are: Regulation of the Ministry of Public Works and Housing No. 14/PRT/M/2017 on Access Requirements for Building Facilities (2017). There are also very high numbers of rehabilitation centres and OPDs operating in the city relative to its size, which is one of the reasons given why residents feel it is an inclusive city.

Case Study 4: Nairobi, Kenya
Nairobi, the capital city of Kenya was founded in 1899 and is now home to circa 4.4 million residents. The city has a challenging history of exclusionary development and is known for its numerous informal settlements that represent around 60% of its population. The city has grown rapidly and extremely high densities can be found in the city's informal settlements. Informal labour is common in the informal settlements in Nairobi and it is likely that figures on poverty are underestimated due to a lack of recognition of informal settlements and labour (Sverdlik, 2021). Temperatures are rising

in the city and informal settlements are particularly at risk due to the high density and lack of vegetation (Scott *et al.*, 2017). Infrastructure coverage varies but a study from 2019 found that Nairobi's sewerage reach was 51% and water supply reached 77% of households (Sverdlik, 2021). The city has a thriving technology sector, particularly within mobile technologies and is home to Africa's first Assistive Technology accelerator (Innovate Now - Africa's 1st Assistive Technology Venture Accelerator, 2019-present). Civil society is very active in the city and social media is popular for advocacy purposes.

In terms of disability inclusion, according to the most recent census, there are 42,703 persons with disabilities living in Nairobi, 19,374 male and 23,322 female (Kenya National Bureau of Statistics, 2020). Kenya ratified the UNCRPD in 2008 and has national disability laws including: the Persons with Disabilities Act (2003, revised 2010). Kenyan Building Code (2009) includes sections on accessibility and inclusivity and is currently under revision. As the capital city, Nairobi is the centre of policy-making and therefore also home to numerous OPDs that operate at a national level.

Findings

In this section, findings from the case studies will be discussed across three categories:

1. The types of public spaces valued by participants in each of the four cities.
2. The barriers and challenges experienced by persons with disabilities in the public realm in cities.
3. Aspirations and opportunities for more inclusive public spaces, providing recommendations for policy-makers and practitioners.

Findings 1: The types of public spaces valued by participants

Analysis of the case study data resulted in the following types of public spaces, as identified by participants:

- Social and familiar environments
- Communal spaces around housing, visiting a neighbour, community life
- Green spaces
- Healthy and hygienic environments
- Religious and cultural spaces, including festivals
- Markets and street vendors
- Places to eat and drink (restaurants, coffee shops)
- Recreational and commercial spaces – shopping malls, cinemas, food courts, nightclubs, karaoke bars
- Sports, recreational and leisure spaces and activities, including spaces to play
- Community spaces such as local Disabled Persons' Organisations or Neighbourhood Associations
- Safe spaces
- Tourist attractions
- Digital spaces, online fora and social media
- Temporary spaces such as 'happy streets' and festivals

The following table summarises these types of public spaces and includes examples of participant insights, including key accessibility features to consider in their design:

Table 2. Public space categories and key insights

Types of public spaces mentioned	**Cities mentioned**	**Stakeholder groups mentioned**	**Examples**	**Examples of accessibility provisions suggested**
Social, familiar, environments	Ulaanbaatar, Varanasi, Solo	Persons with disabilities, communities, friends, family	"Basically, as humans, we are social beings, right?" *Participant in Indonesia* "Everyone knows me, likes me, here they never show any kind of discrimination towards me, I get to equal participate in all activities like everyone else." *Participant in India* "Whether it be a stranger taking pity on me and offering me money, a passer-by asking God to perform a miracle and cure me, a gang harassing me on the street and trying to push me around for a laugh: people's attitudes are the source of many issues for me" *Participant in Kenya*	Socially inclusive environments, awareness, inclusive and accessible housing
Communal spaces around housing, visiting a neighbour, community life	Ulaanbaatar, Varanasi, Solo	Persons with disabilities, communities, a neighbour with an illness, community leaders	"I live in (through) a fence. The fence is not mine so I cannot tell them that it is difficult to go in and out" *Participant in Mongolia* "It has a flat surface so it's easy for me to stay here and do my work. I have proper light here and I can also stay in touch with other people so I don't feel alone" *Participant in India* "She had been stuck in her third-floor apartment building for four months because the building's entryway was accessible only by stairs, and the elevator only worked sporadically." *Participant in Kenya*	Individual interventions, good light, proximity to others, flat surfaces, places to sit
Green spaces	Ulaanbaatar, Varanasi, Solo, Nairobi	Persons with disabilities, children, families, sustainability stakeholders	"And large trees in the middle of the sidewalk with the excuse of a green campus and so on but it's difficult" *Participant in Indonesia* "Mostly, I like to visit to national park, game centres and other public places with my girlfriend. Only difficulties are on the way to there and to home. It happens to go through broken road, sidewalk less streets and some stairs." *Participant in Mongolia* "I like nature so much. I like mountains, rivers, garden, forest, whenever I get free time, I go to such places with my family. Challenges are everywhere but with the support of family we can overcome any challenges." *Participant in India*	Step free access and paved pathways, toilets, accessible and inclusive design of 'green interventions', accessible and affordable transport links

Healthy and hygienic environments	Ulaanbaatar, Varanasi, Solo, Nairobi	Persons with disabilities, people living in informal settlements, people with health conditions, older people	"The city should not be as noisy as it is. If we look for perspective over visually impaired person this sound is a very important part. I have seen many cities and Varanasi is one of the noisiest cities" *Participant in India* "During lockdown I stayed in my room for three months, never went out once, if they didn't deliver food at home I could have died there" *Participant in India*	Good air quality, minimal noise pollution, open spaces, pandemic safety measures in place
Religious and cultural spaces including festivals	Ulaanbaatar, Varanasi, Solo, Nairobi	Persons with disabilities, older people, pilgrims	"From a long time ago, I wanted to do advocacy in religion issues, because the religion sector is currently still difficult to access." *Participant in Indonesia* "The culture of the people, now this is Javanese culture, like caring for one another and also kinship." *Participant in Indonesia* "There is a temple inside the village, I spend time there. Whenever I feel sad, I go there, spend some time there as it's very peaceful. That place is accessible for me I can go easily inside the premises on my tricycle." *Participant in India*	Level access, advocacy opportunities, accessible museum exhibitions with equitable user experiences, event accessibility, access to areas of religious importance
Markets and street vendors	Varanasi, Solo, Nairobi	Persons with disabilities, shopkeepers and informal workers	"The Gede Market already has accessibility, but there is no socialization to us. Continue to terminals, public places. The terminal has a road for the blind's accessibility, there are guiding blocks. It's just that, it's the lack of socialization." *Participant in Indonesia* "[streets are] Very shabby and broken and occupied by vendors" *Participant in India* "People opposed it, they said if we build a footpath in front of their shops their businesses will get interrupted this is the thinking of the Varanasi public." *Participant in India*	Good lighting levels, shelter from rain, accessible communication including sign language, good maintenance and regulation of space to remove hazards, negotiation with shopkeepers
Places to eat and drink (restaurants, coffee shops)	Ulaanbaatar, Solo, Nairobi	Persons with disabilities, business owners	"We should reserve the table before we go to restaurant, we cannot reserve by online or phone. The people in restaurant don't know sign language. So, we meet at someone's home." *Participant in Mongolia* "But we gather at my house more often, because there is a Wedangan (in English Traditional Drink Stall) in my house. They also sell fried rice too. So, my friends usually like to buy drinks or food there." *Participant in Indonesia*	Comfortable seating, proximity to home, step-free access, social inclusion, good lighting, noise levels, information on accessibility available, disability aware staff members, accessible booking systems, inclusive hiring programmes and training opportunities, pro-active service providers

			"[giving feedback to a restaurant owner] 'Wow, this is a great place, it would've been better if you provide access for those who are in wheelchairs.' Then he went straight to build this access. A week later I was there and there is access for wheelchair users. So he really cares for his friends with disabilities." *Participant in Indonesia*	
Recreational and commercial spaces – shopping malls, cinemas, food courts, nightclubs, karaoke bars	Ulaanbaatar, Solo, Nairobi	Persons with disabilities, business owners, staff	"The malls here provide elevators, but I am surprised that when I go to the Mall, sometimes people don't want to prioritize people with disabilities." *Participant in Indonesia* "Yes, in the mall, usually, at the food court, it's like you can choose what to eat, right there, it's complete, not confused. Then after eating, for example, if I want to buy basic necessities, I go to Hypermart, right, there are also those, if I want to watch movies there is also a cinema too." *Participant in Indonesia* "They said there was no more space in the concert hall for wheelchair users, as they had exceeded their quota and there were two of us already." *Participant in Kenya*	Variety of services/facilities available, physical accessibility is usually good, often built to international accessibility standards, accessible equipment (karaoke), Management of the space (i.e. priority use)
Sports, recreational and leisure spaces and activities, including spaces to play	Ulaanbaatar, Varanasi, Solo	Persons with disabilities, children, tourists	Involvement and participation in sports can be motivating. In Mongolia in particular, sport is highly valued culturally so to be able to participant is important. "My kids have no place to play in the ger district" *Participant in Mongolia* "I always wanted to learn swimming but till now I don't know any accessible place here in Varanasi where I can learn swimming. There's no swimming club here where people with disabilities can join too." *Participant in India*	Accessible sports infrastructure, inclusive culture, accessible boats
Community spaces such as local Organisations of Persons with Disabilities or Neighbourhood Associations	Ulaanbaatar, Solo, Nairobi	Persons with disabilities, community leaders, other marginalised groups such as women's associations	"I like to visit Universal Progress ILC. When I go to other places people don't understand my speech. I have many friends here and I can freely talk with them. They can understand me." *Participant in Mongolia*	Disability equality and awareness training, accessible community meetings, accessible communication and information
Safe spaces	Ulaanbaatar, Varanasi, Solo, Nairobi,	Persons with disabilities, women with disabilities, older people, people living in climate-vulnerable contexts	"I am afraid of going alone when it is dark and taking a taxi, sometimes the drivers are violent, saying things like give me your phone number or I will not drop you off" *Participant in Mongolia*	Hazard-free good inclusive design, good lighting, access to emergency help, overall awareness from general public, accessible and safe public transport, passive surveillance when appropriate

Tourist attractions	Ulaanbaatar, Varanasi, Solo	Persons with disabilities, tourists, pilgrims, older people, people travelling with luggage	"Well, I'm a bit afraid to go to Malang by myself. Because if there is information such as at the terminal or at the station, we must continue to test for COVID rapid test and so on, like that. Looks like it will be difficult." *Participant in Indonesia* "Not to mention if we travel with people who are not our family members, this becomes a problem, its privacy, right? The more disability a person has, the more discrimination and more losing of their privacy. And this becomes a potential of harassment if we depend on others too much." *Participant in Indonesia* "Getting the places worth visiting which you as a citizen would want to visit, want to see for yourself, those places need to be made accessible." *Participant in India*	Step-free access, accessible toilets, clear information accessibility (both online and on-site), targeted support for persons with disabilities to support independence, fee concessions (including free personal assistant access)
Digital spaces, online forums and social media	Ulaanbaatar, Varanasi, Solo, Nairobi	Persons with disabilities, business owners, government stakeholders	"We, blind people, have an association, if there is a complaint, it will be submitted via YouTube. So that it is known by the general public, it also can be conveyed via Twitter or something, so that shopper will know that this one lacks access." *Participant in Indonesia*	Advocacy, social media, campaigning, digital accessibility, affordability
Temporary spaces such as 'happy streets' and festivals	Varanasi	Persons with disabilities, women, older people, children, pilgrims	"I always want to go down there at riverbank and watch ganga arti too but there are so many stairs I cannot go there on my own. I need someone else help to carry me there." *Participant in India*	Accessible events, access audits, inclusive activities

Findings 2: The barriers and challenges experienced by persons with disabilities.

> "These public places are not accessible, we can manage but things need to change."
> *Participant in India*

Persons with disabilities experience social, physical, economic and political exclusion. The following 11 categories of barriers to inclusive public spaces were identified through the case studies:

Social and attitudinal:

- Stigma and trauma: "I think inaccessibility is sort of stigma itself" *Participant in Mongolia*
- Awareness: a lack of education and training around disability including good disability equality and awareness training
- Reliance on support: "There's no traffic light, so I have to rely on other people to cross the street. If other people are not there, I can't cross or I take a risk." Participant in Kenya

- Accountability: "it is better to provide a building that is accessible for disabilities, be it private or government owned. I have always wanted to convey that. Sometimes I upload on social media, then I tag the associated manager. "Please give access to friends with disabilities," He doesn't know, maybe at any time, we (people with disabilities) will access that place." *Participant in Indonesia.*

Knowledge and conceptual:

- Accessibility is generalised or limited to certain impairments: "When they look at accessibility, they look at people who are on wheelchairs...a person on a wheelchair is not the only person who is not able to access the building. We have people on crutches who can't use the ramp you've constructed." *Participant in Kenya*
- Even within spaces labelled as accessible, there is a need for targeted research on specific needs to support genuine inclusion: "In terms of the building, to be honest, it is still not accessible. Because sometimes, their perspectives are different, with us, even those with disabilities themselves are different." *Participant in Indonesia*
- Buildings in formal/planned settlements are not necessarily accessible and buildings in informal settlements are not necessarily inaccessible, inclusive design should be evaluated separate to these criteria
- Understanding of inclusive design is limited beyond common accessibility provisions

Physical and infrastructural:

- Poor drainage infrastructure can impede movement and independence, and reduce the quality of the environment
- Accessible design elements are present in some buildings but are not functional or practical in use due to technical specifications.
- A lack of end-to-end journey thinking impedes access as individual building accessibility is not sufficient for an inclusive experience
- Quality of materials and adherence to standards: "For example in rest area or gas stations, they provide toilet but not the toilet for disability. And even there's a mistake, the toilet door has a logo of a wheelchair, which says it is a toilet for disability, but it turns out to be a seated toilet to indicate it is not a squat toilet, and it is not accessible." *Participant in Indonesia*
- Poor maintenance and misuse of space: "We live in a city where there are no rules, in the middle of the road you may find a barrier, you may find it anywhere." Participant in India
- Problems of space: "Land tenure is not systematic, so it is difficult to free up land to build public facilities, which means things like roads missing sidewalks because they don't have enough space" *Participant in Mongolia.*

Environmental:

- Sensory factors including noise, smells, light levels: participants in Varanasi and Nairobi talked about the impact of noise on sense-making and navigation, and that noise pollution can increase a sense of anxiety in public spaces.

- Climate and environmental conditions including mud, rain, ice, wind, heat, cold: "In public places, I can't go inside, just stay outside, but people usually help. During rainy season it gets worse." *Participant in India.*

Temporal:

- Spaces are used in different ways throughout the day, week, season which may alter their accessibility
- Festival and events or busy tourist periods can impact how inclusive a public space will be
- Changing weather conditions will temporarily alter accessibility, and in the case of extreme weather events or crises may have longer-lasting impacts and damage
- Urban development can progress at pace and changing infrastructures will alter accessibility and sometimes information services cannot keep up.

Mobility:

- Mobility: public transport can be inaccessible and chaotic, private transport can be a financial barrier: "The place that I would like to go is quite difficult, so I try not to go." *Participant in Mongolia*
- Private transport can be expensive
- Lack of dedicated spaces for different transport modes, including pavements and cycle lanes
- Traffic congestion is an issue in all case study cities

Financial:

- Private transport, which is often the most physically accessible, can be expensive
- Government-provided assistive technology can be limited and poor quality, private solutions for quality AT that is fit for purpose can be expensive
- Informal labour opportunities often take place in public spaces, which if inaccessible is a barrier for persons with disabilities to access opportunities
- Some spaces that are treated as public spaces are privately-owned, such as shopping malls, where there can be expectations to buy things

Political:

- Lack of implementation of existing laws and regulation
- Siloed or fragmented national and local government departments
- Lack of dedicated funding/budget allocations for inclusive design
- Lack of local leadership on inclusive design
- Participation in civic life within communities and cities often dictates ability to vote, access to justice and participation in urban planning processes

Professional and practice:

- Lack of education on inclusive design
- No time provided for consultation within construction timelines
- Lack of in-country technical experts
- Need for clients to have knowledge of and advocate for inclusive design

- Privately-owned 'public' spaces such as restaurants or recreational spaces have a responsibility to ensure inclusion, this requires awareness and training among business owners
- Accountability, monitoring and evaluation to ensure consistency, good practice and innovation.

Information:

- Accessing information and services: "Where there is good design, the service and staff need to match it" *Participant in Mongolia*
- Communication: "When you need to speak with an official in a government building, the receptionist gives you a list of numbers to call. But if you can't use the phone, then you can't talk to anyone. So, you have to ask a guard to call for you, and they won't always do that. Or you just have to go to important places with your own sign language translator." *Participant in Kenya.*

Safety:

- Harassment and violence, particularly for women with disabilities
- Theft
- Fear of stampedes and safe navigation in crowds
- Assistive technology is not enough to feel safe, for example in Nairobi white cane users report still feeling they need a guide most of the time to feel safe.

These categories reflect the over-arching themes of physical, attitudinal, and social barriers that are commonly used to describe the types of exclusion persons with disabilities experience. However, they also capture a sense of the complexity of what constitutes an inclusive environment, including consideration of socio-economic factors. As poverty and disability are often linked, it is vital to consider affordability in the public realm. People's experience of a space is not only determined by its physical design but there are social, sensory and environmental factors that influence the feel of a space, as well organisational or institutional aspects such as the quality-of-service delivery. Conceptual and professional/practice barriers provide particular insights for practitioners and policymakers, that are often missed in physical audits of the built environment. Time constraints, use patterns or temporary barriers including changing weather conditions also affect accessibility and inclusion, as does urban development progression. Lastly, there is a clear need for an intersectional approach to designing inclusive public spaces as there is great diversity in people's access needs with many people experiencing multiple forms of discrimination, for example women with disabilities, who are more likely to experience exclusion, harassment or violence. Comparing the different cities shows that climate influences public spaces. In Ulaanbaatar there was less discussion of communal public spaces as considering the city's climate, these external gathering spaces would not be usable for much of the year. However, design and innovation can support creating more inclusive public spaces in this context. For example, 'GerHub' has designed a new community space, the Ger Innovation Hub, that provides different layers of interior space to try and address the lack of access to outdoor public spaces in colder climates (GERHub, 2022). In Varanasi and Solo, where climates are warmer, informal public spaces are often formed at the boundaries between public and private space around homes. Culture is also an important factor and in

Ulaanbaatar and Solo there is a particularly active community of OPDs that create spaces of social interaction and gathering. Local cultures and faiths influence the types of public spaces that people value and in all the cities there were participants who identified religious and cultural spaces as a key collective or public space.
The role of local government and planning is influential. In Solo, even within informal settlements there is a strong structure to planning and political processes through the city scales down the RTs (Rukan Tetangga – the smallest administrative division in city planning in Indonesia) that supports the creation of public space. The role of local governments is important and there was a clear distinction in the connection between national and local policies in the cities that are not capital cities (Solo and Varanasi), where there is arguably a need to operate somewhat autonomously.

Findings 3: Aspirations for more inclusive public spaces and opportunities for inclusive design
Among all three stakeholder groups there is an aspiration for more inclusive city design. Participatory activities such as workshops were used to take a solutions-focused approach to discussing inclusive environments. Participants were asked to identify priority areas for intervention based on identified themes. In workshops, some policy stakeholder participants, reflected that the photo diary activities illustrated a more negative view of the state of inclusion in the city, and did not capture spaces that have made more progress on inclusion such as government buildings and commercial spaces in city centres, like malls and international hotels. This is significant as the photo diary task captured spaces where people currently spend and would like to spend their time. If these are not currently inclusive, then the day-to-day experiences of persons with disabilities will overwhelming be of inaccessible environments. It also alludes to the fact that in many cases housing, informal public spaces and areas of informal settlements are not currently prioritised in inclusive city design. In some cases, these spaces are privately-owned which creates greater complexity for ensuring standards are met.
Aspirations and recommendations for more inclusive public spaces included the views that integrated, holistic approaches are necessary. This includes contextualising inclusive environments with other global challenges such as climate and crisis resilience to ensure inclusive design solutions are sustainable and resilient well into the future.
The role of policy is also important as it can provide the basis for multi-sectoral action. Effective implementation of those policies is necessary to achieve desired aims, which requires the commitment of *all* stakeholder groups.
Engaging diverse stakeholders is important, including representation of all disabilities, ages and genders. Among policy and practice stakeholders, all government sectors should be engaged in supporting inclusive public spaces, such as a suggestion in Kenya to engage the National Environment Management Authority (NEMA) with regards to noise control and regulation to support independent mobility for visually impaired persons.
Participation and inclusive processes must be embedded in urban development interventions, from conception to completion to monitoring and evaluation to embody the aim of, 'nothing about us without us'. Participatory mapping could also be developed to provide live data on the state of inclusion and accessibility, a system to support ongoing participatory processes which would contribute to a sense of participating in public life and citizenship for persons with disabilities.
There must be continuous efforts to generate data and evidence to support inclusive city design and in particular to advocate for the inclusive public spaces that people want.

Accountability is an essential component to ensure the maintenance of existing inclusive public spaces and continued progress towards more inclusive environments. Accountability can take many forms including: accountability in implementation processes across infrastructure, urban design, and architecture; access to complaints systems to report problems; access to justice systems to address grievances and report violence, harassment or human rights infringements. Social media and other digital spaces can also create accountability, improve awareness, and contribute to data and evidence that can be used by local governments.

All stakeholder groups can contribute towards the creation of a more inclusive urban life. For example, collective action from the disability community, with OPDs working together to agree priorities could amplify impact. Inclusive public spaces should also consider the wider benefits inclusive design brings by supporting other under-represented groups including women, children, older people and indigenous people. Community leaders have a role to play engaging all citizens and mediating conflicting needs and aspirations as they arise.

Inclusive public spaces can have far reaching benefits within and beyond the local community, from improving general well-being to generating employment opportunities and facilitating more positive social interactions. This will be of particular relevance in the ongoing recovery from the COVID-19 pandemic. Recreational spaces are as much a part of public life as any other space. To create genuinely inclusive cities, everyone should be able to experience the environment around them in a fair and equal way – creating accessible and welcoming spaces people can enjoy and want to spend their time. Awareness and education at different scales, from primary to tertiary education, will help support a culture of inclusion. Practitioners must be equipped with inclusive design skills to design for all and all citizens should be able to participate, to create a culture of inclusion.

Continued innovation and best practice in inclusive design will support long-term sustained urban transformation. Aspects of best practice include a continuous desire to innovate and a reflective approach to project delivery processes and best practice guidance. Grassroots innovation and informal public spaces should be embraced. Consistency can be achieved through robust inclusive design standards and delivery processes and would benefit from the development of a standardised evaluation system to better assess outcomes and support future progress.

Assistive technology can be an enabler. However, inclusive public spaces need to enable AT users. Targeted interventions or support can sometimes be necessary to ensure everyone has equal rights to access and experience the public realm. Such interventions must be developed in a way that does not increase stigma for persons with disabilities. This can be achieved through awareness raising, educating people about the potential of AT to transform people's lives.

Attention to inclusive mobility is urgently needed to make public spaces more inclusive. Creating spaces for active modes of transport in the city such as walking and cycling, will generate more opportunities for people to participate in public life. Good city planning is needed to implement inclusive transport infrastructure and ensuring urban planners have good inclusive design training will support this.

These findings illustrate that the aspirations around inclusive public spaces are varied, as are the typologies of public spaces identified. The barriers people experience are complex and it can be challenging for stakeholders to know where to start. A focus on

actions and processes is valuable as it can be adapted to specific local contexts and collect relevant local data when necessary, avoiding solutions that are not fit for purpose or desirable.

Conclusion

The analysis of inclusive public spaces through case studies on the cities of Ulaanbaatar, Varanasi, Solo and Nairobi identified a diverse type of public spaces for consideration. Mehta and Palazzo's description of public spaces as '*a place for individual and group expression; a forum for dialogue, debate, and contestation; a space for conviviality, leisure, performance, and display; a place for economic survival and refuge; a site for exchange of information and ideas; and a setting for nature to exist in the city and to support the well-being of its inhabitants'* is reflected in the public spaces discussed, with perhaps the addition of sites for exploration (tourist attractions), a setting for livelihood activities (eating, studying), a setting for social relations (familial and neighbourhood interactions) and a setting for solidarity and empowerment (OPDs and community organising).

The physical design of a public space, its physical attributes, can enable or disable activities such as:

- facilitating social interaction
- access to outdoors, time in nature, feeling of wellbeing
- access to culture and religion
- access to recreation, enjoyment
- access to food, sustenance, and enjoyment
- access to civic and community engagement

Inclusive and accessible public spaces allow independence, respect and dignity, safety, enjoyability, and good use of time for all, ensuring people's human rights are upheld in the public realm. While the geographic and cultural contexts of each of the cities studied are diverse, there are common threads and shared aspirations for inclusive environments, demonstrating that global guidance that can be locally adapted will have value.

Tangible design elements were suggested by participants that demonstrate how the factors to create an inclusive environment must go beyond basic physical design elements. They must consider the sensory environment, how the space functions, what services are provided within, how people get there and how they can access information about the space both in advance and during their visit.

This study demonstrates the value of co-design and participatory processes to research, illustrating how the genuine participation and inclusion of persons with disabilities in research, facilitates in depth insights that can help prioritise actions towards more inclusive environments. The barriers and challenges described by participants illustrate the complexity of access challenges and exclusionary factors people encounter in the built environment. As human beings are diverse and individual, there is rarely one ideal design solution, and considering the pace at which cities evolve, ongoing processes that commit to the sustained inclusive design of the built environment will be fundamental, particularly as cities continue to be impacted by climate change. Therefore, we must embed inclusive design approaches in how we shape the public realm to ensure robust, inclusive, participatory processes for urban development that include persons with disabilities and other disadvantaged groups.

Standards, regulations and policy frameworks also have a responsibility to commit to inclusion. Having good standards that are legally mandated supports the creation of inclusive environments. However, attention must also be given to the implementation processes that ensure delivery while also ensuring that national standards translate at the regional level. .. Many public spaces are not regulated by conventional building standards, especially when constructed or formed within informal settlements or within privately-owned spaces. This requires broader advocacy and education to ensure clients and built environment practitioners uphold inclusive design standards in their work.

Diagram 2. People, policy and practice framework: focal areas

We propose that the framework of 'people, policy and practice' is useful for navigating the complex dimensions of inclusive public spaces and inclusive environments. First, we start with people: persons with disabilities must be involved in the process, from the start and throughout. This is the best way to actively create an inclusive space and requires consultation processes to be inclusive and accessible. Even better, employing persons with disabilities across government and built environment sectors will ensure both diversity in our workforce and result in more inclusive project delivery and reduce stigma. Secondly, we must uphold legislation and standards, including international, national and local ones, and strive to go beyond minimum standards to innovate and champion best practice. Policy stakeholders must be committed to shaping inclusive environments as they lead decision-making, have influence or control over funding and

lead overall urban development and planning. Lastly, we must commit to inclusive practices, and this applies to all stakeholders, but specifically built environment practitioners. They must have training and a good awareness and understanding of the benefits of inclusive design and a people-centred approach. Professional training and education through colleges/universities should ensure diversity and inclusion are fundamental aspects of educational programmes for the built environment.
By taking this three-fold approach of first including people, secondly being aware of what policies, frameworks and power structures guide us and thirdly ensuring good inclusive design practice and implementation we can embed inclusive design into the core of city planning and design, ultimately creating public spaces that work better for all.

Implications

A framework like this would have most impact at the local government level, where it can be embedded in city planning and design, supporting any existing legislation and standards in place and help set local targets to address the SDGs and NUA. The framework should be complemented with inclusive design training and a monitoring system that evaluates progress and reflects on the practices being employed at regular intervals.
Practitioners can engage with such a framework in their work as it provides a starting point for embedding inclusive design in their practice. There is also a role for advocating for more inclusive public spaces and inclusive environments more broadly, as it is an ongoing process with significant effort required to meet the SDG targets by 2030.
There remains a critical role for research, with data needed at the local government level to prioritise interventions. Stakeholders often prefer quantitative data to provide measurable data, but qualitative data has a significant role in good inclusive design practice as it is grounded in people's experiences and aspirations. Furthermore, as the limitations in this study have identified, there are many facets of the experience of persons with disabilities in the built environment. Research with an intersectional approach and research across a wider spectrum of persons with disabilities is needed.
Lastly, there are implications to consider regarding other global challenges such as the increasing impacts of climate change and the ongoing recovery from the COVID-19 pandemic. Inclusion and resilience are increasingly linked as persons with disabilities are often more vulnerable to the impacts of climate change (Kett and Cole, 2018) and efforts to create inclusive infrastructure must consider long-term resilience and sustainability. Good health and wellbeing is critical to people's lives and the impacts of COVID-19 have shown that healthy and safe environments are critical for public spaces in the future, to allow persons with disabilities to participate in society on an equal basis and in order to safeguard against future pandemics.

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Ethics

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Inclusive Rural Spaces in Architecture Education

Gabriel Fries-Briggs
University of New Mexico
friesbriggs@unm.edu

Abstract

Pedagogies of building systems in architectural education are traditionally framed as the technical knowledge guiding construction, material applications, structures, and mechanical building services. This paper provides a framework and a case study for centring inclusive and universal design principles in the teaching of building systems with a focus on designing public spaces for rural and aging populations. It proposes methods for integrating design accountability, sustainable environmental practices, and cultural contexts into architectural design and education.

Public spaces, services, and resources are spread thinly outside of cities and denser communities, creating barriers to access for aging populations among others. This pedagogical framework for inclusive rural architecture focuses on post offices as one of the few public institutions in rural communities and a vital conduit to essential services (particularly during health crises). In the speculative space of architecture curriculum, students conceived of additional services and programs to rethink the role of post offices in communities. These programs targeted accessibility barriers by providing digital resource centres, transportation hubs, and community gathering spaces.

The flexibility, adaptability, and comfort at the core of universal design principles provide a lens for understanding sustainable environmental techniques. Adaptable buildings constructed with replaceable and reusable parts allow for repair and resiliency over time. Material and structural systems designed for intuitive use and presentation of information promote accessible communication. Passive systems design enables comfort in dialog with the environment and a reduction in required energy. However as passive systems often require building operability, inclusive design principles call for building systems to be operable by diverse users. Post office projects in this case study integrated universal design principles to achieve energy efficient buildings that respond to changing climates and rural cultural contexts.

Replacing minimum standards for accessibility within curricula with inclusive design criteria is also enacted through methodologies. While educational institutions are clustered in urban areas, many students come from or have ties to rural communities. The focus on rural public spaces and aging populations is a means for students to bring their own diverse backgrounds, places of origin, and histories into their academic studies. In combining methods of engaged research with a universal design-focused pedagogy for building systems, students expand technical knowledge of architectural design with the objective of creating equitable and inclusive public spaces.

Keywords: architectural education, universal design, building systems, rural design, climate change

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1. Introduction

Systems of inclusion and universal design are rarely foregrounded in the teaching of building technologies and are often siloed into areas of 'social' concerns. The integration of universal design principles into architectural building systems courses provides methods to rethink the social construction of technical knowledge that underpins both building systems and inclusive design models. Centring inclusion for populations such as the aging in building system pedagogies can also work to bring issues of environmental and social justice into the foreground of systems design, moving beyond accessibility regulation. The case study in architecture education presented here advocates for incorporating inclusive design in technical courses through design projects for post offices—a vital conduit for essential services and resources and one of the few institutional public spaces in rural areas. Projects for universally designed rural post offices serve as prototypes for integrating design accountability, sustainable environmental practices, and cultural contexts into public buildings and architecture pedagogies.

1.1 Shifting Building Systems Pedagogy

Building systems courses, also known as systems integration, integrated building systems, and related titles, hold a particular place in professional architecture curricula. They are traditionally framed as the locus for bringing together technical knowledge guiding construction, material applications, structures, and environmental building components. The focus on integration as a building design discipline arose from the sudden injection and advancement of technical systems following World War II (Bachman, 2003), although the common basis for studying the corollary attributes of material assemblies' dates back to at least the 19th century (Breymann, 1890). More recently, in the United States, building systems courses share content and learning objectives with 'comprehensive studios' where building technologies, sustainability, and environmental systems are integrated into design pedagogy, a process that the National Architectural Accrediting Board considers one of the "hallmarks of architecture education" (NAAB, 2020). The movement toward 'integrated' and 'comprehensive' approaches to architecture education can also be seen as a response to the limitations of specialized fragmented disciplines that expanded in the latter half of the twentieth century (Chandler and Vassigh, 2011).

1.2 Building Systems and Climate Change

In recent decades, heightened awareness and response to environmental degradation and emerging theories of technology advanced as major themes in technical courses. As buildings have become increasing consumers of energy and the largest source of greenhouse gas emissions that cause climate change (PEW, 2006), sustainability has risen as a primary focus of knowledge production and pedagogical objective in teaching building systems. The prevalence of sustainability goals in design education has been well documented, even if environmental performance continues to be isolated from other core design concepts, persistently discredited, and more curricular infusion is needed to train future generations of designers to mitigate the effects of climate change (Altomonte, Rutherford, and Wilson, 2014; Santini, 2020; Leskovar, 2020). Reliance in building systems pedagogy on technological design solutions to environmental

degradation over cultural factors also poses challenges. Contemporary environmental technologies often involve the application of additional energy (Braham, 2012).
One means of overcoming this binary between technological and cultural solutions is by teaching the mutual implication of the two. Theories of technology that offer critical perspectives on the relationship between technological objects, societies, and culture further integrate building systems into other areas of architecture education and practice. Actor-network theory (ANT), for example, positions technics, objects, and social relations as an inseparable network of relations or chain of associations between humans and non-humans (Latour, 1991; Akrich, 1992). When architects design building systems "they simultaneously build systemic relations among networks of cultural, economic, ecological, and even political systems" (Moe and Smith, 2012). Frequently drawing on the field of science and technology studies, these and similar frameworks suggest ways to remove building systems from technocratic determinism and study and conceive of building technologies as a network of relations connected to other forms of architectural, design, and social inquiry.

1.3 Universal Design in Pedagogy

Teaching universal design principles in building systems education helps rethink our approach to conventional ideologies, categories, and pedagogies of building technology. By forefronting universal design, we can explore ways for combining technical aspects of architectural design with culturally-contingent, health-centered, and socially just perspectives. There are a range of documented strategies for injecting universal design into architecture curriculum including stand-alone lessons, discrete courses, one-time events, studio or elective infusion, and infusion into the entire curriculum (Welch and Jones, 2001; Harrison, Busby, and Horgan, 2015; Szewczenko and Widzisz-Pronobis, 2020). Integration methods similarly range from re-examining canonical precedents (Asmervik, 2009), to empathetic exercises (Battarbee and Koskinen, 2005), partnership with clients for engaged studios (Terry, 2008), and user needs research. While there has been some shift in architecture schools from designing for people with special needs to inclusive design for a diverse population, it has not always been clear to educators that universal design is fundamentally different from accessibility outlined by the Americans with Disabilities Act (ADA) and building codes (Welch and Jones, 2001). A 2015 survey of architecture schools in the United States found that 69% of responding schools indicated that their curricula addressed universal design, although some confusion with accessibility may remain (Basnak, Tauke, and Weidemann, 2015). This section presents an initial framework for linking building technology education and universal design generally, while findings and observations will be discussed following in the course case study.
Universal design provides a framework for 'integration' methodologies in building systems. Universal design requires a 'joined-up' approach (Harrison, Busby, and Horgan, 2015) which both challenges methods of designing for the minimum of regulatory compliance as well as the isolation of building components as discrete elements. Designing environments to be usable by all people to the greatest extent possible (Mace et al, 1997), necessitates a synthetic approach to building systems. Foregrounding simple and intuitive wayfinding in the early phases of building design, for example, can impact the development of material assemblies and structural systems. While increasing focus on sustainability, less energy-intensive building construction and operation, and passive

systems design, architecture students can use universal design principles to critically examine those systems in relation to principles of equitable use. The lessons of building operability in terms of movement and access can be extended to consider building operability of passive systems like ventilation and daylighting. The introduction of automated and 'smart' passive systems can be measured beyond metrics of efficiency, extending to how they enable a wider range of people to participate in the activation of sustainable buildings. Inclusive design methods make clear how the technics of environmental and spatial control articulate social values and design ethics.

1.4 Building Systems for Social Justice

Building systems are a critical component of social and environmental justice. In order to strengthen this position in architecture education, we have to reveal how technical knowledge is socially and culturally contingent. The discipline of architecture has historically isolated technological issues from broader systems that presuppose building practices (Moe and Smith, 2012). Incorporating the framework of both the seven principles of universal design (Mace et al, 1997) and the eight goals of universal design (Steinfeld and Maisel, 2012) works to counter perspectives of technological autonomy and technological determinism. As the eight goals of universal design expand the inclusion of social participation and "respecting and reinforcing cultural values and the social and environmental context" of design projects (Steinfeld and Maisel, 2012), they promote situating readings in the relationship between technology and society. Extending from theories of technology to design practices, building systems should also be adapted to differences in culture and confront historical injustices. Learning from the shifting definition of disability in the latter half of the 20th century, from a medical perspective that viewed disability in terms of functional limitations to a socio-political view that focuses rather on the disabling qualities of the environment (Hahn, 1988 in Welch, 1995), the implication of building systems in enabling environmental inequities is more readily apparent. This definition is reinforced by the Convention on the Rights of Persons with Disabilities which recognizes "that disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others" (CRPD, 2006). With the focus on the integration of environmental components and building construction, building systems are a critical area for examining the environmental factors implicated in evolving conceptual understandings of disability. Building systems that minimize health disparities such as improving indoor air quality and reducing toxic exposure play a further role in bringing environmental justice indoors (Adamkiewicz et al, 2011).While health disparities adversely affecting low-income communities and communities of colour need to be addressed systemically, universal design suggests ways of both advocating for policy change and designing beyond regulations to improve building environments for all people.

1.5 Building Beyond Code

Inclusive design principles such as universal design benefit building systems courses by providing methods for thinking about and dealing with codes and standardization. Building systems courses traditionally serve as the delivery method for learning about legal code including life safety, land use, structure, and the evaluative processes to

ensure building code compliance.[1] Since its inception, universal design has served as a framework for interrogating and moving beyond minimum regulatory codes.[2] While understanding how to design and build 'to code' is important for professional architectural education, it's also crucial to establish frameworks for understanding how these codes come into existence and how to synthesize systems and achieve design objectives catering to all people and diverse constituencies in excess of code. In outlining their definition of sociotechnical codes, Steven Moore and Barbara Wilson look to the disability rights movement and the passage of the ADA in the United States. Sociotechnical codes are "those that self-consciously and simultaneously seek to integrate social equity for specific social groups as a dimension of technological change" by integrating multiple frames of interpretation through action (Moore and Wilson, 2012). While this model of sociotechnical codes focuses on the ADA, a legal regulatory framework, theorizing the codification of social equity via technology can be extended to the advocacy for universal design as constructing multiple frames of interpretation through action for all people rather than specific social groups. Sociotechnical codes provide a framework for thinking of how imaginative design actions overlay to create regulations and how new frameworks can come into being to move beyond compliance. In suggesting methods and techniques for interrogating and moving beyond codes and standards, universal design principles and goals counter the technological drift of building systems and their teaching in design schools.

2. Case Study: Post Offices for Aging and Rural Populations

This case study presents a building systems pedagogy that forefronts inclusive design strategies in public spaces with a focus on rural and aging populations. As the world population grows, the proportion of people 60 years and older continues to increase. In 2019, the number of people aged 60 years and older was one billion and this number is projected to rise to 1.4 billion by 2030 (WHO, 2020). Although the percentage of older persons in urban areas is now growing more rapidly (United Nations, 2015), population aging is a global phenomenon that is first manifested in rural areas (Cromartie, 2020). In the United States, 19 percent of the rural population is 65 years or older, compared with 15 percent in urban areas and rural counties make up nearly 85 percent of the 1,104 "older-age counties" (USDA, 2018). The higher rates of aging persons in rural areas in the U.S. is attributable largely to out-migration of young adults to urban areas as well as net in-migration of older people to attractive rural destinations (Glasgow and Brown, 2012). The rates of income and poverty among older rural populations vary greatly, in-part depending on the cause of demographic change. In our university context, the state of New Mexico, the intersection between aging populations and poverty is more pronounced with a higher-than-average rate of rural population age 65 or over (27.4 percent, see Figure 1) and the highest rate of rural poverty in the United States (22 percent) (U.S. Census Bureau, 2016). Many rural communities lack sufficient capacity to support age-inclusive design in the built environment (Cromartie,

[1] The most recent NAAB Conditions for Accreditation (NAAB, 2020) only make one reference each to accessibility and inclusion of persons with different abilities.

[2] I'm indebted to Karen King for sharing her perspective on universal design with our class in October 2020, including this point. See also (King, 2005).

2020). Public spaces, services, and resources are spread thinly in many areas outside of cities and denser communities.

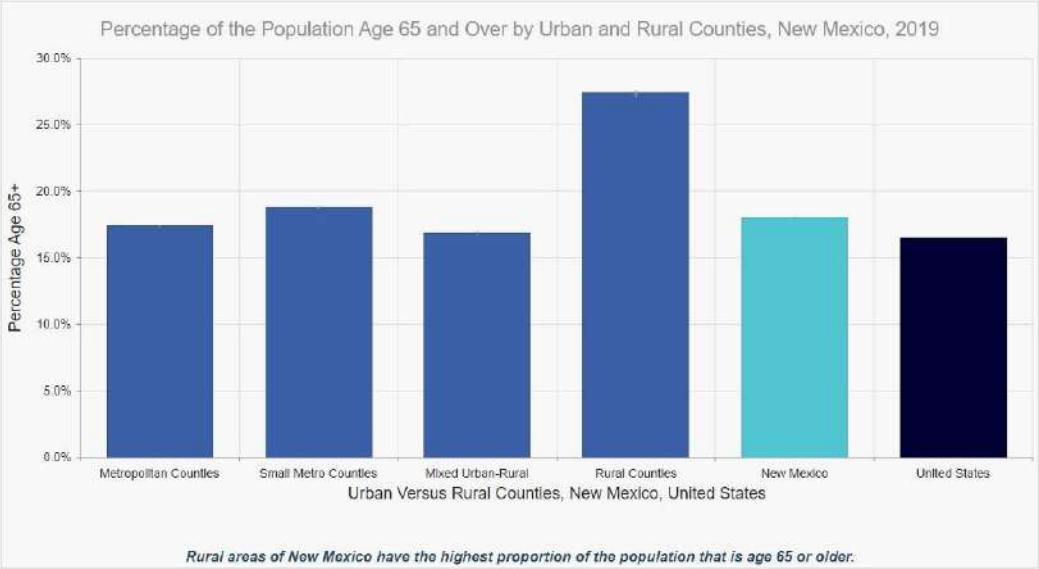


Figure 1. Percentage of the Population Age 65 and Over by Urban and Rural Counties, New Mexico, 2019. (Source: New Mexico's Indicator Based Information System, online: https://ibis.doh.nm.gov/indicator/view/PopDemoAge65.UrbanRur.html).
Alt text: Bar graph showing that in Rural Counties in New Mexico, 27.4% of the population is over the age of 65 compared to 17.4% in Metropolitan Counties.

While forefronting universal design principles to create environments usable by all people to the greatest extent possible, the related field of designing for aging populations (Steinfeld and Maisel, 2012) presents an entry point for students to develop and assess methods of inclusion. Mobility, dexterity, sensory, cognitive, and physical health changes are prevalent in aging populations, eliciting issues about how we consider human-environment interaction (Fedderson, 2009). The current generation of people age 65 and older in the U.S. includes the 'boomer generation,' a generation that played a role in steering movements for social justice including civil rights and disability rights. Learning from this generation can extend from user research to lessons about rights-oriented actions and advocacy. As environments and building systems are increasingly integrated into an information society, access by elderly populations to technology-based services has become a major issue (Mellors, 2009) and profoundly affects how we meet the demands of aging people (Dwight, 2009). This pedagogy considers the critique that exclusive consideration on a growing aging population in design education can narrow the opportunities for illustrating user needs relevant to future design professions who will be designing for a range of populations (Howell, 1977). While experience has demonstrated that meeting the needs of older persons "frequently generates design solutions which benefit a wider range of user groups" (Morrow, 2002), the design project described here considered aging people one important and often under-considered population within a diversity of people occupying public spaces. However, when considering 'diversity,' it's important to challenge what is considered

legitimate knowledge which involves the specificity of "looking at which and whose stories and experiences have been ignored and why" (Kishimoto, 2018).[3] In our geographical context and course objectives, strategies for considering the needs of aging populations opens up possibilities to rethink design projects for all people.

2.1. The Public Spaces and Services of Post Offices

This pedagogical framework for inclusive rural architecture focuses on post offices as one of the few public institutions in rural communities and a vital conduit to essential services. The post office as a student design project gathers efforts to learn inclusive design strategies around historically underserved communities through existing networks of public spaces. Post offices are "local public anchor institutions"—shared civic buildings, services and spaces accessible to and benefiting all (Heyda, 2020). The social value of postal services extends beyond measurable economic benefits, connecting people, fostering democracy, and functioning as a key part of emergency and national security infrastructure (Morrissey, 2020). The role of the postal service in providing access to resources has been particularly pronounced during the global COVID-19 pandemic. The delivery of essential goods, such as prescription drugs, are a critical lifeline "for seniors and people with disabilities" (Solomon, Baradaran, and Roberts, 2020). Among proposals for expanding services at post offices (which will be discussed in more detail later) is a call to use United States Postal Service (USPS) facilities for provisioning access to COVID-19 testing in the U.S. (Singh et al, 2020). Post offices and postal delivery have also provided access to the democratic process as a record number of people voted by mail in the 2020 U.S. election (Stewart, 2020). Even outside of health crises, "voting by mail can increase access to the ballot box for low-income working parents and others with inflexible schedules, transportation barriers, health issues, and other obstacles to voting in person" (Morrissey, 2020). Voting by mail, and the increased access it provides to democratic processes, particularly for marginalized communities, have positioned postal services as the subject of intense political debate over the past two years.

2.2. Historical Context of Rural Post Offices

In many rural areas, postal services are the only means to obtain essential goods without significant travel. The USPS is the only mail and package delivery system that has a universal obligation to provide service to every delivery point in the U.S., regardless of profit. About 29 percent of all delivery points served by the USPS are classified as rural (USPS, 2019). A recent survey found that the public places a very high level of trust in the USPS (second only to the Centers for Disease Control and Prevention), and that trust was significantly higher in rural communities (Pollard and Davis, 2020). The foundations for rural postal connectivity in part stems from the role of establishing post offices to the colonial project of the U.S. After the Post Office Act of 1792, the U.S. state quickly formed a web connecting the country and "for the vast majority of Americans the postal system was the central government." (John, 1995, cited in Acemoglu, Moscona, and Robinson, 2016). Cameron Blevins describes this

[3] This perspective on the language of 'diversity' draws on Kishimoto's discussion of racism and the observations within anti-racist pedagogy that "Diversity is about managing race rather than challenging racism."

system as a "gossamer network", an underlying circuitry of western expansion composed of a sprawling and fast-moving web of post offices (Blevins, 2021). While the U.S. waged war against indigenous people and forced them onto reservations, the USPS in part facilitated settler colonialism by connecting the region's far-flung settlements into a national system of communications (Blevins, 2021). The number of post offices in the U.S. peaked in 1901, at 76,945 post offices, before the introduction of rural free delivery as a permanent service in 1902 (USPS, 2021). With rural residences and businesses included as points of delivery, post office locations have steadily and continuously declined over the past century to 26,362 in 2020 (USPS, 2021). Smaller communities in New Mexico have been included in some of the most recent closures. Despite a fight from the community to keep it open, the Tererro, NM post office was closed in 2019 and replaced with mail collection box units (Smarsh, 2020). Other small towns and communities in New Mexico have maintained persistent struggles to keep their post offices open.

2.3. Accessibility in Post Offices

Given their role as a conduit to vital services and goods in rural areas, inclusive designs for post offices can improve quality of life and promote independent living. Aging in place strategies often focus on creating inclusive residential design. Universally designed public spaces can work in tandem to residential improvements in living conditions. Beyond providing access to information and services, small town post offices often function as social hubs (Heyda, 2020). Inclusive post office designs are essential to fulfilling the goals of the Convention on the Rights of Persons with Disabilities in enabling people to live independently and participate fully in all aspects of life, in both rural and urban areas (CRPD, 2006), and promote community sustainability. As a federally funded agency, the national policy governing post office accessibility is the Architectural Barriers Act of 1968 and not the more recent ADA of 1990 (USPS, n.d.). The U.S. Access Board is the independent federal agency mandated to ensure compliance with the ABA in buildings designed, built, or altered with federal funding. In the most recent report, 32 of the 38 cases investigated by the Board under the ABA for all federal buildings concerned access to U.S. Post Offices (U.S. Access Board, 2021). That the majority of investigated and resolved cases concerned access to post offices is "typical of the Board's yearly caseload" (U.S. Access Board, 2021). The predominance of cases involving post offices in part signals the vastness of The USPS and the extent to which post offices are a primary point of contact between people and government spaces. However, it also indicates that post offices require a rethinking in order to remove barriers to access and operation, even in order to meet minimum compliance criteria.

2.4. The Post Office Design Project

The types of buildings occupied by USPS vary widely in many rural areas including those in New Mexico, often depending on the size of area served by mail delivery and the era of construction. Many rural post offices take the form of small manufactured trailers (see Figure 2) with added stairs and ramps built in accordance with the ABA. In rethinking the role of post offices in communities within the speculative space of the architectural curriculum, students conceived of additional services and programs that could capitalize on the existing network of the USPS. These programs targeted

accessibility barriers by providing digital resource centres, local access to essential goods and services, transportation hubs, and community gathering spaces.

Figure 2. Photograph of the post office in Chamisal, NM (by author).
Alt text: A snow-covered manufactured trailer with an entrance accessible via two steps or a ramp.

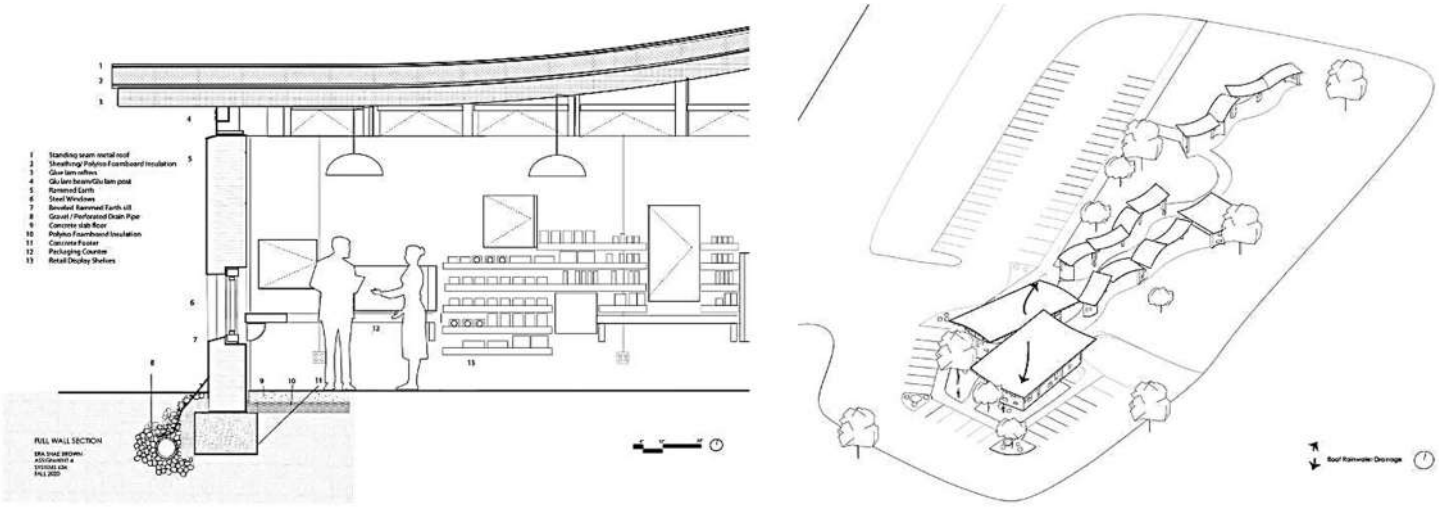


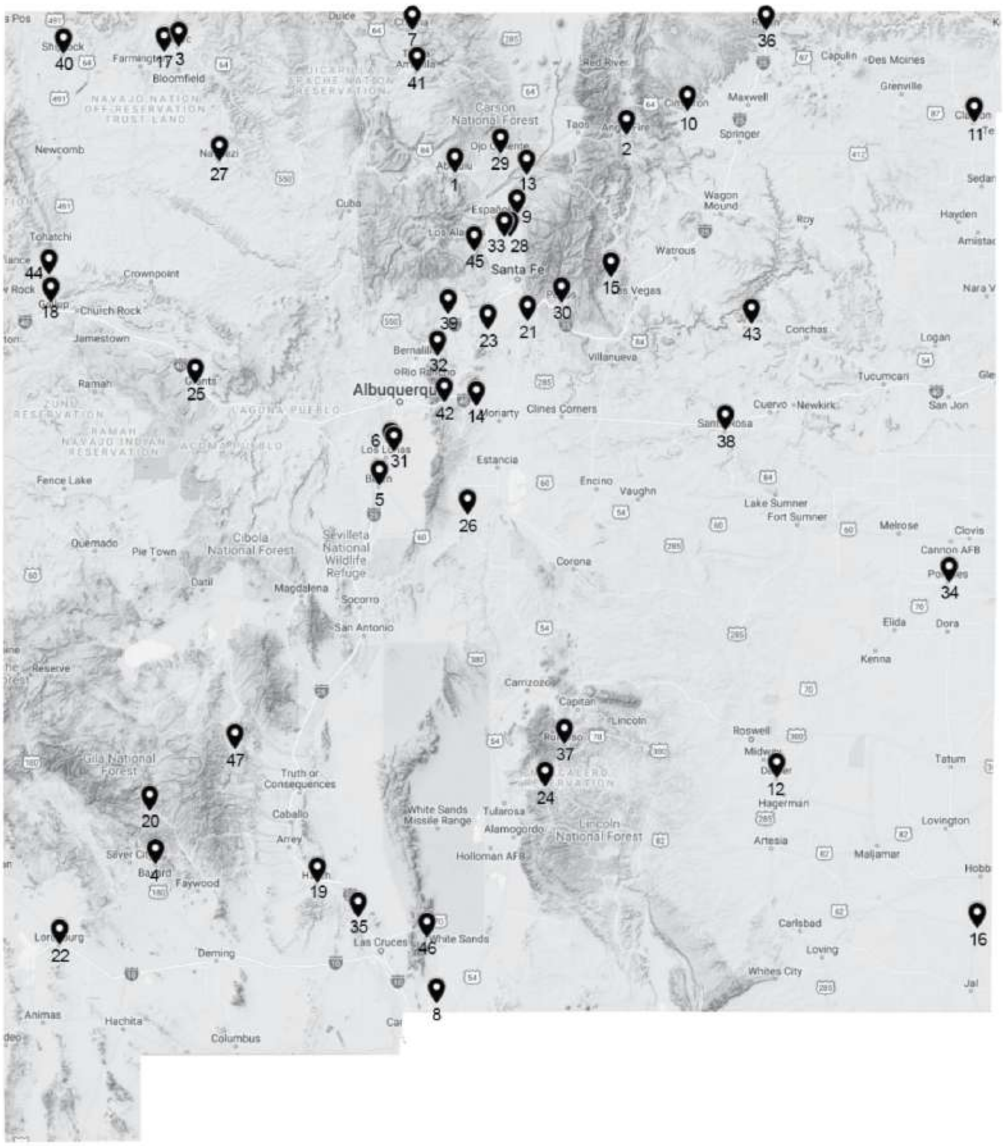
Figure 3. Building section detail (left) and isometric view (right) of post office design project in Abiquiú, NM by Shae Brown, 2020.
Al text: on the left, section drawing showing a one-story building with a market space inside and operable window; in the right: to an isometric drawing showing outdoor shaded public space next to post office.

Over the two years that this course has focused on rural post office projects, students have proposed additional post office uses including food access in food deserts, childcare centres, water and soil testing facilities, educational facilities, land-preservation and conservation centres, maker spaces, transportation hubs, arts centres, credit

unions, libraries, health clinics, and recreational facilities among many others. Given the agricultural nature of many rural post offices, integrating food sources with community-supported agriculture or community-run cafes emerged as a common theme. In one project sited in Abiquiú, NM, a food retail establishment is housed within the post office while pavilions for a farmer's market extend beyond the building, encompassing multiple strategies for increasing food access (see Figure 3).

These imaginative proposals were built on current policy discussions that seek to identify ways to improve The Postal Service's long-term economic viability, respond to institutional and structural marginalization of low-income areas and communities of color, and to provide public spaces and amenities to improve quality of life. These programmatic inventions recognize the importance of imaginary narratives in architecture education (Fournier, 2017) and take positions within the argument that "what the post office really needs is reimagining" (NY Times Editorial Board, 2021). By allowing the USPS to expand banking services, for example, policy makers could remove structural barriers for the quarter of Americans that are currently 'underbanked' (Solomon, Baradaran, and Roberts, 2020) and low-income communities underserved by financial institutions (Morrissey, 2020). Other policy discussions developed by students built on a proposal by 80 national organizations, including the American Postal Workers Union, to use existing postal infrastructure in new ways including checking in on elderly and persons with disabilities for whom mail carriers are the only point of daily in-person contact and the expansion of broadband access in rural areas (A Grand Alliance, 2021).

The identification of programmatic uses beyond the current core functions of postal service shifted based on geography. Each student selected a different rural location in New Mexico with some overlaps (See Figure 4) and, while grounded in the above national policy discussion, researched potential uses that would benefit the particular community, provide access to lacking resources, and introduce needed public spaces. Their research led many students to forefront the needs of digitally-marginalized communities that often face a struggle to access essential services due to the 'digital-divide' —the economic and social inequality with regard to access to, use of, or impact of information and communication technologies (ICT) (Pursel, 2005). Students developed additional post office uses in support of Article 9 of the Convention on the Rights of Persons with Disabilities' goal of promoting access for persons with disabilities to new information and communications technologies and systems, including the Internet" (CRPD, 2006). Figures 5, 6, and 7 show examples of student's post office projects that centred on digital communications access as well as shared digital learning and work areas, a laptop library for extending ICT access beyond the post office building, and social gathering spaces. While the traditional services of the post office have historically been a conduit for delivering information by mail, these projects expand the use of government infrastructure to provide digital resources in one of the few civic spaces in rural communities. Beyond these imagined proposals for public spaces and services, each project brought universal design principles and building systems together as a prototype for inclusive design of public institutions.



1	Abiquiú*	13	Dixon	25	Milan	37	Ruidoso
2	Angel Fire	14	Edgewood	26	Mountainair	38	Santa Rosa
3	Aztec	15	El Porvenir*	27	Nageezi	39	Santo Domingo Pueblo
4	Bayard	16	Eunice	28	Nambé	40	Shiprock
5	Belen	17	Flora Vista	29	Ojo Caliente	41	Tierra Amarilla
6	Bosque Farms	18	Gamerco	30	Pecos**	42	Tijeras
7	Chama**	19	Hatch	31	Peralta	43	Trementina
8	Chapparal	20	Lake Roberts	32	Placitas	44	Twin Lakes
9	Chimayó*	21	Lamy	33	Pojoaque	45	White Rock
10	Cimarron	22	Lordsburg	34	Portales	46	White Sands
11	Clayton	23	Los Cerillos	35	Radium Springs	47	Winston
12	Dexter*	24	Mescalero	36	Raton		

Figure 4. Map of New Mexico showing geographical locations of two years of student projects (2020-21) and table with corresponding place names.
(Source: base map from Google Maps, modified by author).
* Indicates two projects in the same geographic area.
** Indicates three projects from the same geographic area.
Alt text: A terrain map of New Mexico with 47 pins marking post office projects spread across the state.

Figure 5. Rendering of post office design project in Edgewood, NM by Natalie Stephens, 2021.
A digital access centre shares the main lobby of the post office. The enclosure is formed of a lightweight concrete waffle slab.

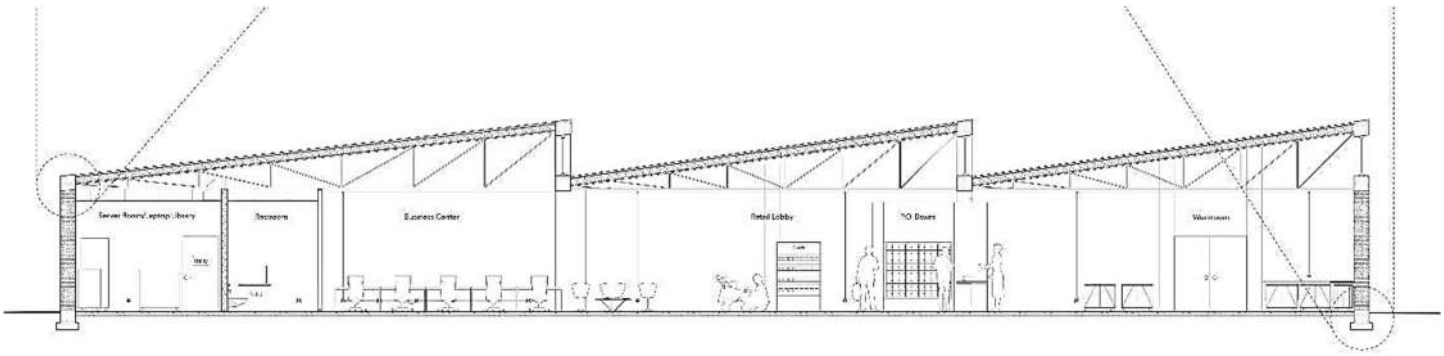


Figure 6. Building section drawing of post office design project in Hatch, NM by Scott Striegel, 2020.
Alt text: The three main structural bays in this section drawing are formed by pitched roofs supported by steel trusses resting on adobe walls.

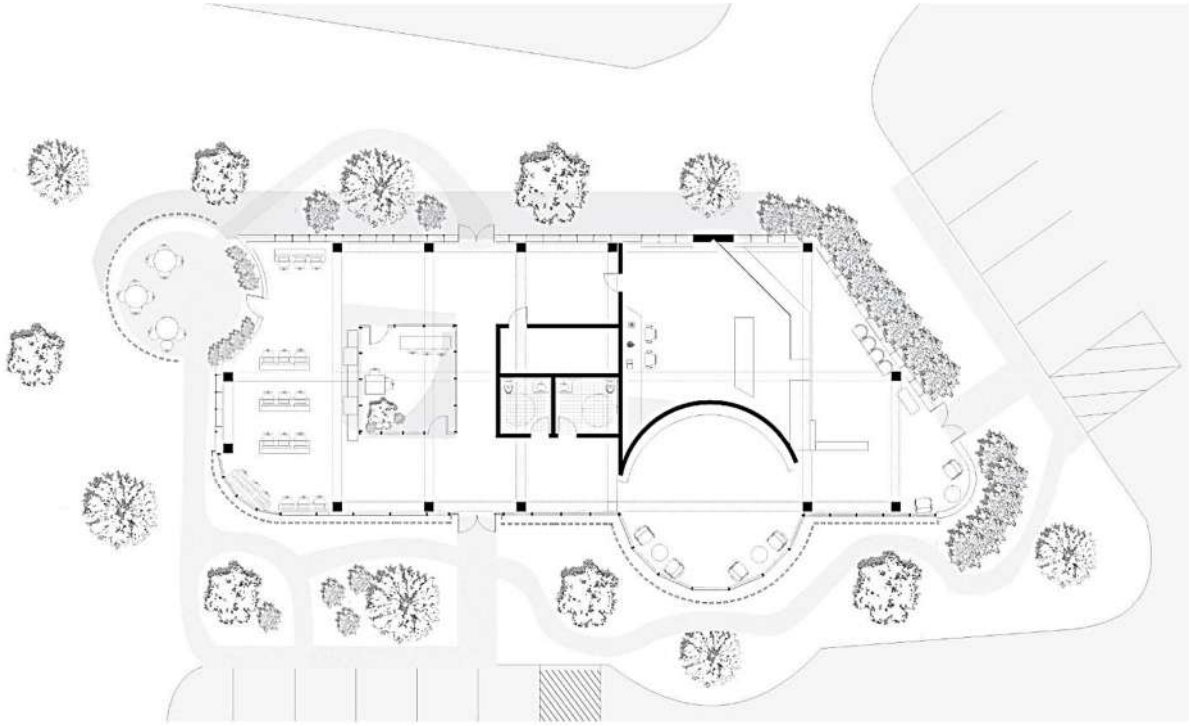


Figure 7. Building plan drawing of post office design project in Shiprock, NM, Navajo Nation, by Courteney Begay, 2021.
Alt text: The glass façade of the post office is offset a brick skin that creates interior and exterior shading around the post office and digital access centre.

2.5. Building Systems Reconsidered

The flexibility, adaptability, and comfort at the core of universal design principles provide a lens for rethinking sustainable environmental techniques. Ruth Morrow and colleagues have shown how a sustainable environment supports sustainable communities and that environments that exclude people lead to poorly connected communities (Morrow, 2002). Adaptable, inclusive building designs that grow with changing needs can be more affordable and are less likely to be abandoned (Morrow, 2002). In addressing the needs of all people including future uses, universal design strategies extend the usable life-span of a building. Material assemblies and environmental systems designed with adaptable and replaceable parts allow for repair and resiliency over time (Brand, 1994). In the project in Figure 6, an open truss roof structure, allowing for easy adaptation of mechanical services, is supported by adobe bricks with traditional lime plaster. The incorporation of adobe wall systems uses local sustainable building practices making maintenance, an important component of ensuring universally accessible environments over time, more feasible. The services provided in building construction need to plan for adaptability so they can be modified as the needs of society change (Koff, 1977) and in response to changing climate conditions and the incorporation of future technologies.

In the two years of the building systems course assessed in this case study, many students employed vernacular materials, forms, and assemblies. They observed that vernacular construction techniques could be more sustainable with respect to material

ecology and cradle to cradle principles (McDonough and Braungart, 2002) while creating more geographically-attuned interior environments. The project in Figure 8 integrated local granite stone construction techniques into wall assemblies with passive earth cooling tubes for ventilation and climate control. The universal design goal of reinforcing cultural values and the social and environmental context of design projects (Steinfeld and Maisel, 2012) presents the opportunity to think about the sustainable efficiency of building systems in concert with rural cultural contexts. A key component of incorporating universal design into passive systems, which rely heavily on daily operation, is ensuring that passive building components can be used by all people to the greatest possible extent. In the design in Figure 3, lower openings in the rammed-earth facade both increase the stack effect to improve ventilation while facilitating accessible operability. These design proposals recast vernacular building systems and materials as systems of inclusion.

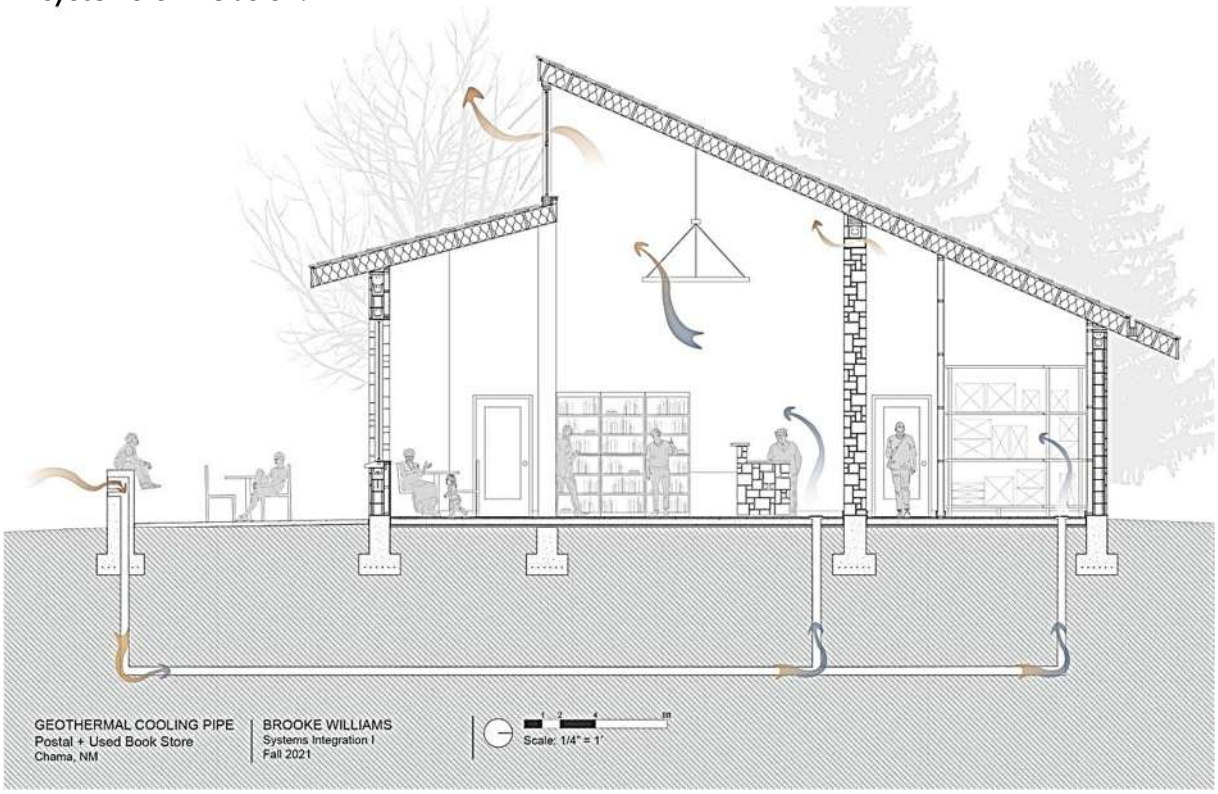


Figure 8. Building section drawing of post office design project in Chama, NM with earth cooling tubes for ventilation and climate control by Brooke Williams, 2021.
Alt text: Arrows show the flow of air through a geothermal cooling pipe into the interior space and out through a clerestory window.

2.6. Distributed Needs Research

Replacing minimum standards for accessibility within curricula with inclusive design criteria is also enacted through research methodologies. While educational institutions are clustered in urban or suburban areas, many students come from or have ties to rural communities. In our context, the university hosts the only accredited architectural program within a state that includes expansive distributed populations, long-standing historic communities, and Indigenous territories. The focus on rural public spaces and

aging populations is a means for students to bring their own diverse backgrounds, places of origin, and histories into their academic studies. Sustaining cultural pluralism is an essential component of the democratic project of schooling and "culturally sustaining pedagogy" (Paris, 2012). According to the U.S. Census, "[i]n many ways, New Mexico is the definition of diversity" with about 48 percent of people in the state identifying as "Hispanic or Latino" (U.S. Census Bureau, 2017) and the third highest percentage of "American Indian and Alaska Native" of any state at 14.5 percent (NCAI, 2020). Considering the diverse contexts of rural post offices in New Mexico can making space for the diverse backgrounds of students in a classroom and allow everyone (including faculty) to invested in learning together (Kishimoto, 2018). Jessi Smith and colleagues observed that for Native American STEM students, STEM did not appear to fulfil communally-oriented desires to give back to and improve the quality of life for their tribal communities (Smith et al, 2014, cited in Taylor et al, 2019). This in part stems from a lack of cultural relevance in the framing of syllabi, coursework, and projects (Taylor et al, 2019). While not without its challenges and shortcomings (discussed in the next paragraph), the approach of this case study was to engage their own communities and relatives in the formation of user needs research. Rather than partnering with a single community or organization, students selected a rural location that in many cases they have direct or historical ties to. In their project development, students interviewed aging family members and other stakeholders and received feedback to gain participation in the design process. Given the prevalence of jobs created by the postal system in rural areas (Blevins, 2021), it should not have been surprising that multiple students either had direct or distant relatives that worked in post offices or in mail delivery in small towns and communities.

The assessments performed by students were incorporated into the invention of expanded post office programs and into understanding the role and use of post offices in particular geographies. This model of user assessment and research poses several challenges. While creating a means for many students to directly engage their own communities, places with which they had historical ties, or learn from the communities of others, the performance of this distributed ethnographic research was unevenly distributed. Not all students identified connections to rural areas (in any location) and the lack of travel due to COVID-19 restrictions prohibited them from making connections in person.

3. Conclusion

Building systems courses can play a significant role in architecture curriculum to advance toward a more sustainable and just built environment and toward equal participation of all persons. Universal Design principles suggest intersectional strategies for rethinking how building-related impacts are taught around inclusion/exclusion, access, and health disparities. As buildings are a major source of pollutants both in their operation and construction—involving energy-intensive materials, toxins, and polluting energy sources—marginalized communities have faced the most severe impacts of environmental degradation. These impacts can be further overlooked in rural areas where effects are spread across vast territories. Efforts to bring environmental justice indoors could be led by federal governments whose policies have historically allowed or led to environmental racism. In bringing together design strategies that support

concentrations of aging populations in rural areas, equal access by all people, sustainable building practices, and programmatic uses that increase access to vital resources, post offices can serve as a prototype for building inclusive public spaces. While the integration of universal design principles into technical building systems courses can benefit students by disrupting our understanding of and practices related to technology, they can also be a generative site for bringing critical attention to social inclusion in the built environment.

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"We should all feel welcome to the park": Intergenerational Public Space and Universal Design in Disinvested Communities

Gus Wendel, Anastasia Loukaitou-Sideris, Claire Nelischer, Gibson Bastar
University of California, Los Angeles, United States of America
gwendel1583@ucla.edu | sideris@g.ucla.edu | cnelischer@ucla.edu | gibson.bastar@gmail.com

Abstract
This article investigates the potential for intergenerational public space in the Westlake neighbourhood of Los Angeles. Through a series of site observations, focus groups, interviews, thick mapping, and participatory design exercises, we work with 43 youth and 38 older adults (over 65), all residents of Westlake, to examine their public space use, experiences, and desires, and identify where the two groups' interests intersect or diverge. We explore the potential for complementary approaches to creating intergenerational public space using the principles of Universal Design. In doing so, we emphasize the importance of taking an intersectional approach to designing public space that considers the multiple, often overlapping identities of residents of historically marginalized communities predicated by disability and age, in addition to race, class, and gender. Our findings yield insights for creating more inclusive and accessible public spaces in disinvested urban neighbourhoods as well as opportunities for allyship between groups whose public space interests have been marginalized by mainstream design standards.

Keywords: public space, disinvested communities, universal design, intergenerational public space

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Introduction

Youth and older adults are typically not present in decisions about the built environment. This study examines the public space experiences of low-income older adults and youth in the Westlake neighborhood Los Angeles, seeking to make their voices heard and translate their needs and preferences into public space design recommendations[1]. Another aim is to explore opportunities for intergenerational public settings. Given the aspiration of Universal Design to create built environments that are "usable by all people to the greatest extent possible" (Mace et al., 1991:2; United Nations, 2016), we ask: How might Universal Design frameworks help create intergenerational public spaces in the context of historically marginalized communities? Westlake is such a community; it is high-density, multiethnic, low-income, with high concentrations of children and older adults. Westlake has less open space per capita compared to the citywide average (0.84 acres/1000 residents compared to 3.3 acres/1000 residents (AARP et al., 2018)). Given the neighborhood's demographics, its relative dearth of public spaces, and a global pandemic posing additional barriers to public space access, Westlake provides a good geographic setting to explore our previous question.

We begin by unpacking the literature on public space inequity and the importance of intergenerational Universal Design frameworks. This framing sets the stage for the discussion of our empirical study. We share our study findings and implications for design and policy and conclude with recommendations for creating intergenerational public spaces.

Socio-demographic Inequities and Public Space

Access to outdoor public spaces can provide health and recreational benefits to communities. However, the provision, quality, and safety of public spaces are distributed inequitably in many cities (Wolch et al., 2005, 2014; Boone et al., 2009; A. Rigolon et al., 2015a; Macedo and Haddad, 2016; Tan and Samsudin, 2017; Rigolon and Németh, 2018). This is true in Los Angeles, where 82% of the city's park-poor neighbourhoods are in communities of colour (Los Angeles County Department of Parks and Recreation, 2016).

In the US, these spatial inequities are outcomes of historic class and ethno-racial oppression, where patterns of state-sponsored segregation and disinvestment through redlining, urban renewal, and 'white flight' overwhelmingly impacted communities of colour (Byrne and Wolch, 2009; Byrne, 2012). Wealthier, predominantly white, suburban households had the resources to maintain abundant outdoor public space, while low-income communities of colour in the urban core had limited access to quality public space (Heynen et al., 2006).

Inequities inscribed in the built environment are exacerbated among demographic groups who face additional barriers to accessing public spaces. For low-income youth in neighbourhoods with limited public open space, traveling long distances to access public spaces or paying for private recreation facilities is out-of-reach (Loukaitou-Sideris et al., 2002). Similarly, low-income older adults often rely on neighbourhood public spaces for

[1] This article expands upon an earlier unpublished study of ours sponsored by the UCLA Office of the Vice Chancellor for Research (Loukaitou-Sideris et al., 2021).

recreation and socializing (Loukaitou-Sideris et al., 2014). Both demographic groups benefit from increased access to public space, perhaps more so than other groups. For low-income older adults, particularly those living in small apartments without private yards, neighbourhood parks offer respite and opportunities for contact with nature, walking, and exercise. For children, parks provide formative learning opportunities through play and socialization (Author et al., 2002). Access to outdoor public space took on added importance for low-income individuals during the COVID-19 pandemic, who were disproportionately impacted by the virus (Low and Loukaitou-Sideris, 2020). Even if public spaces are available, they are often not designed or programmed to serve the needs of all children (Loukaitou-Sideris et al., 2009) or older adults (Loukitou-Sideris et al., 2014). The role of planners, designers, and policy makers in accommodating these needs is significant (Winick and Jaffe, 2015), in light of shifting demographics and widening income gaps in the US.[2] Scholars and activists have called for more inclusive approaches to designing the built environment, giving rise to the influential paradigm of Universal Design, which promotes design guidelines that benefit everyone, regardless of ability or age (Mace et al., 1991) and is central to inclusion and accessibility frameworks, including the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006), the New Urban Agenda (United Nations, 2016) and the World Health Organization's Age-Friendly Cities Framework (WHO, 2007). But policy makers, designers, and academics have tended to overlook how public spaces might be designed to accommodate *both* children and older adults, much less low-income children and older adults, as well as others experiencing the intersection of multiple frames of oppression (Crenshaw, 1991). In the next section, we give an overview of recent literature that draws from Universal Design (UD) and intergenerational public space (IPS) approaches.

Intergenerational Public Space and Universal Design

Meaningful relationships are key to helping young people develop purposeful lives, and non-parental mentors can provide formative support (Carstensen, 2016). For older adults, studies have shown that caring for the next generation can lead to increased happiness (Vaillant, 2003), and that intergenerational volunteering positively impacts older adults' mental and physical health (Tan et al., 2009). Motivated by these findings, researchers have increasingly recognized the need to support the health, safety, and wellbeing of city dwellers across the age spectrum, including children and older adults (Thang and Kaplan, 2012; Cushing and van Vliet, 2016). Age-friendly and child-friendly cities approaches emphasize the role of the built environment in addressing the vulnerability of urban youth and older adults and have been endorsed by the WHO and the United Nations Children's Fund (Manchester and Facer, 2017). Some scholars argue, however, that these two approaches have not converged in practice, often prioritizing the needs of a single age-group rather than embracing shared interests across the age spectrum (Biggs and Carr, 2015; Manchester and Facer, 2017).

[2] Over 100 million Americans are over 50, and 75 million are younger than 18. Among them, poverty impacts nearly 25 million aging people, and 16.5 million young people, and poverty rates are higher for women, African Americans, and Hispanics (ACS, 2019).

IPS approaches bridge age- and child-friendly cities approaches to produce public spaces that support the needs of and foster relationships among different age groups (Biggs and Carr, 2015; Kaplan et al., 2020). They are distinct from monogenerational and multigenerational approaches as they seek to create shared spaces that address age-based needs, but also support meaningful interaction among different age groups (Kaplan et al., 2007; Thang and Kaplan, 2012). Scholars have shown that intergenerational interaction in public space may confer direct benefits to immediate participants and indirect community benefits (Cushing and van Vliet, 2016), including enhancing individual health and wellbeing (Haider, 2007; Dawson, 2017), fostering social inclusion, solidarity, and shared understanding (Lang, 1998; Scharlach and Lehning, 2013; Cortellesi and Kernan, 2016), and mobilizing shared interests and capacities toward the development of sustainable communities (Pain, 2005; Brown and Henkin, 2018).
Scholars studying IPS caution that success requires more than co-located community and recreational facilities and programs for youth and older adults. The framework of "intergenerational contact zones" has emerged as a means of translating the goals of IPS into practice, moving beyond co-location to creating interactive environments for youth and older adults (Thang, 2015; Kaplan et al., 2020). The literature presents design, procedural, and policy approaches to support generational interaction in public space. These include environmental design recommendations, such as offering tranquil spaces of retreat (Kaplan et al., 2007; Loukaitou-Sideris et al., 2016) and integrating activity spaces and features that provide a range of interests for different users (Larkin et al., 2010; Layne, 2009; Nelischer and Loukaitou-Sideris, 2022).
The process through which IPS is created is important to their success; participatory processes engaging users of different ages in design, programming, and management may successfully balance the needs of different groups and foster a shared sense of responsibility and enthusiasm amongst users (Rigolon et al., 2015a; arki_lab, 2017; Sanchez and Stafford, 2020). Furthermore, scholars call for educating practitioners and policymakers on the benefits of intergenerational environments, encouraging approaches that avoid bureaucratic and professional siloes (Pain, 2005; van Vliet, 2011).
While primarily emerging out of disability activism and research, UD is akin to intergenerational approaches as it aims to produce built environments that support access and use by all ages and abilities (Biggs and Carr, 2015; Stafford and Baldwin, 2015). Given the alignment between these approaches, several studies suggest that UD and IPS approaches may be successfully integrated in public space design to better support the needs of people of different ages and abilities (Stafford and Baldwin, 2015; Lynch et al., 2018). Some scholars suggest that UD is considered a complement rather than a substitute to IPS approaches (Thang and Kaplan, 2012; Thang, 2015).
Hamraie (2017, p. 184) emphasizes that early UD framing viewed disability "in relation to other spatially excluded populations, such as children, elderly people, and people of different sizes, whose needs were often treated as 'special' or 'exception' rather than as integral to the design of built space." This view sees UD as a strategy for accountability toward, and alliance between, multiple marginalized groups. "Ability" considers the various ways in which bodies are differently abled, without losing sight of the specific needs of groups whose experiences are different, including those of disabled people. Mace and Lusher (1989) seek to leverage UD as a framework for allyship among different marginalized groups whose concerns are ignored by mainstream design standards. Age and disability are but a few of many intersecting identities, along with

class, race, and gender, that can be highlighted within UD, rather than subsumed within a 'post-disability' discourse (Hamraie, 2017).

While much has been written about the benefits of IPS, most research continues to have a single-generational focus. The literature shows that few public spaces successfully integrate the needs of *both* older adults and youth, which can be partially explained by the lack of co-creation in the design process. Additionally, few studies examine IPS within historically disinvested neighbourhoods. Thus, pairing UD with IPS can cast light on the ways that barriers to participation experienced by youth, older adults, people with disabilities, along with other marginalized identities related to race, class, and gender, are complementary. We examine this proposition in our empirical study.

Research Design

Conceptual Framework

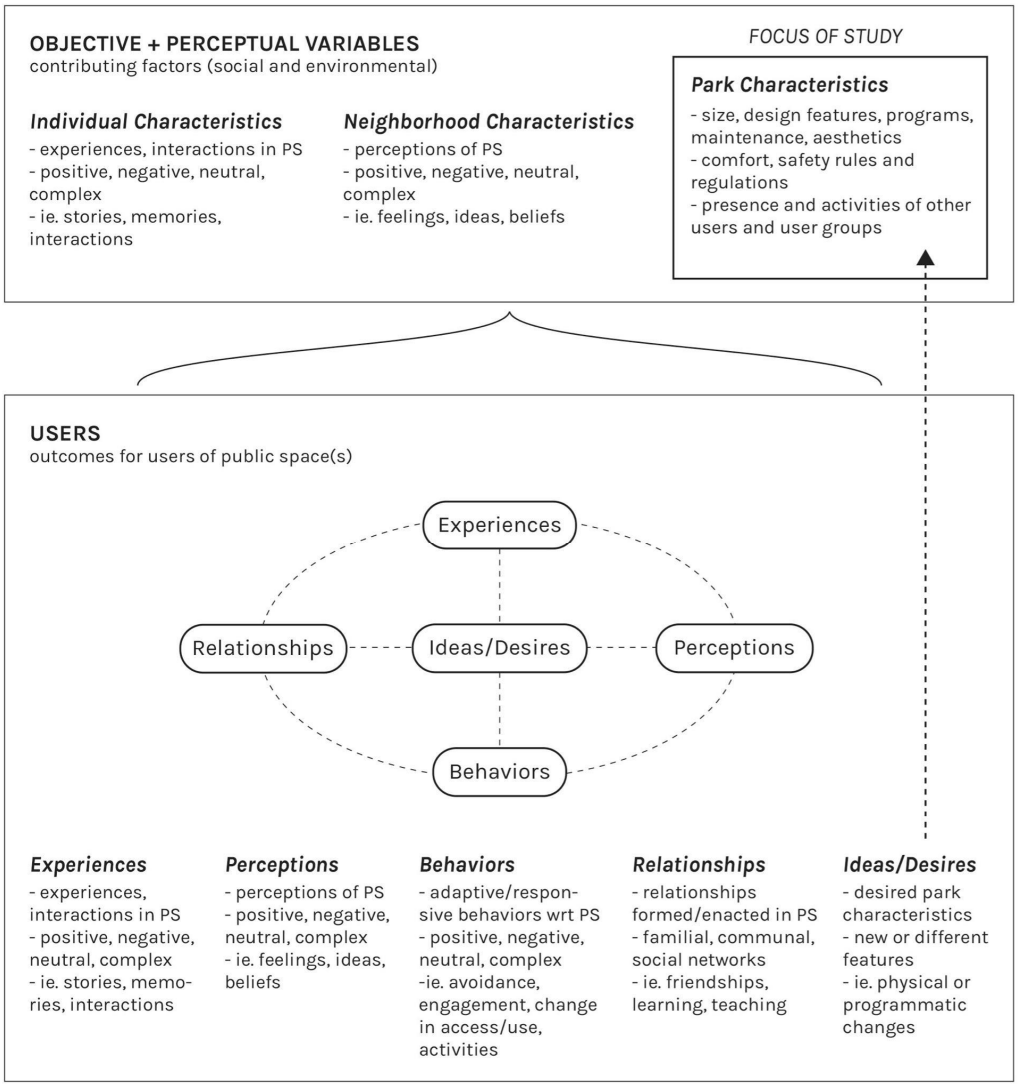

Figure 1. Study Framework. Source: Loukaitou-Sideris et al. (2021)

Our study's conceptual framework (Figure 1) posits that a combination of objective and perceptual variables, which include users' individual characteristics (age, ability, gender, income, race/ethnicity, place of residence), neighbourhood characteristics (street layout and connectivity, crime rates), and public space characteristics (size, design features, programming, regulations) influence experiences in public spaces. User public space experiences include their perceptions, behaviours/activities, relationships, and ideas/desires and should inform future public space interventions. Understanding the relationship between the objective and perceptual variables on the one hand, and user experiences in public spaces on the other, can yield important insights for planners and designers seeking to create IPS.

Research Questions

Two research questions guided our research:

1. What are similarities and differences between older adults and youth in public space access and use in Westlake?
2. How might UD and IPS frameworks complement one another to foster intergenerational exchanges in the public spaces of marginalized, multi-ethnic communities?

Context

Westlake, the densest Los Angeles neighbourhood, is located two miles west of downtown Los Angeles. It has about 120,000 residents, who are overwhelmingly renters (95%) and non-White (76.4%), and many are low-income (31.8% under the poverty line). Ten percent are older than 65, and 23 percent are younger than 18. Latinos constitute the largest racial/ethnic group (58%), but there are also significant numbers of Asian (primarily Korean) residents (29%) (ACS, 2019). The neighbourhood has two larger parks–MacArthur and Lafayette, as well as a recently-built pocket park, Golden Age Park. However, some older adults avoid these parks because of fear for their safety or because they do not fulfil their recreational and social needs. At the same time, the fear of crime makes parents apprehensive of allowing their youngsters to visit parks on their own (Author et al., 2009).

Our research involved a partnership with two community-based organizations with long histories and strong connections to the Westlake neighbourhood: St. Barnabas Senior Services (SBSS) and Heart of Los Angeles (HOLA). SBSS is one of the oldest senior-serving centres in Los Angeles. HOLA provides more than 2,200 underserved youth (aged 6-19) with free after-school programs. Partnering with SBSS and HOLA allowed us to recruit 43 youth and 38 older adult residents of Westlake, who participated in research activities and shared their experiences and ideas about the neighbourhood's public spaces.[3]

Research Methods

We employed structured site observations, focus group discussions, thick-mapping, and participatory design workshops to identify similarities and differences between the two

[3] This research was approved by the UCLA Institutional Review Board (IRB). For each research activity, participants were given a $25 gift card as appreciation for their participation.

age-groups' experiences and where their interests intersect. This information provided the basis for recommendations about public space in disinvested neighbourhoods. All activities, apart from observations and the participatory design exercise, were conducted on Zoom or UberConference, recorded, and transcribed.

Site observations: During October 2020, we undertook structured site observations at the three parks to inquire if and to what extent youth and older adults utilize them, what types of facilities they use, and if/how they interact with users of different generations. We visited each park six times during morning, afternoon, evening of both a weekday and a weekend, and conducted observations in 30-minute increments.

Focus groups: We conducted five focus groups of 90-120 minutes each. Each focus group had 6-8 participants, separated in age-specific groups (middle-schoolers, high-schoolers, Spanish-speaking older adults, English-speaking older adults, Korean-speaking older adults).[4] During the focus groups, we asked participants about their use of, experiences in, and attitudes about neighbourhood parks and public spaces before and during the pandemic. The focus groups concluded with a discussion of intergenerational parks and preferred public space activities and features.

Thick-mapping: We conducted four "thick-mapping" workshops inviting participants to create a collective map (Figure 2) depicting their histories and emotional relationships to the public spaces, thus promoting a collective understanding of their meaning, significance, and opportunities for improvement. The created maps depicted information about daily travel routines, neighbourhood landmarks, positive and negative memories of neighbourhood public spaces, preferred park settings and activities, and suggestions for improvements.

In-depth interviews: We conducted twelve one-on-one, in-depth interviews with youth and older adults, approximately one hour each. Interviews began with general questions about life in Los Angeles, including how long the participant had lived in the city, daily life and routines before and during the pandemic, and issues facing Westlake. We asked participants about their relationship to the neighbourhood, its public spaces, and their hopes for the future of the neighbourhood and its parks.

Participatory design exercise: We invited participants to a final, two-hour participatory design exercise intended to collectively imagine future improvements in neighbourhood public spaces. We sought to engender an intergenerational dialogue and projective public space design discussion, and yield policy and design recommendations for IPS in Westlake. For this exercise, we set up "hybrid" (in-person and remote) participation options, which allowed for dialogue between those attending in-person and those on Zoom.

Challenges/Limitations: We had to switch some research tasks to a remote format because of COVID-19, which presented some challenges, including uneven internet access and lack of familiarity with digital interfaces amongst some participants. Youth

[4] We employed graduate student assistants who were fluent in Spanish and Korean.

participants were more comfortable using video-conferencing tools like Zoom and more easily able to adapt to online research activities, whereas some older participants did not have access to Zoom or struggled to use it. This generational "digital divide" prompted us to adapt our activities to the needs and preferences of participants from different age groups, including hosting conversations with some older adults by phone-conferencing rather than Zoom.

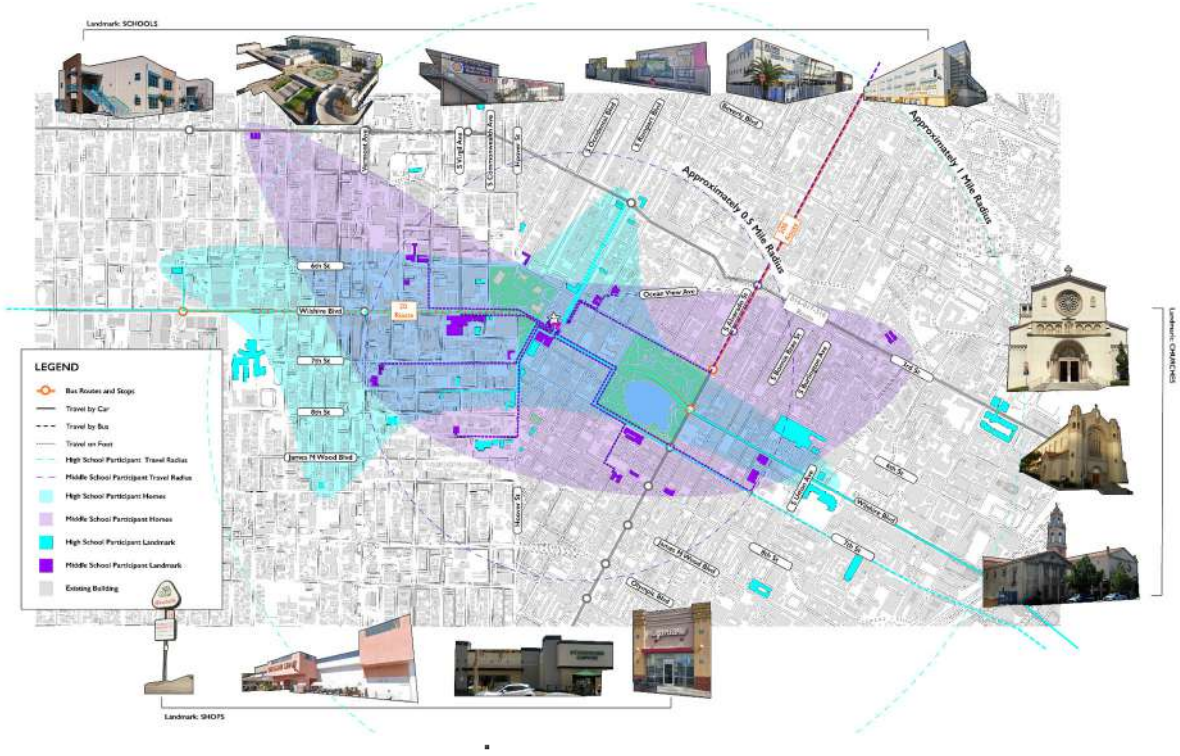

Figure 2. Map of daily travel routines and landmarks named by research participants. Source: Loukaitou-Sideris et al. (2021)

Findings

Following our conceptual framework, we organize our findings according to participant experiences, perceptions, behaviours, and relationships, and conclude with stated needs and desires.

Experiences

Older adult participants shared personal memories and experiences in parks, often associated with the time they first arrived in Los Angeles. Youth similarly shared memories of the parks, based on their experiences visiting when younger or stories shared by their family and friends of what the parks were like in the past. Participants' stories spoke to the role of public spaces in supporting diasporic identities and past feelings of belonging. For instance, one participant originally from El Salvador spoke about how he and others used to take care of one park: "People would come, bring food, and enjoy that the place was clean. I would tell them: 'please, when you finish eating, take the garbage to the trash-container!' But later people came to drink there, and fights happened, so we had to leave the place."

Frequently, depictions of Westlake's current public space assumed *a* darker quality than the remembered same space in the past. Several older adults and youth related recent experiences of harassment, unwanted attention, and assault in the parks, fostering a perception of danger and asking for enhanced park security. For some older adults, these fears were related to their age. As one participant shared, "As an older person, with a little push you can knock me down and take away what I have. So, for safety reasons, I don't visit the park now." For Korean American participants, fear of anti-Asian sentiment and violence hindered their public space use, which was exacerbated by the pandemic. According to one older adult, "Asians are in danger these days. ... I want to go to the park but I'm fearful. ... I'm always on guard, so it doesn't feel good." One young participant shared her experience of sexual harassment and unwanted touching at MacArthur Park: "There were always guys catcalling and whistling at me; it made me feel very unsafe." A transgender youth also reported experiencing harassment. Such negative experiences tended to occur more at night and induced a fearful reaction to the neighbourhood's public spaces.

Perceptions

Participants perceived the presence of other park users as positive or negative, depending on the user group and activity. A diversity of people coming together in public space was often framed positively by older adults, and associated with feelings of excitement, curiosity, and opportunities to learn from others. One older adult shared that she preferred Lafayette Park "because of the presence of both older and younger park users." Some youth attributed their feelings of safety and fondness for Lafayette Park to the presence of children playing sports and the location of HOLA in the park. As one youth said, "at Lafayette, I feel really safe. I don't know if it's because I know all the staff there, or because it's just a small park. Those factors contribute to the safety I feel there."

Youth and older adults perceived unkempt or dirty areas as unsafe. Youth similarly expressed fear and discomfort in response to certain park conditions (trash, inadequate lighting, restrooms, presence of unhoused individuals) as well as overcrowding, harassment, or erratic behaviour by some unhoused individuals, particularly in MacArthur Park. Even youth, who had shorter memories of the neighbourhood, recalled hearing from family members about a time when the parks were better, and often shared the perception that park conditions had declined over time.

Behaviours

Focus groups, thick-mapping, and interviews revealed that many participants gravitate towards public spaces that have a level of familiarity, predictability, and features that accommodate their needs and interests. Youth participants were more likely to share an interest in sports and active recreation, and often preferred programmed spaces and active recreation facilities in the parks. Lafayette Park was where one youth participant scored their first soccer goal, another went to play basketball, and another enjoyed riding his scooter. Amongst older adults, walking, exercising, and people-watching were popular park activities.

The pandemic was a significant factor influencing behaviours and activities in parks and public spaces for both age groups. While some older adults continued to visit the parks, most emphasized that the pandemic had prevented them from visiting other public

spaces. One older adult shared, "I like exercising but couldn't go to the YMCA. So, I just walked in the streets." The youth reported spending more time at home as a result of the pandemic. Some visited parks less frequently, while others only at specific times to avoid crowding. Still the openness of the parks provided a respite from the virus. One male youth shared, "We go to the park because it's very spacious. And that's pretty good! Especially now." Still some youth expressed disappointment with their inability to visit parks and participate in extracurricular activities during the pandemic, as well as concern about increased time spent indoors and behind screens. As one participant said, "We used to always walk, we always went outside to play, but now we're inside – online school, more computers, more devices, which is unhealthy. But that's my life now."

Additionally, concerns over cleanliness, presence of unhoused people, past negative experiences and interactions with other park users, and a perceived lack of safety influenced how and when youth and older adults visited the parks. Several participants reported avoiding certain park settings. One older adult noted her gender playing a role in the precautions she took, sharing that she was not comfortable visiting parks unaccompanied. The behaviours of participants indicating aggravation or appreciation for different parts of Lafayette Park are depicted in Figure 3.

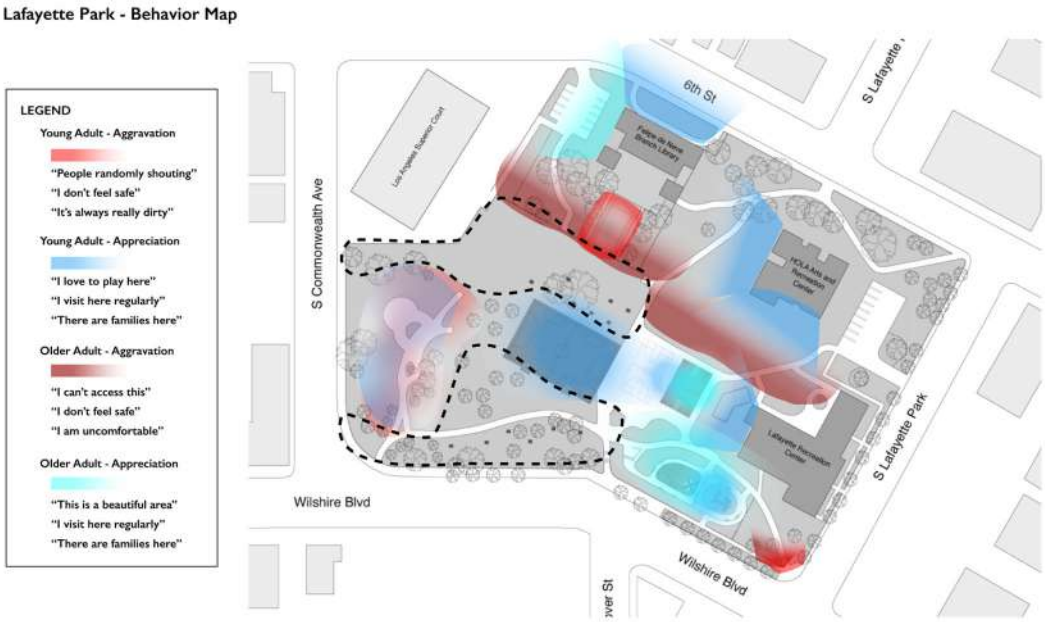

Figure 3. Map of participant behaviours of Lafayette Park indicating areas of aggravation or appreciation. Source: Loukaitou-Sideris et al. (2021).

Relationships

Memories of time spent at the parks with family and friends were prominent among youth participants. Speaking of Lafayette Park, one youth expressed nostalgia: "My uncles always rented out the soccer field, and I just sat there in the shade watching them play. It's my favourite memory." Many older adults recalled visiting the parks with family, particularly children and grandchildren, to walk or for birthdays, picnics, and

religious celebrations. One participant, who had spent 45 years working as a nanny, recalled how this role shaped how she understood and experienced the parks.
Youth were more likely to view visiting the park as a group activity, and several indicated feeling safer visiting the park with others. Conversely, most older adults visited the parks alone. For some, this lack of company was negative: "I used to walk with my friend for about 20 years. But that friend moved, so now I go alone. It's boring walking alone." Indeed, the opportunity to visit the park with friends was a motivating factor for some older adults' visits. One of them, who had not been to Golden Age Park, suggested that she might visit it, if she had "somebody to go with."
Relationships with community organizations were a major factor influencing how youth and older adults connected to the parks. Given its location at Lafayette Park, HOLA was frequently mentioned by youth in relation to their park use. Connecting HOLA with familiarity to the park and a sense of home, one participant shared, "I really like Lafayette Park! Every time I go there, I want to look at it more, because I've had so many experiences there since starting at HOLA. It just feels more like home!" Similarly, older adults frequently mentioned SBSS in relation to their experiences and interactions in neighbourhood parks.

Desires
Participants had many shared desires when it came to activities and features (Figure 4). Youth and older adults shared ideas they thought would appeal to both age groups. Gardens were one such amenity. As a youth stated, "We could utilize the park's open space for flowers. I've heard older generations talk about how there were a lot of trees where they used to live, and now in the city, they miss trees and flowers." Older adults expressed interest in yoga, music and dance classes, concerts, board games, art activities, and intergenerational language learning programs. One older adult mentioned: "Children speak English very well; I could learn English from them!" Another older adult expressed her desires of an intergenerational space as follows: "I would like a park with areas for children, young people, and seniors – a park that is for the family. I would enjoy having a cafeteria so that older adults can play domino. They can play shuffleboard; teens can play basketball, children can play on swings, and older people can watch the children play."
Participants, regardless of age, emphasized their desire for cleaner and better maintained parks. Youth suggested strategies to improve cleanliness, including more waste receptacles, educational campaigns, public restroom cleaning, and park maintenance. One youth noted that park cleanliness may have broader benefits: "Cleanliness inspires and motivates people to be more inclusive at the park, because they know it's safe for the family; it's safer for them." Another youth suggested that, "We can start by tackling the minor issues, such as garbage, and then work onto bigger issues like homelessness and poverty." To make parks safer, youth and older adults suggested improving lighting at night and adding some fencing.
For both groups, age and physical ability were interrelated factors influencing their daily lives and relationship to neighbourhood public spaces. Several older adults reflected on mobility, independence, and autonomy, some indicating that their ability to visit parks had been constrained due to injuries, bad health, or disabilities. Improved amenities like safe and clean restrooms, drinking fountains, seating areas, and smooth walking paths were highlighted as features that would enable older adults to stay at the park longer.

They also saw more seating, park rangers, park programming, additional parking, and amenities like shaded pathways and coffee shops as actionable tasks that would attract older adults to the parks.

Intergenerational Space

Both groups welcomed the idea of park space designed to be more inclusive of diverse age groups. One youth emphasized how intergenerational parks could contribute to a sense of community: "More people can feel welcome to the park, motivated to go there. We're all a community and should all feel welcome to the park!" An older adult shared, "I don't have grandchildren, so I would love the interaction." Several participants felt that intergenerational spaces could offer opportunities for people-watching, with one stating, "I so much enjoy seeing children play! It gives me great happiness." However, one older adult was skeptical about the potential for non-familial intergenerational interaction in parks: "Do children like old people? They may like their own grandmas and grandpas, but they can't like other grandmas and grandpas."

Figure 4. Map of participant desires for creating intergenerational space in MacArthur Park. Source: Loukaitou-Sideris et al. (2021)

Preferred Park Qualities

We asked participants to register their preferences along a set of continuums, which was developed based on park qualities that had emerged from prior participant interviews (Figure 5). Some younger and older participants preferred everyday park activities, while others privileged special events at the park. All but two participants

preferred parks suitable for various age groups, rather than single-age users. This attribute garnered the greatest consensus among participants. Most participants in both age groups preferred spaces with specific programmatic and design features to informal park spaces. More older participants preferred enclosed spaces, while more younger participants preferred open spaces. This continuum yielded the clearest division of preferences by age. More participants preferred social rather than solitary park settings, with older adults showing stronger preferences. Somewhat surprisingly, more older adults than youth participants preferred active over tranquil park spaces. All elders preferred natural park spaces, while most youth preferred a balance between natural and built spaces in the parks. Surprisingly, the only votes for passive park spaces came from youth.

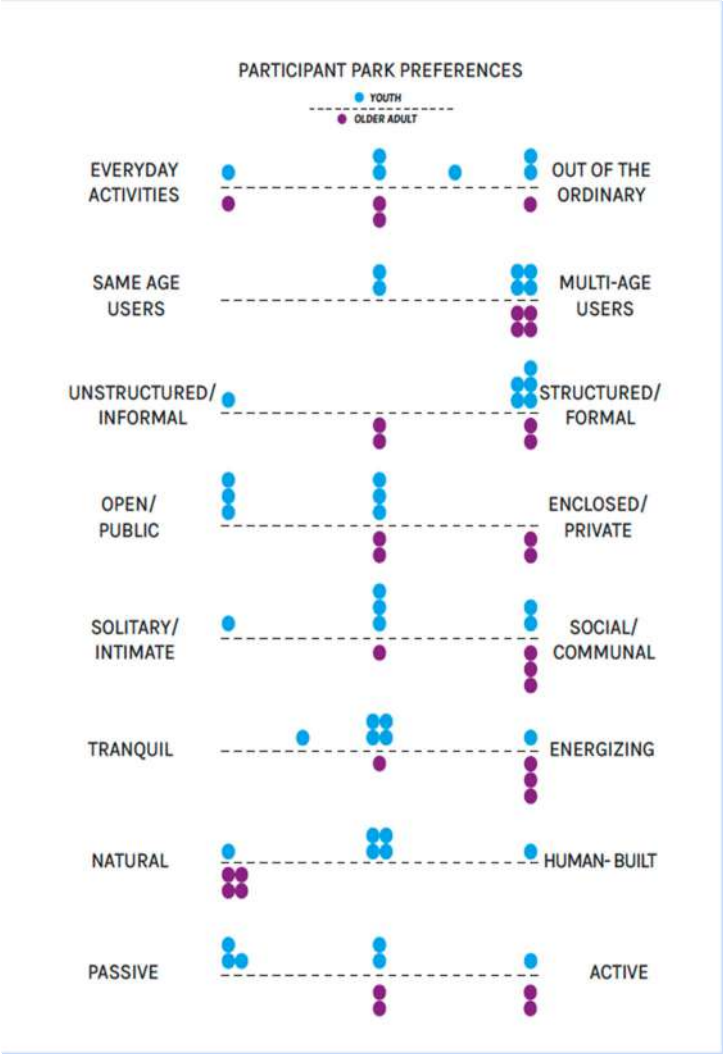

Figure 5. Continuum of park preferences. Source: Loukaitou-Sideris et al. (2021)

Occasionally, the preferences of one age group on a particular continuum appeared to conflict with the preferences of the same group on another, related continuum. For example, older adults expressed a preference for enclosed/private park spaces over open/public spaces, but later expressed preference for social/communal spaces over

solitary/intimate spaces. Older adults preferred structured/formal spaces to unstructured/informal spaces but also preferred natural spaces to human-built spaces. These seemingly contradictory preferences raise questions about the design of public spaces to meet user needs. For example, how can spaces be both social *and* enclosed/private? Additionally, what does both a structured/formal and natural environment look like? The results from this exercise indicate that the preferences of same-age participants may vary, and IPS must meet various needs and satisfy different choices. For example, a park should have both more private and enclosed settings, as well as settings that can accommodate more social and communal uses.

Discussion

The participants' stories and responses reveal not only how different age groups may share common experiences and interests, but also how disability, race, or gender may intersect and influence preferences. Key themes that emerged included safety and inclusivity; complementarity and choice; and community bonds and place relationships.

Safety and Inclusivity

Safety, a common concern for many residents of disinvested neighbourhoods, was a key factor influencing the relationships of youth and older adults to public spaces in Westlake. Feelings of safety are affected by the physical and social characteristics of space. Inclusivity emerged as a related theme given that many participants expressed feeling unwelcome in public spaces due to their race, gender, age, or ability.

Both youth and older adults emphasized that lack of safety was a challenge in the neighbourhood and some of its public spaces. This perception affects their behaviour, often leading them to avoid public spaces or visit them only under certain conditions and times (with family, for programmed activities, during daylight). This also leads to a strong desire to address safety through a combination of policies, programming, and design.

The presence of unhoused individuals and gangs greatly contributed to participants' feeling unsafe in the parks. Particularly older adults mentioned, homelessness frequently in our discussions, reflecting a wider social stigma that associates the experience of being unhoused with deviant behaviours. However, some participants expressed concern for the unhoused and wished that the city would find permanent housing for them.

Gender and race characteristics affected feelings of safety. Female participants referenced their gender as a reason for feeling unsafe visiting parks and public spaces. Similarly, one Asian-American participant cited the surge of anti-Asian sentiment due to the pandemic as a reason why she feared going to public spaces. These sentiments speak to larger issues of racialized and gendered risk and discrimination in public spaces, and the need to incorporate these concerns in their design and management.

In terms of the physical environment, the lack of cleanliness and maintenance of park infrastructure was cited as a reason why many participants avoided visiting Lafayette and MacArthur parks, while older adults mentioned the lack of restrooms as the reason why it was difficult for them to visit Golden Age Park. Such concerns speak to the need for investment in park upkeep.

Complementarity and Choice

That nearly all participants expressed enthusiasm about designing public spaces for intergenerational use and interaction is a key finding. This should embolden park designers to consider public spaces without the restrictive age-related assumptions that frequently characterize public space projects. For example, a park design driven by the stereotype that older adults prefer quieter, less active public spaces would ignore the desires of older adult participants in this research who also enjoy spaces of active engagement. Various design elements and programs that require active engagement would appeal to both elders and youth, such as community gardens, low-impact exercise machines, and walking paths. As mentioned by several older and younger participants, a coffee cart or coffee shop on the park grounds, a neighbourhood youth band that performs at the park, or a hub where park staff could meet and provide services to park users, are features that could attract intergenerational use. Similarly, the stereotype that youth only want to pursue active recreation in public spaces was proven incorrect in our discussions. We found that youth may also wish for quiet spaces to read, create art, or simply be by themselves. Park designers and managers should then strive to give choices to younger and older users and think about how activities in public spaces can complement, rather than impede one another.

This is not to suggest that age-specific park features should disappear. Child-specific playgrounds, for example, are an important feature for children's development and allow younger children to feel engaged in public space; the provision of benches with back support and other comfortable seating opportunities are especially important for older adults. However, one can also consider playground equipment (such as low-impact exercise machines, interactive playgrounds), electronic games, and puzzles, that may be appealing to both older adults and youth. Our findings counter the idea that age-specific programming and design are mutually exclusive and support the idea that they can be complementary. Obviously, harmonious public space configurations are not always possible, but the idea of *complementarity* should imbue design approaches.

A related concept is the *provision of choices and options*. It is not only age, but also personal tastes and cultural traits that influence people's needs and desires for certain environmental settings. Thus, providing different options and settings at the park, for example both quiet corners for reading but also more active and social spaces, would allow a diverse array of users to enjoy it.

Community Bonds and Relationships to Place

Our findings suggest that both youth and older adult perceptions and use of public space are mediated through personal and family histories and relationships, as well as their involvement with community institutions like schools, places of worship, and community non-profits (like HOLA and SBSS). Such relationships impact people's sense of belonging to place (Tuan, 1977), and how they experience and use them. Bonds with community institutions and community-based groups can help overcome barriers to access and enable residents to make better use of public space resources. While participants overwhelmingly favoured the idea of IPS in their neighbourhood and shared similar visions for how to achieve such spaces, a barrier is the lack of programs or outlets that can foster intergenerational interaction. Community-based networks of friends, family, and non-profit organizations should be leveraged in creating programs with the specific intent of bringing together youth and older adults in public space

settings. Certain types of park programming would require more active collaboration between residents, non-profits, and city officials. The idea of a "park ambassador" who could facilitate user experiences and provide park information and a sense of security to park users[5] was popular among participants; and would require a program facilitated by the city and coordinated by local organizations.

Community bonds and relationships to place hold the power to enact change at a macro level (Hayden, 1995). Early framings of UD suggest that alliances should be formed across groups who have been similarly marginalized by design. They include youth, older adults, persons with disabilities, and others who have been oppressed because of their identity. As such, the needs of unhoused individuals, some of whom are seniors or youth, should also be considered in the provision of public space.

Conclusions and Recommendations

Our research reaffirms the importance of public space in disinvested urban areas. The amenities provided by well-maintained, intentionally designed public spaces carry additional importance for low-income neighbourhoods such as Westlake. Additionally, the pandemic has reinforced the necessity of easy access to outdoor public spaces for public health. We conclude that leveraging the intersectional approach inherent to early frameworks of UD does three things for considering intergenerational spaces anew:

1. It creates awareness of how multiple historically marginalized identities (including age, disability, gender, race, and class) intersect allowing for the building of coalitions and the identification of complementary approaches to the design of public space.
2. It draws attention to the power relations embedded in place and the ways in which IPS must be considered alongside other issues like gentrification, displacement, and environmental justice.
3. It calls for a participatory approach to designing public spaces; one that takes seriously the input and experiences of public space users.

Based on our findings, we adapt the seven principles of UD (Connell et al., 1997) to offer the following suggestions for planners and designers wishing to develop IPS in disinvested neighbourhoods.

Principle 1: Equitable Use

- Design should consider the cultural context of the neighbourhood and the history of the community.
- Aesthetic choices should not be imposed from the outside, but determined in conversation with local community members, based on their needs and desires.
- Public space investments should be pursued in collaboration with trusted community-based organizations.
- Public space improvements can be advocated in tandem with anti-eviction and anti-displacement efforts and advocacy for affordable housing.

[5] Park ambassadors are alternatives to authority figures such as police officers. For the most vulnerable park users, they can serve as "trust agents" who help those seeking assistance in the form of housing, food, needle exchange, mental health services, and other forms of support (Madison, 2020).

Principle 2: Flexibility in Use

- Flexible public space should consider the ways in which amenities can provide complementary services to youth, older adults, and persons with disabilities, as well as a degree of choice among users.
- Social activities should be programmed with an eye to attract intergenerational uses. Activities that are age-specific should ensure there is something for everyone, so that different age groups can also 'do their own thing,' while in each other's company.

Principle 3: Simple and Intuitive Use

- Public signage in diverse languages is important in linguistically diverse communities.
- Infrastructural amenities like exercise machines, playgrounds, and community gardens should be easy to use with little required knowledge or experience. Community non-profit organizations can play a role in facilitating their use.

Principle 4: Perceptible Information

- All public space features should be easily perceptible, particularly for older adults experiencing age-related disabilities, and children who may not have yet comprehensive abilities that allow full use of public spaces.
- Users should not be left without assistance, should they desire it. Programmed activities led by park ambassadors may assist public space users and help establish a sense of community and shared public space ownership.

Principle 5: Tolerance for Error

- Infrastructural upkeep is essential to minimize safety hazards and attract users of all ages.
- Better lighting can possibly protect individuals from falls and crime incidents.

Principle 6: Low Physical Effort

- Shaded areas, availability of drinking water, comfortable seating, and clean public restrooms ensure that users, especially older adults, can easily visit public spaces and remain comfortable.

Principle 7: Size and Space for Approach and Use

- Sidewalks connecting neighbourhood public spaces should be well-maintained so that youth and older adults, particularly those with disabilities, can safely access them. Better access can also be achieved by locating public transit stops near parks.

In conclusion, our cities and their disinvested neighbourhoods face an urgent need for public spaces that support residents of diverse life stages and abilities. UD and IPS models provide useful frameworks for designing and programming such spaces. These models become more powerful if combined with participatory design approaches, that leverage multiple analytic tools, including traditional interview-based instruments alongside innovative visual instruments like thick mapping and participatory design. Additionally, partnerships and collaborations between planner, designers, and

community-based institutions, including those representing younger and older persons, persons with disabilities, and other historically marginalized groups, are critical to making our cities and their public spaces more inclusive.

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Te Pua/Keith Park – Nau mai, Haere mai Let's Play Together

Elise Copeland, Jennice Stringer
Auckland Council, New Zealand
elise.copeland@aucklandcouncil.govt.nz | jennice.stringer@aucklandcouncil.govt.nz

Vivian Naylor
CCS Disability Action, New Zealand
vivian.naylor@ccsdisabilityaction.org.nz

Sue Rim Lee
Auckland Council, New Zealand
sue.lee@aucklandcouncil.govt.nz

Abstract
Te Pua/Keith Park playground employed an innovative early program of co-design with an All Abilities Project Group (AAPG), representing disability organisations and key stakeholders from the community. Through ongoing engagement with disabled people as experts, the outcome was an inclusive and welcoming play space for a diverse range of children, young people and their caregivers.
Play equipment included a range of vestibular, visual, and auditory pieces as well as a customised 2m high wheelchair accessible play tower for inclusive play experiences. Parents, families and carers were enabled to play with their children through smooth and step-free surfaces as well as specific play equipment such as an adult and child swing. Children and young people of different ages and abilities were encouraged to sit/lie/stand in the basket swing and see-saw together. Unique to this playground, communication boards were innovatively and collaboratively designed with visual images representing various features of the playground and QR codes linking to online videos with New Zealand Sign Language.
In addition to play equipment, the AAPG identified that the toilet facilities were crucial to ensuring accessibility to many families, including those with bigger children or teens with access needs who were often faced with the reality of needing to be changed in unsanitary and unsafe ways without the appropriate facilities being available. Keith Park worked with a leading toilet manufacturer to co-design a bespoke double toilet block with enhanced accessibility features including an adult-sized change table. Every aspect of the park was carefully selected and designed including fencing, furniture, plants and colours. Colour enhanced accessibility by guiding children with low vision and created a play circuit to assist the neurodiverse community. The resultant playground is one that welcomes all to play, which is a core tenet of child development, socialisation and participation.

Keywords: universal design, playground, co-design, participation, communication

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Introduction

Play is an essential childhood occupation (Lynch & Moore, 2016). Play is vital to the health, wellbeing and development of children (Goltsman, 2011). Through play, children and young people develop physically, cognitively, emotionally and socially. They learn and practice essential life skills including patience and turn-taking, balance and coordination, problem-solving and creativity, communication and collaboration. Playgrounds provide opportunities for role-playing and social interaction (Prellwitz & Skär, 2007). Playgrounds are places that can enable inclusion, places where children and their parents, families and carers can meet and establish a sense of community and reduce isolation. However, disabled children generally have less access to neighbourhood play settings (Fernelieus & Christensen, 2017; Goltsman, 2011; Prellwitz & Skär, 2007). If a playground is not inclusive to people with different abilities, the opportunity for social cohesion is lost.

Playfulness can be thought of as an inclination to play or a state of play, where those playing can freely pretend, create, use their imagination and suspend reality (Bundy, 1997). To encourage and promote playfulness, playgrounds need to offer those playing with a range of play experiences without prescribing how they should play. In addition to climbing, swinging and sliding, playgrounds should also offer opportunities for imaginative, creative and sensory play. Playfulness has a strong social element. Experiencing play with others is what enables children and adolescents to thrive, not only through interactions with other children, but also with their caregivers and/or whānau (family) through intergenerational play opportunities. Playground design and elements need to enable and encourage social interaction (Fernelieus & Christensen, 2017).

Universal design is a process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation (Steinfeld & Maisel, 2012). Universally designed environments are supportive, adaptable, accessible, and safe regardless of age, size, ability or impairment. Rather than fitting the person into the playground, inclusive playground design ensures players can access and use park elements with others and feel like the park fits their capabilities, strengths, and needs for play. However, there is a lack of evidence that universal design ensures that play occupations take place, and further research is needed in this area (Moore, Lynch & Boyle, 2015). Case studies, such as the one presented below, can provide information on both the process of incorporating universal design into a playground as well as some of the resulting design outcomes.

Planning for Public Spaces

This playground refresh took place in Auckland, New Zealand. For context, the Disability Survey (Stats NZ Tatauranga Aotearoa, 2013) stated that 24% of the New Zealand population were living with disabilities, while the Auckland regional disability rate was 19%. Of the disabled population 11% were children under 15 with 52% of children having learning difficulties with speech, social and development impairments. The next Disability Survey in Aotearoa New Zealand is set to be completed in 2023.

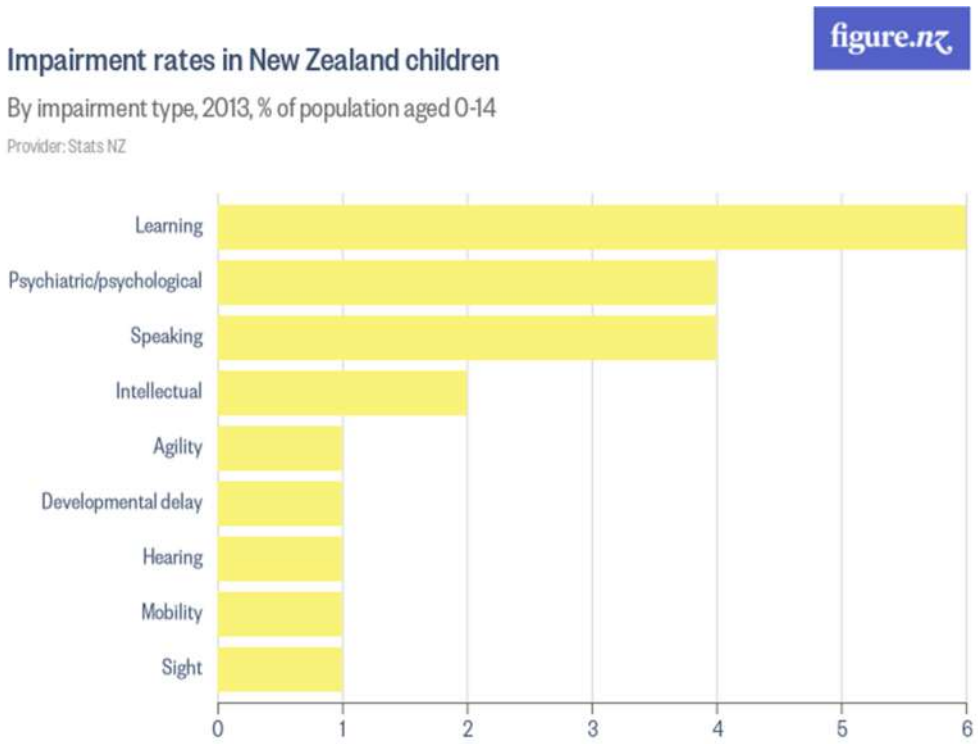

Diagram 1. Impairment rates in New Zealand children (Disability Figures NZ, 2013)

In 2017, a play review was undertaken by Te Kaunihera o Tāmaki Makaurau Auckland Council and produced a consultation document called Auckland Tākaro - Investing in Play (2017). The document explained play facilities around the region and identified potential areas for improvements. Tāmaki Makaurau Auckland lacked intentional accessible playgrounds that catered for children with learning difficulties, children with neurodiverse conditions such as autism and children who are disabled. This finding is echoed internationally (Lynch et al., 2020). It is important in the planning for public spaces, including playgrounds and parks, that invisible disabilities are well considered and included as well as physical and sensory disabilities. In total Tāmaki Makaurau Auckland had 887 public playgrounds with 14% of these playgrounds considered to have accessible play. The levels of accessibility vary, but many of these playgrounds are fitted with a single accessible play item such as a basket swing, but the swing may have obstacles or uneven surfacing to overcome to access it. The provision of play equipment for children with neurodiverse conditions was not known or easily tracked within the council systems. In the last several years accessible play is becoming more standard as part of good design practice.

With the growing percentage of disabled people, the need for accessible play is essential. Manurewa Local Board, one of 21 local boards in Auckland, acknowledged that accessible play was lacking and are committed to making changes in both the short and long term. Local boards are "charged with decision-making on local issues, activities and services, and provide input into regional strategies, policies, plans and decisions" (Auckland Council Te Kaunihera o Tāmaki Makaurau, 2022). Local boards make decisions on local matters, including parks, and set a three-year local board plan and

approve capital work programmes. The Manurewa Local Board Plan (2020) included accessibility and inclusiveness as key outcomes; outcome three states "Our people enjoy a choice of quality community spaces and use them often" which continues their commitment for open spaces to be available and usable by people of all ages and abilities. This outcome was encouraged by the community of Manurewa who want to see more accessible offerings within their local transport, libraries and parks. Each year the board has made considerable efforts to continue this journey.
Te Pua Keith Park was destined to become the first inclusive playground in South Auckland. The Māori name, Te Pua, meaning 'the blossom' was the name given to a chieftainess of the local iwi (tribe), Te Ākitai Waiohua. "New bilingual signs in a park bearing a name provided by mana whenua are just one of the ways Manurewa Local Board is showing pride in the area's strong Māori identity and championing te reo Māori" (Our Auckland Tō Tātou Tāmaki Makaurau, 2021).

Figure 1. At Te Pua Keith Park, from left, David Wilson (Te Ākitai Waiohua), Joseph Allan (Chair Manurewa Local Board), Cr Daniel Newman (Manurewa-Papakura), Anne Candy (Manurewa Local Board), Cr Angela Dalton (Manurewa-Papakura), Melissa Atama (Deputy chair Manurewa Local Board), Kathleen Wilson (Te Ākitai Waiohua), Rangi McLean (Manurewa Local Board) and Glenn Murphy (Manurewa Local Board). This sign in Te Pua Keith Park tells the story of the name as provided by Te Ākitai Waiohua. It also features a QR code to scan so you can hear the words.

Te Pua Keith Park was already a key place for people in Manurewa to connect and enjoy the variety of informal recreation such as boating, fishing, picnicking, walking, harbour views and attending local events throughout the year like Movies in the Park and Teddy Bears Picnic (Our Auckland Tō Tātou Tāmaki Makaurau, 2020). Whilst some of the informal recreation activities have not previously had accessibility at the

forefront, they have the potential to be improved and provide assets and experiences enjoyable for all.

At the planning phases of Keith Park, there were aspirations to look at all the park assets, however the focus was on the playground and toilet due to budget constraints. Initially, the project team needed to understand how the park was used and provide rationale for why it needed to change. This review looked at where the current assets were located and how they could support the growth of the new playground. From this review, the existing assets were catering towards the rear of the park for picnics and fishing users. This meant that without changes to the layout, the playground would remain unsupported by infrastructure and as a result jeopardise the planning around the park being a focal inclusive space.

Changes needed to be carefully considered and be functional for the rest of the park. One item in particular was the existing toilet. The toilet was already in poor condition requiring renewal and was in a hidden location behind trees approximately 130 metres away from the main car park and playground. The desire was to have the toilet relocated by the playground while also maintaining easy access for people fishing. Various options for the toilet location were presented and it was ultimately decided to facing the road in front of the playground creating natural surveillance from the houses and road.

Figure 2. Existing toilet at Te Pua Keith Park.

Figure 3. Playground before refurbishment.

Figure 4. View of Te Pua Keith Park from the air indicating location of the toilet block and playground.

Creating this integrated space of playground, car park and toilet enables whānau (families) to stay and play for longer periods of time and create a more accessible environment. With the limited knowledge of accessibility, it was evident that the need for experts in this field would be critical to project overall success. The Manurewa Local board wanted this playground to have a co-design method of delivery to provide advice and also enable local children with all disabilities to be part of the journey which eventually would create the All-Abilities Project Group (AAPG).

Prior to meeting with AAPG, the project team produced two draft concept plans for consideration and feedback. As part of this concept plan the team established outcomes that we needed to cover and help make design decisions that would ultimately be presented to the AAPG. The following outcomes became the foundation in the design planning process:

1. Accessibility and inclusiveness – creating a space for everyone
2. Overall connection – assets are placed in the right location to make the experience easy, safe and inviting
3. Increase utilisation – people love to come here and have access to the right resources

These three drivers provided a focal point of reference throughout the project when planning and consulting with the AAPG which allowed the team to pave a clear way of working through the needs and desires.

It was important to understand what available off-the-shelf play-equipment that we could share with the AAPG. Consulting with local play suppliers was necessary to gain insight on current research, costs, targeted ability groups and timeframes. The experience of finding accessible play was positive as there was a variety of options with

excellent quality and the pricing was only slightly higher or equal to non-accessible play items.

Our play suppliers also provided research and documentation on their accessible play items, an important learning to assist in understanding integrated and inclusionary play. The suppliers mentioned that older designs of accessibility were based on a segregated approach, meaning that disabled children are separated from able-bodied children. For example, the liberty swing (wheelchair swing) has been supplied at some locations around Tāmaki Makaurau Auckland with good intent, however, these swings are usually fenced off and locked, so that only children who use wheelchairs could use it. Accompanying signage stated that these wheelchair swings are only for the disabled which can be considered demeaning. Some research suggests that 57% of children who use wheelchairs never or rarely visit a public playground that is likely connected to the segregation model of older playgrounds (Kompan, 2020). According to Kompan, a leading play manufacturer, the best form of accessible playgrounds is an inclusion model where all children play and learn from each other. The inclusion model is based on what disabled children would like to see in a playground including: being able to play with their friends and socialise, play on thrilling equipment and being able to use equipment independently.

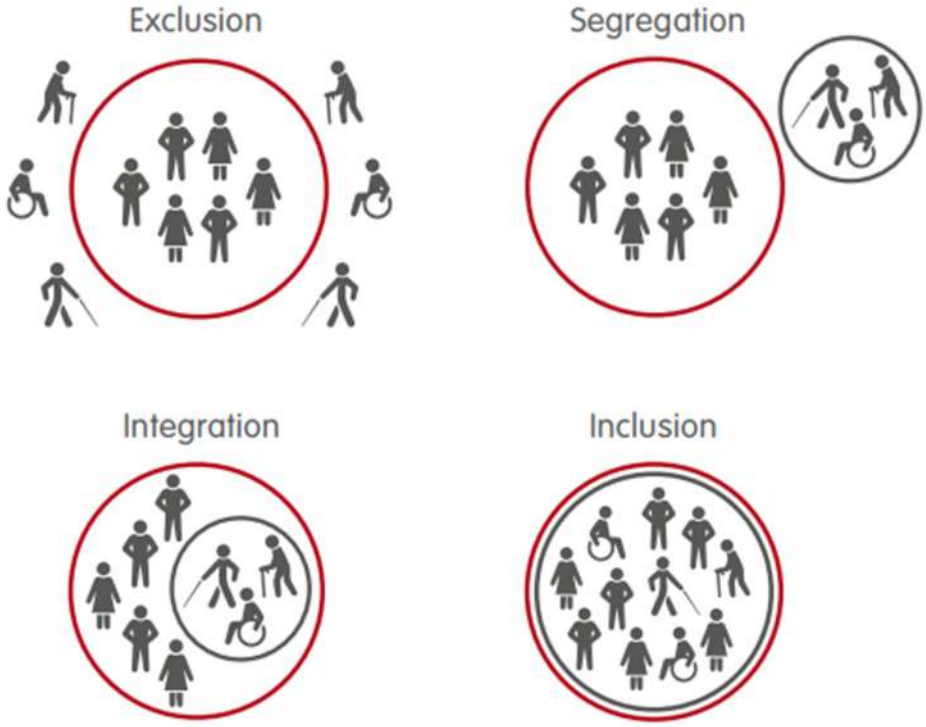

Diagram 2. Kompan (2020) Illustration based on the UNESCO Salamanca Declaration

Creating inclusive play space was important for Te Pua Keith Park to ensure all abilities would play and interact together, but also to create a thrilling experience and be able to use equipment independently. These findings were important to the planning of Te Pua

Keith Park and was shared by AAPG who supported the approach as it meant that all could play and educate each other on their different needs.

> *"Now the next generation of families of various abilities will have the opportunity to play alongside each other and together"*
> Joseph Allan, Manurewa Local Board Chair

Co-design Process

Te Pua Keith Park started its journey as a tired, unloved, underused playground tucked away in a corner of South Auckland. Engaging with the public and external stakeholders was considered business as usual for playground renewals. However, the decision was that this process would be different from the past and include early engagement with a focus group. This had the strong support of the Manurewa Local Board (MLB) who wanted a co-design framework. The MLB decided to create a focus group for designing the new playground at Te Pua Keith Park to enabling optimal inclusiveness to meet the diverse needs of the community. At the outset, the board connected with multiple organisations inviting them to participate in co-designing the future playground to better ensure accessibility and inclusivity. Many groups agreed to contribute to the group and project.

The group consisted of the MLB, local community, allied health professionals and a range of disability organisations – Acorn Autism, CCS Disability Action, Deaf Aotearoa, The Pride Project, Blind Low Vision New Zealand and Talking Matters creating the All-Abilities Project Group (AAPG). The project morphed from a standard renewal to an inclusive welcoming play space for a diverse range of children, young people, caregivers and families. Early and ongoing engagement with disabled people, their whānau (family) and experts resulted in a space for all to have their say and be part of the design journey.

Co-design refers to a design process where consumers or citizens are partners in the design process from the beginning of service planning, to ensure that the final product or service will meet their needs and work optimally for them.

Initially the workshops with various organisations and varying concerns to collaboratively develop a design seemed like a difficult task to achieve especially with the difference from the standard consultation model with a streamlined quantitative survey. Considering this difference and way of working it was important to establish a good project team. The project team consisted of a landscape architect and a project manager allocated to the project who worked very closely together throughout the process and achieved all essential milestones. MLB requested an all-ability playground, but also wanted to see Te Pua Keith Park be the best playground in Manurewa and be considered a local destination. These expectations created further risk on the finance and timelines as they seemed almost un-achievable as the budget was strictly $670,000 NZD and expected delivery due October 2019 (9-month window) to design and build the project. The delivery timeframe was not achievable as time was needed to include and enable the full the co-design mode for decisions be made with the collective.

There was a fear of working in a co-design model due to the unknown and consideration that it would take longer, be more complex and more costly due to needing to specify more bespoke playground elements. The majority of these

assumptions were incorrect. Whilst the process did take some additional time, the learning and understanding developed through the process was immeasurable and will be with the project team for the rest of our careers. The project team was honest and upfront with the group explaining the limitations of cost and timeline. The group was very receptive and respectful of this and helped weigh up options carefully. The co-design process should not be viewed with apprehension. Providing clear intentions and sharing the same purpose can produce a truly successful outcome.

The aspirations and desires of the AAPG were captured through a series of workshops and discussions. In total there were three workshops with the entire group and two separate additional workshops to develop the communication boards.

1. **Review the preliminary design/draft layout options -** entailed reviewing two draft concept plan options, and which idea to adopt. Selecting equipment options. Providing additional feedback and ideas at this stage. Having early invention was necessary ensuring timely ideas to the plan.
2. **Agree on the concept design -** finalising the concept plan, all changes previously required were completed and ready for review. Toilet location confirmed. Further feedback on plans and necessary changes. Confirming the patterns and colours.
3. **Review the detailed design -** reviewing the full design set for procurement, final review to provide necessary changes to the plan before being released for tender.

Establishing a good working relationship with everyone was essential to all the meetings. This was done by creating a safe space ensuring the project team could elicit maximum benefit from members within the allocated time. At the first workshop the MLB led a non-denominational karakia (prayer) that allows everyone to become neutral within the space and safe amongst one another, especially when first meeting everyone. Karakia (prayer) is important within Maoridom (indigenous Māori way of doing and thinking) and is used frequently in Aotearoa New Zealand.

A round of introductions were completed at each meeting, as new faces would appear, and it was inclusive for people who are blind or have low vision to know at the outset who was present at the workshop. The meeting then moved on to setting the intention of the workshop and inviting all to provide feedback. The safe space for sharing ensured ideas flowed and all were enabled be part of the journey. Decisions were made by around the table agreement to choose between options presented. Meaningful discussions occurred and everyone was able to provide advice on the design. Many ideas and advice would be a shared issue, however, on a couple of occasions one member's view would conflict another's experience. For example, the vibrant colours of the surface could be distressing for some children with autism, however, could enhance visibility for children and caregivers with low vision. These scenarios were discussed to find the best solution. In this scenario it was agreed that the vibrant colours would remain, but the surface pattern would be simple to compliment a route/ circuit style of the playground. This was considered to work well for both groups.

Figure 5. Play circuit of Te Pua Keith Park with the circuit indicated by a red arrow.

Through the co-design process the following areas were the top priorities for the AAPG to include within the design:

- Include accessible pathways, access entrances, furniture and play equipment. Provide an accessible route that connects every area and every accessible play component (Fernelius & Christensen, 2017; Goltsman, 2011).
- Be fully fenced with accessible gates. Rubberised surface suitable for accessibility. Seek solutions that provide means of access and mitigate potential safety hazards through design (Goltsman, 2011).
- Develop communication boards with sign language.
- Integrated design for all abilities where all can play together. Placeless challenging activities directly next to those requiring greater physical ability encourages interactions across all ability levels (Fernelius & Christensen, 2017; Goltsman, 2011).
- Circuit layout to suit children with neurodiverse conditions such as autism
- Provide height elevation for wheelchair users. Access onto and off equipment can be provided with landforms, ramps, platforms (Goltsman, 2011).
- Double accessible toilet block
- Overall provide an inviting, fun and safe place for all

During the two first workshops the group raised concerns that a single unit toilet would not be fit for purpose and asked that a double accessible toilet be created as the concern was that disabled children would need to wait to use the toilet which can cause issues. The group also discussed the importance of larger changing tables as the standard baby change table doesn't cater for bigger/older children. The project group contacted their supplier for options on how a larger changing table could work and costs associated with it. The supplier worked on a bespoke design which included a standard accessible unit and a bespoke accessible unit. The bespoke unit included an adult length change bench, larger diaper bin, touchless sliding doors, increased space within the unit to allow more room for manoeuvring in a wheelchair and room for carers to assist. Ultimately, the local board supported the case and provided additional discretionary funding to enable the build of a double toilet facility. This additional budget increased the overall investment towards Te Pua Keith Park to $720,000 NZD. After each workshop the local board supplied tea, coffee and lunch. This sharing of kai (food) takes the workshop from tapu (sacred) to noa (common) which assists in closing the meeting and relationship building. Sometimes this time would also invite further conversations to explore ideas that were presented.

Figure 6. Playground communication board developed for Te Pua Keith Park

The AAPG delegated that it was appropriate for the project team to directly work with Acorn Autism and Deaf Aotearoa to develop the communication boards as it required detailing with their wider organisations to develop. The project team visited Acorn Autism staff at their offices to start the design of the communication boards. By working directly with the occupational therapists our landscape architect was able to develop the first draft of the Communication Boards which was shared and advised on. The

communication board was also developed with Deaf Aotearoa who invited the project team to meet their entire team, the designs were subsequently presented and endorsed. Deaf Aotearoa explained that Sign Language is easier to follow when you can watch someone do it and advised their request to provide videos to support the boards. Deaf Aotearoa created the QR code which has videos corresponding with the imagery so people can learn and follow Sign Language.
The project team also took additional time to have the communication boards to meet the Council branding policy which would result in a Auckland Council approved communication board template that can be implemented throughout Tāmaki Makaurau Auckland. This was important to the AAPG as their aspirations were to have this process documented and applied for future projects. The communication board also encourages people to take a photo or download the communication board to use at other parks and to use the QR code and learn signs for each image.

Design Solutions

Play equipment included a range of vestibular, visual, and auditory pieces as well as a customized 2m high wheelchair accessible play tower for inclusive play experiences. Play experiences offered include climbing, swinging, spinning, sliding, sensory play, balancing, jumping and rocking.

- Two accessible toilets with enhanced accessibility features including automatic doors, large turning circles, and a large change table as detailed previously. The Pacifica artwork on the toilet block was developed by a local artist who understood the brief for the all-abilities playground with the artwork centred around the Talking Matters logo to encourage talking amongst families and children. The colour selection was carefully considered to not overpower those with sensory sensitivities and also be cohesive with the playground. The use of layered floral patterns and Te Reo (Māori language) words were used to create an inviting and educational design.
- Easy access from the playground to accessible and standard parking – while many local playground users may walk or wheel to their playground, for some people, private vehicles are their only method of accessible transport. A customised vehicle may also serve as more than just transport, it may be a place to change, a place to store essential medicines or equipment, or a place to calm if experiencing sensory overwhelm.
- 90% of this playground is wheelchair accessible – this was achieved through careful and considered design from the preliminary stage of planning with the AAPG. If accessibility is considered too late within a design, high levels of accessibility may be seen to be too difficult or expensive to incorporate.
- A picnic table with wheelchair space – gathering places need to accessible to promote social interaction. This includes accessible seating so that people of varying abilities can sit together (Goltsman, 2011). This promotes social cohesion and whānau (family) interactions.
- Accessible drinking fountain – free and easy access to clean drinking water is essential, particularly near playgrounds. Accessible drinking fountains need to be at an appropriate height, have easy to operate buttons, have clear space with

solid and smooth surfacing to approach. Bottle fillers and dog drinking bowls are considered desirable by some users.

Figure 7. Accessible toilet block with Pacifica artwork

- An innovative communication board and incorporation of New Zealand Sign language - unique to this playground, communication boards were innovatively and collaboratively designed and developed, and have been so successful that they are planned to be replicated in other playgrounds across the region.

Figure 8. Te Pua Keith Park communication board, co-designed with allied health professionals, the disability community and council staff.

- Inclusive trampoline, carousel, net see-saw and basket swing – the basket swing is shaped to enable multiple people to sit or lie while swinging, accommodating a variety of functional abilities and ages. This promotes social cohesion enabling people of different abilities to swing together. The ground level carousel enables multiple people to sit or stand during play, enabling people with limited mobility or using wheelchairs to access this equipment with its wide and level entry.

Figure 9. In ground trampoline.

Figure 10. Net see-saw.

Figure 11. Level access carousel.

- Soft safe fall surfacing – The soft fall surfacing used throughout the playground at Te Pua Keith Park ensures safety, while also being accessible for prams and wheelchairs. Rather than having bark (which the existing playground had) or gravel, people of all abilities can access all the play elements in the park.
- Fully fenced – fencing is important for safety, particularly for playgrounds located near to roads and for increased safety for children who are neurodiverse and may try to abscond when they become overwhelmed. Fencing has been provided to create a barrier, but not to lock people into the space. This requires a careful balance of the needs of children who are neurodiverse, and the needs of caregivers, who may use wheelchairs themselves and need to be able to open the gates independently.
- Customised 2m high wheelchair accessible play tower – the customised tower is accessible by wheelchair with wide, shared pathways and a ramp leading to the tower from the playground. Once on the main platform there is space for people using wheelchairs to easily manoeuvre and access play panels and talk tubes. This enables shared play and social interaction.

Figure 12. Rendering of the accessible play tower.

Figure 13. Gentle gradient ramp to the play tower.

- The play panel in the custom-built tower demonstrates how to sign 'Manurewa' which promotes inclusion for people with hearing impairment. Manurewa has a high population of Pacifica and Māori, appropriately the play panel features pictures and Te Reo (Māori language) words for plants and birds which can be seen in the area, encouraging bilingual learning. The local planting is of indigenous plants.

Figure 14. Play panels featuring both New Zealand Sign Language and Te Reo Māori.

- Colour to enhance wayfinding and to create a play circuit - colour was important and was used to enhance accessibility by guiding children with low vision and to also create a play circuit to assist children who have neurodiverse conditions.
- Wide accessible footpaths – smooth and step free surfaces and important for children and their caregivers to access all areas of the playground and connections to amenities including parking, toilets, seating and drinking fountain.
- Shared swinging options – the two-person swing, with caregiver and child, promotes social interaction as the swings face each other. This enhances enjoyment and communication for both children and their whānau (family). Opportunities for inter-generational play are important (Wilson, 2015).
- Play elements such as the maze ball board and abacus board provide stimulating cognitive activities. These are at a height to enable seated or standing use.

Figure 15. Caregiver and child swing.

Figure 16. Maze ball board and abacus board beneath the play tower.

- The talk tubes and the colourful samba drums offer the opportunity for expressive and sensory play. Children and whānau (family) can communicate and create music together. The drums also offer flexibility of choice, doubling as climbing equipment.

Figure 17. Samba drums with children climbing on top.

The resultant playground is one that welcomes all to play, which is a core tenet of child development, socialization and participation.

Construction

Once the co-design process had been completed it was up to the project team to ensure all of the learnings and goals were not overlooked during construction. During the tendering process it was important to include the purpose, aim of the project, and outline the criticalities for construction in all documentation to ensure the contractors

understood our goal and perhaps invoke them to provide additional advice. Te Pua Keith Park had the honour of having one of the best playground contractors in Aotearoa New Zealand who had won the contract. Prior to the commencement of works, the project team met the contractor to go over the design, the goal and construction hold points. From day one the contractor was part of the project team and reinforced all the intentions of the project.
The construction period commenced on 1 October 2019 and was completed by 18 December 2019, during this period the project manager and landscape architect attended site nearly every week to meet with the contractor and go over the site progress, issues, final levels and details. The team worked well together and ensured any needed changes would be measured against our new learnings and on occasion calling on our AAPG experts for advice.

Figure 18. Te Pua Keith Park after redevelopment. Pictured are the inclusive see-saw, basket swing, caregiver and child swing, in ground trampoline, slide with ramp access and step free slip resistant surfacing.

The contractor went above and beyond to ensure the playground would be a success and paid attention to the finest details. They hired a wheelchair during construction so that workers could double check the gradients, to help with correcting heights and reviewing the manoeuvring space. In future projects, members of the AAPG could be invited to visit the site during construction to assist with this process, whilst observing relevant health and safety protocols. The contractor also allowed for additional site surveys to measure the levels for accessibility and had organised suppliers to come to site and meet with us to ensure they were briefed on the project's purpose and potentially see what else they could offer the project to enhance accessibility.
Our play suppliers were also very accommodating to the accessible design by ensuring all equipment was ready for installation, was correctly painted and ensured continuous communication throughout the process. Our supplier who provided the customised 2m tower was one of the more thrilling play items as it would enable people using mobility equipment the opportunity to go up the top of the tower at 2m high which was often not the case in standard playground design. The supplier decided to build the accessible ramp onsite to guarantee the accessibility onto the tower.
The end result of Te Pua Keith Park demonstrated the ongoing commitment from the co-design process through to construction where it was consistently centred around the purpose of enabling people of all abilities to play.

Feedback from playground users

Developing a feedback loop is crucial in projects such as Te Pua Keith Park as the design operates in consideration of its relationship with users. Feedback allows problem identification and understanding of user experience that can aid positively in similar future projects (Hay et al., 2017). Feedback for Te Pua Keith Park was received as spontaneous feedback from a public Facebook page that was dedicated to Keith Park's development with articles, publication of awards won and online surveys.
Before and after the construction of Keith Park, the process was notified and documented on a Facebook page created by a Manurewa Board member. This page was followed by over 500 people who received news of the inception of the project, intention for its creation, its opening and ongoing events. Through this, users were able to leave feedback during the process. A total of 46 comments were collated from the page to February 2022 with approximately 90% positive feedback received. There were two recurring themes to the feedback: mokopuna (grandchild/ren) and the toilet.
The theme mokopuna (grandchild/ren) was interesting as it is a Māori word reserved for grandparents or elders and illustrates that people feel comfortable to take their grandchildren to the playground and be able to use it as well. The use of the word – mokopuna (grandchild/ren) is also important as it demonstrates that space has culturally diverse users and further strengthens the idea of inclusivity of the playground.
The theme toilet was selected as several respondents mentioned their disappointment that a Changing Place (Changing Places NZ, 2021) was not provided. During the design process consideration was given to the inclusion of a Changing Place facility that includes an adjustable adult sized changing table, ceiling hoist, adjustable height basin and shower facility. These well-designed facilities are built for people who are unable to use a standard accessible toilet and require greater assistance. The Changing Places facilities are typically centrally located such as sports centres, shopping centres, hospitals or city

centres (Changing Places NZ, 2021). However, it is understood that Changing Places NZ desires to be included in many more places to enable further accessibility options. The Changing Places facility was respectfully not opted for Te Pua Keith Park due to space required, ongoing maintenance costs and the requirement to use a lockable system. The decision was made to have two toilets instead of one fully accessible toilet. Some feedback on the large change table was that the fixed height was too high, however, a height adjustable change table would not be as vandal resistant and subject to higher maintenance costs. The toilet block was also praised due to its colourful and vibrant artwork and new location. Neighbours of the park expressed their pride in the toilet and were very supportive of its new location.

Since the opening of Te Pua Keith Park, it has been nationally celebrated and considered the gold standard when it comes to accessible play according to Radio New Zealand (Doyle, 2022). Te Pua Keith Park has also gone on to win the highly competitive 2020 National Playground of the Year award (Recreation Aotearoa Te Whai Oranga, 2020). The judges felt that the collaboration with AAPG and creation of a communication board template that could be implemented at other playgrounds demonstrated the true values of inclusiveness. One of the judge's comments on the playground was that "the amount of work carefully and thoughtfully managed by the passionate project manager has ensured engagement across all interested stakeholders and resulted in a playground designed entirely by and for those with accessibility needs and sensory disabilities" (Recreation Aotearoa Te Whai Oranga, 2020).

Local write ups about Te Pua Keith Park have been equally positive, such as the post by Auckland for Kids (2020) "The best thing is that siblings and friends can play together on all the playground equipment!" This demonstrates that the goal of inclusion has been successfully achieved.

Lastly, an online survey was created by the authors with questions designed to elicit feedback on the desirability, satisfaction/dissatisfaction, demand and attractiveness of the playground's features and facilities. The survey provided a brief description of its intentions with a visual aid of the playground that included alternative text for participants. The survey was conducted during a period of Covid 19 lockdown in Auckland, hence only a small sample size of responses (23) was achieved. Precedent survey questionnaires were researched; however, post occupancy evaluations of playgrounds and their surrounds did not appear to be widely available (Steinfeld, 1999). The online survey consisted of 5 questions providing both multiple choice and open-ended questions. The questions were as follows:

1. What suburb do you live in?
2. How often do you and your whānau /family use this playground or would like to use this playground?
    a. Have not used it yet, but would like to
    b. Have gone once or twice
    c. Have gone 3~5 times
    d. Have gone more than 5 times
3. What do you like about the playground and surrounds (for example, playground equipment, toilets, footpaths, parking, etc)?
4. What could be improved in the playground or surrounds?
5. Would you recommend this playground to others?
    a. Yes, would highly recommend

b. Yes, would recommend
c. Would recommend if further changes are made
d. Would not recommend at this time
e. Comments

Survey respondents were largely from nearby suburbs in South Auckland (78%) with some playground users coming from as far away as Auckland's North Shore, nearly an hour's drive away. Many respondents were repeat visitors, with 52% having visited more than three times.

Positive feedback from respondents largely commented on the range of play equipment available (35%) accessibility/inclusivity of the playground (30%), and the security that the fencing provides (30%). One respondent commented that it was great to have "places to play for children who don't necessarily play on a playground". Other respondents commented on the vibrant and attractive colours, the use of Aotearoa New Zealand's two official languages Te Reo and New Zealand Sign Language, location of the toilets, availability of accessible parking and the provision of shade.

Constructive feedback included recommending a larger diameter or open slide so that parents, family or carers can go on the slide with a disabled child, inclusion of water play elements, more trees, more New Zealand sign language and ensuring that the gates are not too easy for toddlers to open.

The majority of respondents would recommend (15%) or highly recommend (55%) this playground to others. The remaining respondents would recommend if some changes were made.

Learning from the process

From design through to completion Te Pua Keith Park has provided a safe place of learning for everyone involved. Having both the landscape architect and project manager at each co-design workshop meant that all feedback was heard first hand. Working with the AAPG closely enabled robust discussions and discover some of the struggles that were unnecessary if good design is done. The project team managed to get a glimpse into the lives of disabled children and their whānau (family) with non-accessible design and how small details can make all the difference.

It was also a place of learning and challenged the project team to make continuous changes for future developments, so that many of the discussions and decisions could help become standard practice in the future.

Learnings for accessible play design

- Playgrounds are important and provide a fun space to learn, adapt and promote a story. Embedding the purpose of inclusive play for all abilities.
- Learning that accessible design can be done within a small budget and is not necessarily cost prohibitive.
- Using every opportunity to increase accessibility like colours and patterns.
- The small details matter for increased accessibility for example adding extra concrete beside seats, providing backrests, extra width of pathways, bilateral handrails, signage height and contrast.
- Providing clear vantage points and/or a circuit like layout.
- Promoting group play to increase opportunities for socialising.
- Accessibility standards are not built for children, go beyond the minimum.

- Integrating toilets and carparks into the design.
- Making the space fun for all abilities.
- Don't be afraid to ask for help. Disabled people and their whānau (family) are experts. Co-design adds significant value, particularly with a clear purpose and intention for the project.

Insight was gained into the lack of public toilet facilities offering adult-size change tables. This results in some children and adults being forced to change on public toilet floors which is unsafe, unsanitary and undignified. Consideration needs to be thought through the process if further accessible toilets could be procured to enable adult or larger children changing facilities. Since Te Pua Keith Park was completed, adult change facilities and different options for their provision are becoming increasingly available in Aotearoa New Zealand.

Influence on other playgrounds

As the project team consisted of council staff the learnings from working with the AAPG extended into other projects and has already been included into a variety of projects since Te Pua Keith Park was completed.

These learnings include that the current New Zealand accessibility standards are not built for children and are a minimum standard, when building playgrounds and parks for all it is crucial to go beyond the standards and think of the end users.

Figure 19. New playground users Emma and Israel with Manurewa Local Board Chair Joseph Allan at opening of the new playground at Te Pua Keith Park.

Since winning the Playground of the Year (2020), other surrounding councils including Hamilton and Whangārei have approached the project team requesting information on the playground design and have asked for advice on future playground development and lessons learnt. This demonstrates the impact that Te Pua Keith Park has had on other councils in Aotearoa New Zealand and how this project could influence inclusive spaces outside of Tāmaki Makaurau Auckland.

The MLB wore accessibility with pride and made the decision to use their local board funding to create a playground for all and have continued their efforts to include accessibility into all future projects within their area. These include:

1. Aronia Way Reserve, 2021
2. Kauri Heart Reserve, 2022
3. David Lange (future destination playground, first for South Auckland)

Te Pua Keith Park has influenced the board to commit to having all new Manurewa playground projects to include accessible play. The decision to prioritise accessibility is a testament to the local board's commitment, despite financial constraints both long standing due to past regional variations in funding, and current due to Covid 19's effect on decreasing budgets.

The bespoke communication boards have been well received and are easy to include within any playground in Aotearoa New Zealand. The planned David Lange Park will be the first destination playground to include the new communication boards within their accessible design.

Te Pua Keith Park helps set the standard that accessibility doesn't have to be cost prohibitive. Play equipment can be off the shelf and suppliers can offer customisation to provide more accessibility options. It is important to consider the space holistically and how the play space will interact with other assets in the surrounding area like toilets and parking.

Conclusion

Te Pua Keith Park can serve as a model, not only for the outcomes that it has been able to achieve, but also the process that was undertaken. Having strong support at a local level from key stakeholders both within the Council, Local Board and community ensured that the vision of an inclusive playground was at the forefront of design decisions. Engaging an All Abilities Project Group with a diversity of experiences and voices, ensured that a variety of views were considered and that robust discussions could occur to achieve good outcomes for as many different people as possible. Co-designing with AAPG from the preliminary design stage meant that a variety of options could be considered early in the design process, before significant re-design would be needed, saving both time and money. In some instances, "off-the-shelf" products can be slightly modified which is both cost and time efficient. Being creative and innovative can bring unique ideas to life such as the Communication Board, a first of its kind in Aotearoa New Zealand.

Continuing to engage with AAPG as the design developed meant that the details of the design, such as handrails, backrests, placement of concrete, would not be lost opportunities or become barriers if done incorrectly. Not all design decisions were considered 100% successful, such as the height of the fixed change table, which demonstrates the need to re-visit the design after construction is completed, to see if

further changes or enhancements can take place so that the design works for as many people as possible. Inviting and welcoming public feedback both immediately following construction, and at points in time in the future, can evoke further learnings in terms of material choices that were made. It is important to assess whether the design has been successful (Moore, Lynch & Boyle, 2020). Finally, it is imperative to communicate the design process and outcomes to ensure that other designers have a starting point to enable universal design in playgrounds, with the ultimate aim of creating inclusive places for all.

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Re-framing Built Environment Practice: Towards an Accessible City

Nicole Mechkaroff
Architects for Peace (former President)
nicole.mechkaroff@gmail.com

Saumya Kaushik, Mary Ann Jackson
Visionary Design Development Pty Ltd, Australia
saumya@vdd.com.au | majarch@vdd.com.au

Abstract
As practising architects in Victoria, Australia, we have observed significant, systemic industry failure, impeding the development of accessible and inclusive cities. Contemporary built environment design practice and design values push 'accessible design' to the margins, often considered as an after-thought and only in terms of technical and regulatory compliance. Built environment practice needs to be challenged into deeper ways of thinking – ones that stimulate professional discourse and heighten industry awareness of both its control over built environment accessibility outcomes and, critically, its accountability in serving the public good. Cities invariably comprise neighbourhoods. To begin to understand built environment inaccessibility at the neighbourhood scale, the built environment mindset must change to properly engage with complex, socio-ecological, public-realm (public space) built environments. Design practice must improve its neighbourhood site analysis approach, going beyond private, contractual site boundaries and immediate physical surrounds, to understanding end-user experiences, neighbourhood journeys, and the broader scale of (in)accessibility. Industry attitudes, practice approaches and the way disability is positioned by industry must change to embrace processes that necessitate diverse actors working together across multiple disciplines and sectors with people with disability being core actors in decision-making.
We believe that opportunities exist in building industry interest and capacity. Research-informed built environment practice embracing systems-thinking, human rights-based approaches, and transdisciplinarity can be effective for aggravating industry change and the way industry positions disability. This paper adopts an analytical, collaborative autoethnographic approach, examining case studies of neighbourhood-scale accessibility assessment, outputs from activities questioning why built environment practitioners believe inaccessibility exists, and self-reflection on 10– 35+ years of working in architectural practice. Importantly, this paper argues that in working towards achieving universally accessible public spaces for all, built environment practitioners, and architects in particular, must accept accountability for the impact of their actions on people with disabilities' lived experiences.

Keywords: built environment practitioners, inaccessibility, equity of access, collaborative autoethnography, transdisciplinarity

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Introduction

Notwithstanding decades of built environment accessibility legislation and policy advancement, including the globally supported United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), the ideal of a 'fully accessible' city remains elusive well into the 21st century. As architects, with 10–35+ years of professional experience in private sector practice in the state of Victoria, Australia, all authors have come to understand that systemic industry failure is impeding the development of inclusive cities. At the outset of our careers, armed with conventional architecture qualifications, none of us conceived the power of built environment design to exclude (Hamraie, 2013) nor the complexities of the built environment 'production system' (Hürlimann et al, 2021). We have subsequently understood that built environment production must be shared across many sectors, disciplines, and actors, experts and non-experts, to achieve equity of access, particularly at neighbourhood and/or city scale. Hence, our pragmatist-informed (Dewey, 1929) belief that it is both imperative and possible that built environment practice can be re-framed, towards achieving accessible cities for all.

This short paper adopts an analytic, collaborative autoethnographic approach using ourselves as windows enabling reflection upon profession-wide practice (Chang, Ngunjiri, and Hernandez, 2013). While bringing to the table outputs from activities questioning why other built environment practitioners believe inaccessibility exists, as with any auto/ethnographic exploration, the work is qualitative and sample size limited. Nonetheless, collaborative autoethnography is appropriate to the task as it 'can be utilized in building community for the purpose of collective action and agency, particularly in the context of the search for more equitable social and institutional arrangements' (p145, Chang et al, 2013). Literature review is followed by analysis of data collections ranging across neighbourhood-scale built environment accessibility assessments 2011-2017, reflections on Melbourne Design Week 2021's Participatory Urban Aesthetic (PUA) mini-symposium, outputs from theory of change activities[1], reflective journaling of approximately four weeks of professional practice[2], and collaborative autoethnographic exercises. Lastly, conclusions are drawn regarding both achieving universally accessible public spaces and the worth of analytic, collaborative, autoethnography in that endeavour.

Systemic industry failure

Our observations of systemic industry failure align with the findings of Rachele et al (2020) who investigated relationships between people with disabilities' built environment accessibility experience and urban policy making in Melbourne (Victoria's state capital) and Tucker et al (2021), investigating 'what is required to overcome entrenched obstacles to implementing accessibility and inclusivity in the built environment' in Geelong (Victoria's second city). It is obvious to us that built environment practice needs to be challenged into deeper ways of thinking that acknowledge, specifically, its historical control over built environment outcomes (Habraken, 1987) particularly that of accessibility (Imrie, 1998; Jackson, 2018), and critically, its accountability in serving the

[1] PUA mini-symposium and Theory of Change activities designed and facilitated by the authors.
[2] Mechkaroff journal entries from late 2021.

public good (Bristol, 2018). When we say 'industry' and 'built environment practice' in this early part of the paper we mean all the apparatus and actors responsible for built environment production, including all those involved 'in legislating, shaping, funding, forming, making, and researching the built environment' (Jackson, 2018). Using such terminology does not imply cohered entities. Undoubtedly, fragmented tacit knowledge, uneven distribution of capacity, and embedded hierarchies complicates professional development (Klerkx and Proctor, 2013), but a complex problem is not necessarily a wicked problem (Alford and Head, 2017).

Beyond being collections of buildings contained within titled boundaries, cities invariably comprise neighbourhoods. Understanding built environment inaccessibility at the neighbourhood scale requires a mindset that engages with complex, socio-ecological, public-realm (public space) built environment systems (Portugali et al, 2012; Totry-Fakhoury and Alfasi, 2016; Jackson, Wilson, and Marcello, forthcoming). Totry-Fakhoury & Alfasi, (2016) state that "[t]*he order of the built environment, similarly to other complex systems, emerges from the multifaceted interactions between the numerous inhabitants, landowners, community leaders and other stakeholders that share it and act in it*" (p. 28). It makes sense then, in complex, people-environment systems, to also consider people-people interaction. Henceforth, in the remainder of the paper unless noted otherwise, industry more specifically means 'architecture design industry' and within that, architects and building designers.

Expanding mindsets?

We believe that, as with climate change, decarbonisation, and reconciliation, those practising design must stretch their professionally habituated thinking (Shrubsole, 2018; Klinsky and Mavrogianni, 2020; Ness and Xing, 2017; Jones et al, 2016). However, in Australia, practising architects primarily operate from within small/ sole practices in the private sector (AACA, 2018), a sector conventionally understood to be a site of time/cost-efficient production. Therefore, expanding mindsets, now constrained to private, contractual site boundaries and immediate physical surrounds, to consider end-user experiences, neighbourhood journeys, and the broader scale of (in)accessibility is, potentially, problematic. Nonetheless, industry attitudes, practice approaches, and particularly the way disability is positioned by industry, needs to change so that people with disability are core actors at all scales of built environment decision-making. This will require diverse experts and non-experts working together across multiple disciplines and sectors, an integral constituent of transdisciplinarity (Jackson, 2018; Jackson, Wilson, and Marcello, forthcoming).

An enduring legacy of the historical charity (institutional) and medical models of disability is the schism between the built environment and disability domains (Martel et al, 2020). This schism, outsourcing ideologies of small government (Aulich and O'Flynn, 2007), and the 'specialisation turn' (Hürlimann et al, 2021) have all contributed to pushing 'accessible design' to the margins of contemporary built environment design practice and design values. It is often considered as an after-thought and only in terms of technical and regulatory compliance. Tucker et al (2021) note that a 'core reason identified for lack of progressive development was a focus on minimum standards'. On the other hand, Rachele et al (2020) found that people with disabilities' built

environment accessibility experience is often compromised by built environment practitioners' lack of attention to basic compliance.

Inaccessible Melbourne

Assessing 'compliance' is, however, a multi-facetted issue. Australia's Disability Discrimination Act (DDA) dates from 1992 (three decades past) and its subordinate legislation, known as the Transport, Education, and Premises Standards in 2002, 2005, and 2010 respectively; the UNCRPD was adopted in 2006 and Victoria's Equal Opportunity Act (EOA) in 2010. Devising accessibility assessment methodologies that quantify *existing* accessibility and prioritise rectifications is a feature of Visionary Design Development's work. Albeit employing differing methodologies, investigations in (predominantly) inner north and/or west metropolitan Melbourne demonstrate that 'new' legislation does not magically transform 'existing' conditions, see *Table 1: Accessibility assessment metropolitan Melbourne*.

Table 1: Accessibility assessment metropolitan Melbourne
Source: compiled from Visionary Design Development project work 2011-2017

Project	Findings
1No. Neighbourhood	Universal Mobility Index (UMI) pilot. Built Environment Component Score 0.48 (out of 1.00).
50No. Strip Shopping Centres	Average Accessibility Score 0.40 (out of 1.00) ranging from 0.17 to 0.68.
50No. Homes, home Modifications	Due to existing internal layouts of housing and severe funding constraints, <20% of bathrooms would be 'significantly' improved, even with suggested recommendations. Over 90% of homes have health and safety issues and over 70% require level-entry shower and/or ramp access. (Note: results are similar to that encountered in over 1000 home visits.)
On- and off-street 'accessible' car parking	328 locations (430 bays total). 0% (0) Best Practice (Category 1) locations, 31% (103) Category 2 – 4 locations (varying modifications required), and 69% (225) Category 5 locations (deficient and, due to physical constraints of existing surrounds, *unable* to be upgraded to best practice in-situ).
Council Complex	47 discrete parts of building and surrounds. 0% (0) completely satisfactory, 53% (25) 'easily' modified, 26% (12) 'difficult' to modify, and 21% (10) 'extremely difficult' or 'impossible' to modify.
4No. Neighbourhood Tennis Clubs	One club viable for modifications enabling wheelchair tennis. Only general accessibility modifications viable at two clubs. Achieving accessibility at the remaining club would require complete demolition and rebuild.

Train Station	Busy interchange station, multiple platforms. Achieving accessibility would require comprehensive demolition, reconfiguration and additional facilities.

How then might existing built environment inaccessibility be redressed? The UNCRPD (Australia is a signatory) recognises that people with disability have the right to an accessible built environment and, furthermore, obligates duty-bearers to provide accessible built environments. Given Australia's privatised system of built environment delivery, duty bearers are not limited to state actors but encompass all built environment practitioners. The following paragraphs, however, highlight the built environment domain's lack of understanding of this concept.

Just Melbourne?

Four built environment pracademics, well known for working within a participatory design paradigm, presented at the PUA mini symposium. Group discussion sessions followed; *In participatory design who 'holds RIGHTS and who bears a DUTY' in urban design. How can this affect the urban aesthetics?* being the most salient to this paper. During this session presenters and attendees unanimously objected to using the term 'right-holders'. From the multiple conversations within the room, it was clear that 'rights' represented 'entitlement'. This counterpoint to the accessibility 'bubble' in which Jackson and Kaushik work was thought-provoking. Participants further suggested that the term 'justice' is more suitable than 'rights'. Our intention as organizers, however, was to understand built environment practitioners' viewpoints about the roles and responsibilities of 'rights-holders' and 'duty-bearers' within the participatory process of designing and delivering urban change. The major take-away from the session, correlating with Rachele et al (2020) and (Klinsky and Mavrogianni, 2020) writings, was that the built environment domain considers the term *justice* more empowering and is uncomfortable with *right-holders*.

Changing Melbourne?

In late 2021, the authors facilitated a workshop and an online survey inviting architects in Victoria, at any career stage, to participate in an adapted Theory of Change (Green, D., 2016) activity, the nucleus of which Jackson had devised for her PhD studies. At the outset, we stated the Ultimate Goal to be 'a fully accessible built environment' [facilitating social, environmental, and economic inclusion …]. With respect to their daily practice, participants were asked to identify driving and restraining forces in developing accessible built environments, issues surrounding or contributing to those forces, and elaborate why they thought this was so.

Regulatory compliance emerged as the dominant framework informing participants' discussions or implementation of built environment accessibility in their practice, with some limited discussion of Universal Access. Dependence on (DDA and BCA – Building Code of Australia) 'compliance' was generally identified as a "rigid" and "prescriptive" type of activity and acknowledged by some as a negative force restricting creativity, with other participants seeing compliance as essential to accessible design. Within this

divergence of viewpoints, the process enabled discussing why some forces and practices have considerable agency in contemporary architectural practice. As facilitators, our interests lay in sustaining processes of active listening, collective dialogue, knowledge sharing, and stakeholders' journeys in developing a deeper understanding of the 'whys' (Dreier, Nabarro, and Nelson, 2019; Vogel, 2012). We believe that through more knowledge comes empowerment and the potential willingness to act on the why.
Some survey participants noted that "empathy" and "understanding" were lacking [across the industry]. These insights into implied undervalued and uncommon professional-interpersonal qualities may, subject to deeper interrogation, reveal a systemic industry issue regarding currently supported personality traits and the way the industry serves clients and the greater public good. Additionally, capitalist influence on the private sector and resultant prioritisation of profitability and time efficiency over the 'common good' was seen as a negative force. Explicit practice values built around human rights models (of disability, see Jackson, 2018) and recognition of (duty-bearer) obligations were not apparent.
When invited to share thoughts on the ultimate goal of 'a *FULLY ACCESSIBLE*' built environment, responses included "broad", "vague", "a difficult proposition" or, very tellingly in our opinion, there was no response (from half the survey respondents). Given the lack of survey participants' engagement with the question in its current form, perhaps this proposition should be reconfigured to engender a wider, intersectional conversation within the profession? Notwithstanding the rejection of the notion of 'full accessibility', but moving beyond compliance, there was an encouraging level of interest supporting change in how accessibility is currently understood, designed for, and delivered in the architecture profession. Workshop and survey participants' commentary indicated that opportunities do exist in improving professional and personal leadership capabilities, strengthening processes for accountability within design, and enabling more focus on embedding inclusion and equity imperatives in the design process.

Practising Melbourne

Nonetheless, Mechkaroff's journaling further reinforces the compliance theme; practising architects' first introduction to built environment accessibility is often through an access consultant's checklist received during the process of a building permit application. Such checklists are invariably restricted to ascertaining whether the project satisfies the technical requirements pertaining to the relevant building classification as set out in the Building Code of Australia (BCA). Mechkaroff found transitioning into working on government-funded education projects and, specifically, collaborating with pedagogical planners on special development schools, particularly illuminating. These educators are profoundly aware of students' needs, desires, attitudes, and expression preferences. Various collaborative processes employed highlight that workshop settings engaging user groups, various representatives, and wider stakeholders enables recognition and documentation of the broader desires and issues of the students. Collaborating with user groups to convey the design process and intent has enabled the learning of new communication methods:

> *'My interaction with pedagogical planners exposed me to a lot of new important mapping and diagramming techniques - investigating and showing how sites were accessed and operated, revealing area relationships that were complementary or not, and understanding material sample studies, bringing all this into a collective discussion. This was before even thinking about architectural form.'*

While the experience of collaborating with users meaningfully contributes to design discussion and is insightful, collaborating with various project consultants for project delivery remains very technically oriented. Mechkaroff's journaling echoes Visionary Design Development's consultancy dealings with fellow practitioners and issues raised in the Rachele et al (2020) and Tucker et al (2021) articles. Within the architectural profession in Australia, accessibility is inherently considered in terms of DDA *compliance* and/or BCA requirements, even in initial design phases. Changes made to the design within a project's documentation phase are also re-assessed against DDA and BCA requirements. Thus, DDA/ BCA requirements are a core part of any commercial architectural project discussion. But, to our minds, these discussions are somewhat superficial, remaining at this compliance level rather than deeply delving into the lived experience of people with disability using the built environment.

Although people with disabilities' work-life situation has rarely been considered in urban policy and research responses to COVID-19, pandemic-induced remote working conditions have changed white-collar work (Martel et al, 2020). Although it is true that much white-collar work can be done remotely, it is also our experience that remote working tends to increase project delivery time and effort. In the face of lack of access to high-powered, inclusive, technological solutions, collaborative working, including liaising with access consultants, is more difficult. We all expend much energy and time chasing project stakeholders. Employee burnout is rising (Chan and Clarke, 2021). It is our observation that capitalist-informed, privatised, project delivery pressure prior to the pandemic had already burnt out many mainstream architects and designers. Thus, the day-to-day messiness of project management within architectural practices (Borson, 2017) along with working remotely are restraining forces on the broader conversation of accessibility; DDA and BCA technical compliance checklists remain de rigueur. While an understanding of the regulatory fundamentals is a necessity, our experiences indicate that more collaboration with users through, for example, workshopping would enable the profession to better understand people with disabilities' built environment accessibility needs, thus going over and above regulatory compliance.

Shifting professional identities

We have not encountered opposition to the professionally non-threatening concept of 'improving built environment accessibility' but it seems clear that restraining forces are more strongly maintaining the status quo than driving forces are achieving the ideal of a fully accessible built environment, see Figure 1.

How, then, does the profession move forward to a more self-aware position? Although professional behaviour is not the intention of the phrase, 'emotionally charged and sensitive topics' (Chang et al, 2013) architects and designers generally do find critique emotionally sensitive. Can supposedly ingrained professional traits be re-framed?

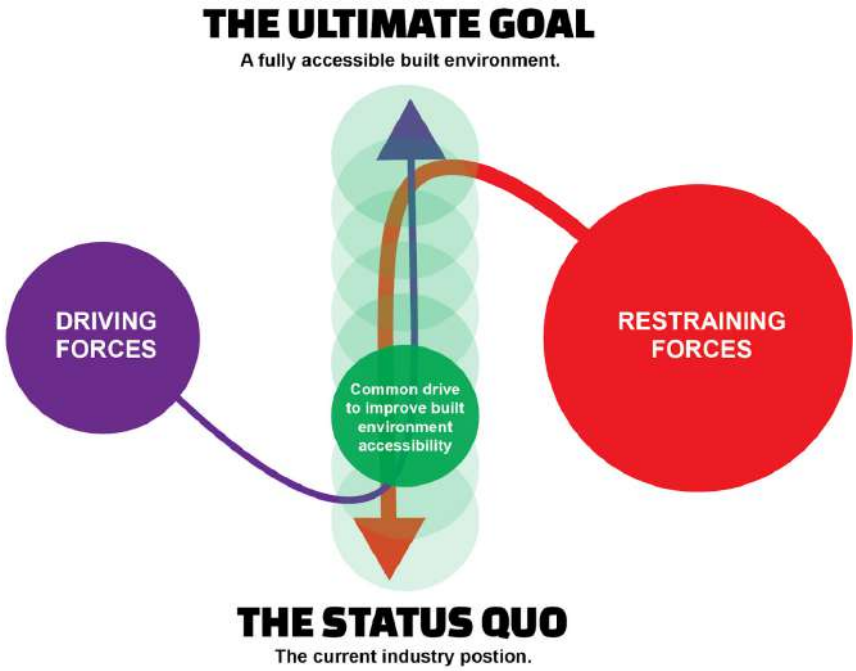

Figure 1. The initial approach to the theory of change process was to understand the current industry context for change.

Hopefully, by briefly delving into our own personal and professional identities, we are able to give some pointers.

Whilst all authors are female, currently resident in Victoria, and registered architects working in private practice in a profession operating in English, we are at different life stages, from varied cultural backgrounds, with diverse professional experience. Our mapping exercise also established that while some aspects of self are integral to being, our multiple primary and secondary personal and professional identities change over time. All authors share ongoing interest in collaboration across sectors, either professionally or through volunteering; we are all Architects for Peace 'alumni'. Momentarily putting aside profession-wide gender equity issues we all understand the privilege of attaining tertiary education and wish to use our skills and participatory mindset to bring together experts and non-experts for the wider public good. Due to personal and professional experience of built environment inaccessibility and/or chronic illness, all authors have an appreciation of the entwining of disability, health, and wellbeing. Visionary Design Development's social enterprise orientation facilitates close professional relationships to revolve around built environment accessibility. On the other hand, despite private-sector-employment pressure, Mechkaroff's trajectory of professional and personal development has resulted in her inclusion-centred approach to project delivery; extracurricular activities are around social change, particularly professional change. We all share a commitment to change, particularly of our profession. But, how to most effectively achieve this across mainstream practice remains somewhat of a mystery still, hence our explorations.

Conclusion

We hope that by telling our interwoven personal and professional stories we encourage fellow built environment practitioners, fresh graduates and senior executives alike, to pay attention to this arena; we certainly find it enriching. We reiterate that none of us remember encountering the 'built environment + disability intersection' in our supposedly formative years, ie, at university. But, as demonstrated in this paper, professional identities do, and can, change. Concurring with Chang et al's (2013) 'research as activism' position, we hope that employing collaborative autoethnography in the small, pilot way we have will be a catalyst for that change.

There is no doubt that the existing condition of Melbourne's built environment (in)accessibility impacts people with disabilities' experience of daily life. We believe, however, that opportunities do exist in building industry interest and capacity; invited speaker Jackson's stated desire for a fully accessible built environment was not rebuffed at Parlour's Design for All event (Parlour, 2021). Research-informed built environment practice embracing systems-thinking, human rights-based approaches, and transdisciplinarity can be effective for aggravating industry change and the way industry positions disability. Importantly, this paper attempts to communicate to our fellow practitioners in a new way, through collaborative autoethnography, that in working towards achieving universally accessible public spaces, we, architects in particular, must accept accountability for the impact of our day-to-day professional actions on people with disabilities' work-life inclusion.

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Understanding Inclusive Placemaking through the Case of Klostergata56 in Norway

Ursula Sokolaj
NTNU & StudyTrondheim, Norway
ursulaso@stud.ntnu.no

Abstract
Public participation and the placemaking approach are receiving continuously increasing attention and are therefore likely to become, in a near future, the norm of shaping our cities. They are instruments of local democracy, enabling citizens to stake a claim and exercise their influence on the city, repositioning them from recipients to active participants in this shaping. Research has shown that these democratic processes are the best way to ensure better physical environments, while also bringing social development. However, this attempt to shift from government to governance by power redistribution can at times pose a challenge to democracy, by repeating existing power relations between participating actors. If representation is not done right and communities are not equally engaged, the social benefits are at stake and issues of inclusion and exclusion arise. The need for assessment in this field is therefore highly relevant, but little progress has been done in developing measurable evaluation tools.
This article is based on action research, following as a case study the process of co-designing Klostergata56, a small, underutilized public space in the Norwegian city of Trondheim. It presents a new framework of evaluating a participatory process, applied to the project to investigate its level of inclusion.
Results of the study showed that the process had significant limitations to being inclusive to the expense of marginalized groups, due to unequal participation of stakeholders and differences in levels of nurtured social capital and civic trust. The challenges highlighted by the research make it possible to identify lessons for further processes to be more inclusive. Until such challenges are addressed, participatory placemaking will continue to be a trial-and-error process, therefore bound to repeat, at least to some extent, the inequality patterns present in a society.

Keywords: public participation, placemaking, inclusion, public space

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Introduction

Public spaces are the physical and social glue that define and enrich city life, by giving people the opportunity to relax, exercise, discover, exchange, socialize and express themselves (UN, 2015). Their design and management is responsible to understand and serve the public good, so that they respond to the needs of their users, relate to their physical and social context, and enhance individual well-being (Carr, et al., 1992). Their value and impact are closely tied to everyone's right of access, and freedom of claiming temporary ownership – limited only by the rights of others (ibid).

Citizen participation intends to tap into the tacit knowledge of the intended users of a space, to best comprehend the social context and the different perspectives on its use and meaning, while also granting citizens the right to shape their own environments (Carr, et al., 1992; Norwegian Ministry of Local Government and Modernization, 2019). Although in theory citizen engagement is closely tied to deliberative democracy, in practice the correlation is not always positive. Claims over a public space can be made by different organizations, individuals, or social groups, with varying needs and wants regarding the outcome. Involving all actors equally and intersecting differing interests over the same space can be a challenging process, which tends to favour powerful groups and leave behind those who do not control resources or are more passive in voicing their opinion (Madanipour, 2010). This brings about issues of inclusion and exclusion, which go hand in hand with social inequality (Iwinska, 2017). Negotiations should therefore be reached through inclusive processes, where everyone's voice, but especially the excluded urban groups', is involved (UN, 2015). Inclusion is an integral theme of the 2030 Agenda for Sustainable Development, adopted in 2015 by all member states of the United Nations including Norway. The commitment towards leaving no one behind is especially underlined by SDG 11 on sustainable cities, which emphasizes the inclusion of women, children, people with disabilities, older persons and ethnic minorities, along other historically marginalized groups.

The case

The site of the Klostergata56 project (Figure 1) is located in the Norwegian city of Trondheim, which is home to country's largest university, NTNU. The project connects into the wider development plans aiming to turn Trondheim into a vibrant sustainable city, that integrates the campus with the urban environments and enables locals and students to live in cohesion.

A strong focus in these plans is given to the creation of high-quality urban spaces, with the site in question identified as one that needs improvement. A SIT (Student Association in Gjøvik, Ålesund and Trondheim) owned student accommodation lying on the edge of this site is currently deteriorating. To acquire permit approval for its reconstruction, the developer is expected to also upgrade the adjacent public space. Although small, due to its direct link to the riverside trail and the immediate location of the neighbourhood's supermarket, the site is regularly frequented by most stakeholders in the area. However, today it mainly serves as a passageway and an underutilized parking lot, and it does not attract users to stay for a long period of time. SIT's proposal for the redesign of the space pursues therefore a primary goal of increasing outdoor activity at the location throughout the year. The impetus for a participatory process were the competing interests over this vision with the neighbouring rehabilitation

centre (BUP), whose three facilities define a larger share of the site's perimeter. The task to carry out a co-design process engaging the priorities of both these central stakeholders, but also the perspectives of the broader neighbourhood and general passers-by, was taken over by StudyTrondheim, a grassroots coalition between the students, the municipality, the university, and other local partners.

Figure 1. Klostergata56 site location.

Participation in planning is one of the key points in the Planning and Building Act in Norway. However, the majority of the local zoning plans today are executed by private actors who treat participation as a box that needs to be ticked for processes to be finalized (Falleth et al., 2010). In other words, the community is only involved within the minimal legal requirements - giving feedback at the late stages of the process, once the main content of the plan has already been set (Fiskaa, 2005; Falleth and Hansen, 2011). Klostergata56 is a pilot project in this direction, since StudyTrondheim is committed to pursuing a highly deliberative process employing the principles of placemaking, involving the citizens through all stages - from the definition of project goals to the design outcomes. Promoting the approach to further developments in Trondheim would contribute to creating a city shaped from its own citizens by encouraging a local culture and practice for participation.

The framework

Despite citizen participation becoming an increasingly followed practice in planning and design in the international sphere, few projects seem to thoroughly assess their process. The reason for this could be linked to the pressure to label them as successful (Silberberg et al., 2013), coupled with the limited progress in developing measurable

assessment tools. But it is only through comprehensive and detailed evaluations that the successes, failures, and emerging lessons can be identified. This would advance the body of knowledge in the field, allowing future participatory processes to truly realize their democratizing potential instead of repeating the same mistakes (EIPP, 2009).
The opportunity to perform as one of the facilitators of the Klostergata56 project allowed the author, for the purpose of a Master Thesis, to closely observe and reflect on the challenges of citizen participation, often overlooked by the idealized portrayal of the process in literature. These observations were supplemented by interviews with project participants and local planning experts.

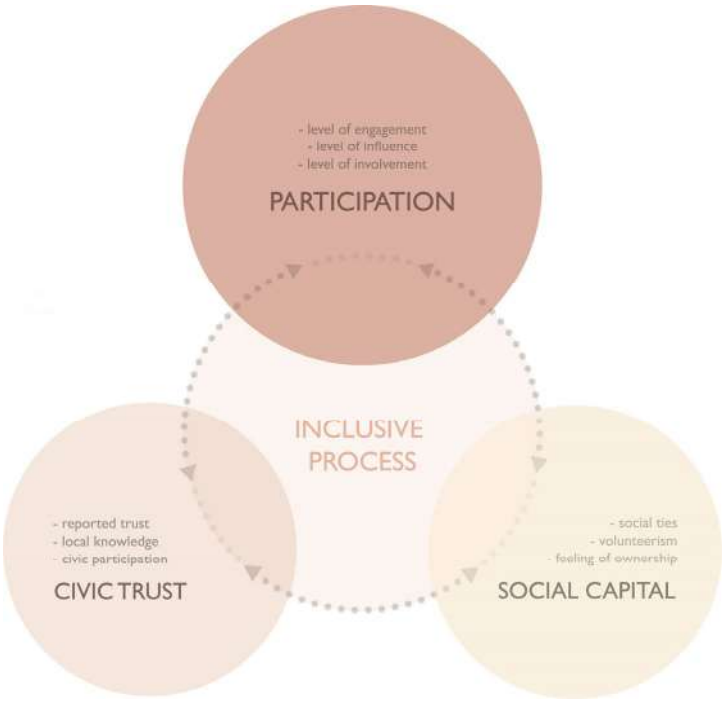

Figure 2. Evaluation framework (adapted from Sokolaj, 2021).

In order to analyse how inclusive the process was, the research firstly compiled existing resources, to propose an evaluation framework with concrete metrics and indicators. This new framework (Figure 2) ties together civic trust, participation, and social capital of an area as drivers of inclusion in a placemaking process. Civic trust reveals community's perception of meaningful involvement, in terms of institutional trust, rate of civic engagement, and local knowledge of participatory processes. Social capital, on the other hand, is measured by the existing social ties in the area, volunteerism, and feelings of ownership towards the neighbourhood (Gehl, 2018). These two contextual factors, if strong for all social groups, can encourage a more diverse, representative, and therefore inclusive participation, where this does not only entail attendance by all actors, but also the opportunity for equal involvement and equal influence on the outcome. At the same time, participation that is inclusive should promote similar

amounts of civic trust and social capital in all stakeholders. It is only then that the process can be deemed inclusive overall (Sokolaj, 2021).

The process analysis

The co-design of Klostergata56 commenced in November 2020 and was organized in six phases (Figure 3). In the first stage of the process, the stakeholders were invited to voice impressions and desired changes for the site, in order to come up with a common vision for the new design. This input was then analysed by the team of facilitators and interpreted into a common design concept and three alternative preliminary solutions. These drawings were as a following step taken back to the participants to receive feedback. Presently, the main features of the design proposal are being tested through temporary tactical interventions. Depending on the testing feedback, the suggested changes will be incorporated into SIT's final construction drawings for the student accommodation and adjacent space.

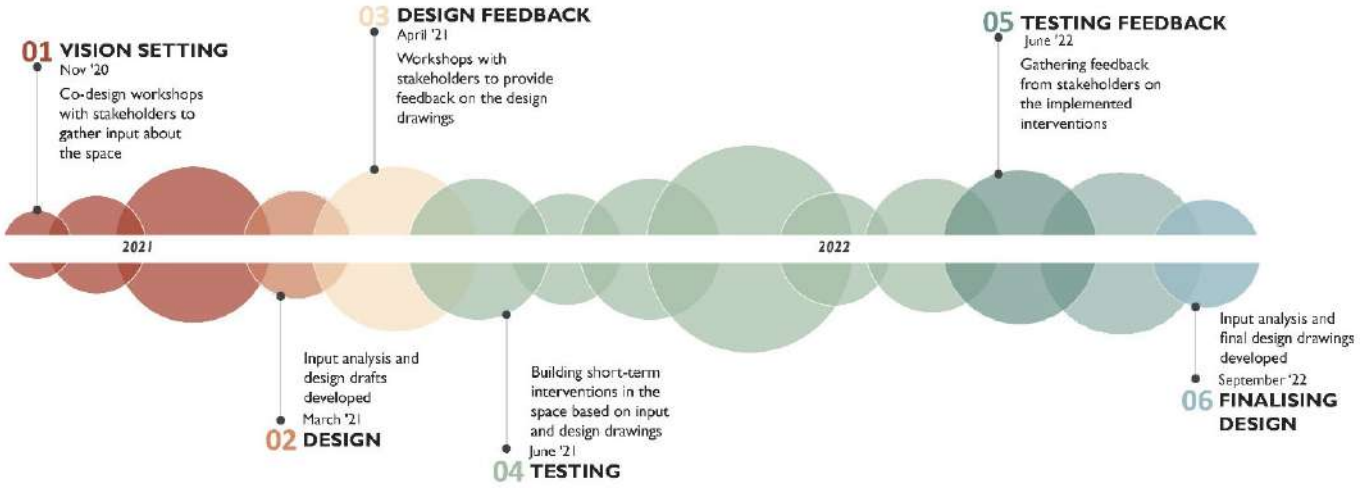

Figure 3. The six phases of the co-design process

Since the testing phase is still ongoing, the framework was mainly applied to the Vision Setting and Design Feedback phases. The invited participants formed roughly homogenous focus groups with the intention of gathering group-identity perspectives. These groups included students from the area, managers of the supermarket, employers and patients of the BUP rehabilitation clinic, a neighboring Deaf Community Center, general residents, the neighbourhood kindergarten, as well as Municipal housing residents - a mix of locals and refugees who struggle with health issues, addiction, psychological problems, or low income. The process involved two additional external stakeholders - a student organization (ISFiT) and a local artist - who were not directly impacted by the project but expressed interest in participating.
The initial plan to engage all stakeholders through in-person workshops was quickly abandoned due to a change in COVID-19 restrictions, so participation was mostly carried out online.

- Participation

Level of engagement. There was a significant drop in the number of participants from the Vision Setting phase to the Design Feedback one (figure 4). This was partially caused by a decrease in number of representatives for the students and the student organization, but mostly because some of the stakeholder groups – the Municipal housing, the BUP staff and the kindergarten - only joined the first phase but did not come back for the other. The interviewed experts pointed out that there is no standard number of a successful rate of attendance - it is more important to have all stakeholder groups represented. However, the residents who joined separate workshops, although of similar profile, had different perspectives about the site. Therefore, the legitimacy of treating the views of a few as representative of others of their kind is arguable.
It is most critical to note, however, that there were several groups completely left out of the entire process. Attempts to engage the BUP clinic patients and the Deaf Center were met with gatekeeping from their administration. On the other hand, considering the residents as a bounded stakeholder unit disguised the fact that certain age groups – older persons and children – were also not being directly consulted. It is most likely that both these groups were excluded because of digital literacy, since the outreach methods and the workshop venues were mainly digital.

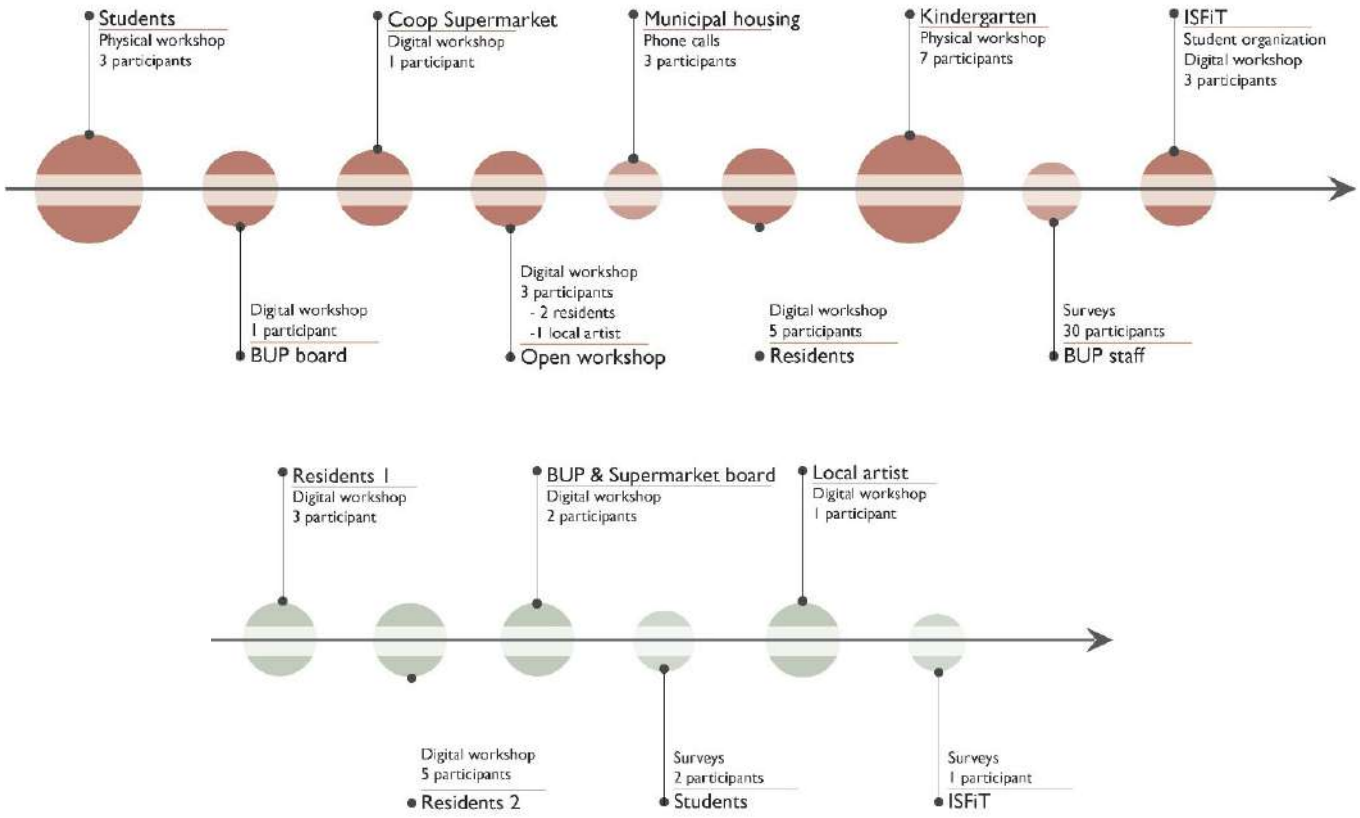

Figure 4. Level of engagement – Vision Setting (above) and Design Feedback (below)

Level of influence. In an attempt to involve groups that were being left out, the facilitators opted for alternative methods when workshops did not appear to be a suitable setting. However, different tools enable different levels of impact on the outcome, depending on their interactivity and communication efficiency. To understand this, the methods used for each interest group were mapped on a scale (Figure 5) for both the Vision Setting and the Design Feedback stages. The engagement objectives – publicity, information, discussion, co-determination and lastly the right to decide – are the adaption of Arnstein's ladder of participation to the Norwegian context by Fiskaa (2005). Wide gaps between the different groups are an indication of a less inclusive process (Sokolaj, 2021).

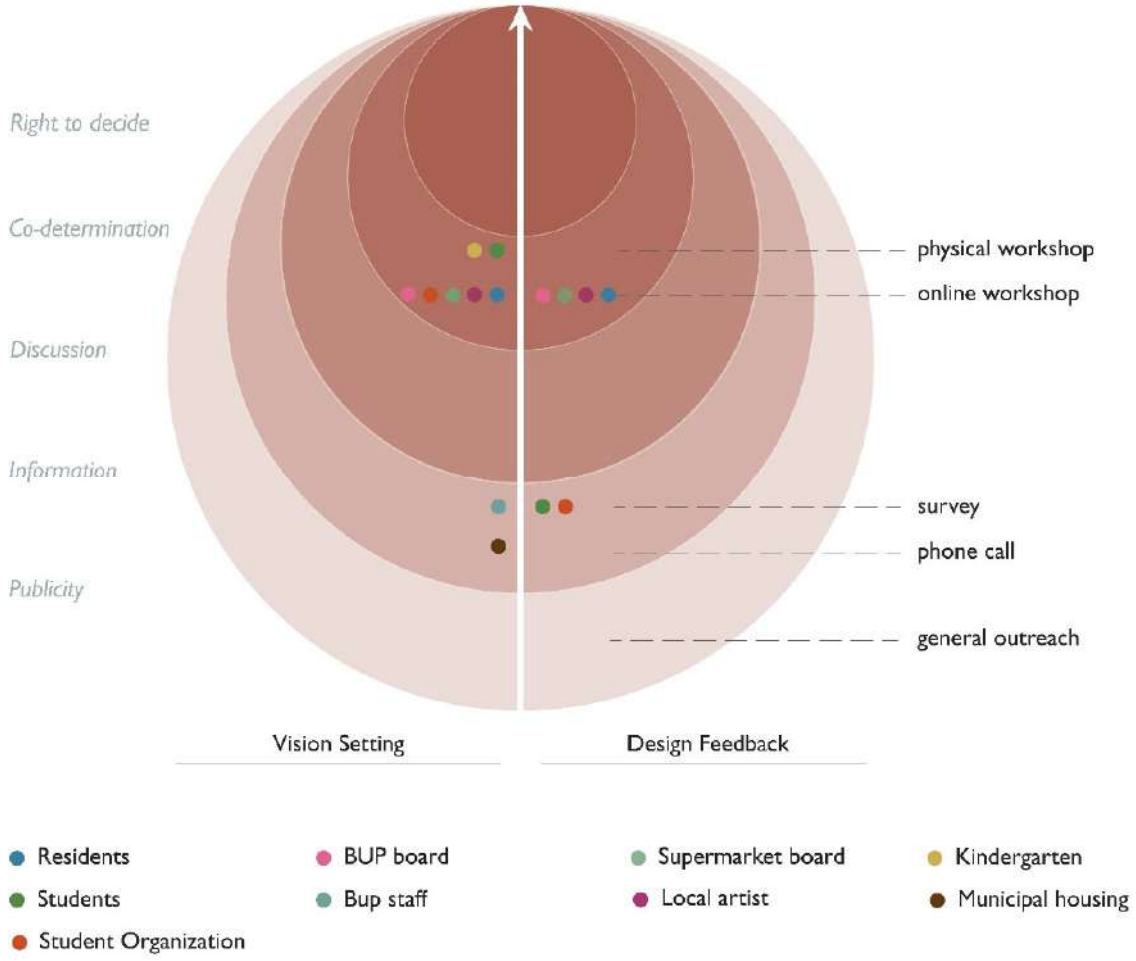

Figure 5. Level of influence – Vision Setting (left) & Design Feedback (right) (Adapted from Sokolaj, 2021).

In both phases certain groups, such as the BUP staff and the Municipal housing, stand at a disadvantage. In addition, stakeholders left out of the entire process, as pointed out in the previous section are, at best, in the lowest step of the ladder – Publicity, in case they found out about the process through one outreach method or another.

Level of involvement. During the interviews with the participants, they were also asked to pin themselves in a stakeholder matrix (Figure 6), based on their perceived power, and their interest to contribute to the project and collaborate with other stakeholders. Power was referred to as possession of knowledge and skills, informal influence through internal links, access to resources, status of representation or possibility of involvement during implementation (Johnson et al., 2009). The matrix helped reveal stakeholders' level of involvement from a passive (low interest - low power) to active (high interest - high power) scale, as well as identify the causes of their stance. The more stakeholders are in the same matrix and the smaller the gap between positions is, the more inclusive the process can be considered – and the opposite.
The result showed that the primary interest groups, directly affected by the project as daily users of the site, have a high range of level of involvement, with very few of them – the BUP board and the residents - being in the Key Stakeholders group. The two external stakeholders - the student organization and the local artist - are also in this category. If external stakeholders are more actively involved than many of the primary ones, the level of inclusion of the process becomes a quite evident issue.

Figure 6. Level of involvement map (Adapted from Sokolaj, 2021).

- Social Capital

The interviews with the local planning experts and the process participants revealed that, while there is harmonious coexistence among the diverse groups, the social ties in the neighbourhood are not very strong.

Long residency in an area contributes to social assets like goodwill, bonding and trust with others (Price et al., n.d.), but there is no such glue for many of the groups - the students, the BUP patients, and even the Municipal housing – who only stay there temporarily. Moreover, since the majority live in apartment blocks, they tend to use their own shared facilities rather than neighbourhood's open spaces. This affects their feelings of ownership over public spaces, but also the frequency and chances of interaction with other groups, which results in low bridging capital.
On the other hand, the most involved resident group have lived in detached housing for a long time and belong to the most organized part of the neighbourhood. When part of placemaking processes, people come together, interact and cooperate, which creates stronger networks and a sense of community among them (Malone, 2019). It can therefore be argued that the current gaps in social capital will only be deepened by the process. This might make excluded or under-represented groups even less likely to be involved in later processes.

- Civic Trust

The interviewed participants expressed trust in the participatory approach, but also StudyTrondheim as facilitating institution. This was demonstrated through recognition of their own input in the new designs, as well as willingness to be part of future similar processes.
Interviews were however only held with the groups that attended both phases of the project. What can be said about the trust of the Deaf community, BUP patients, or older persons, who were left out of the process? How would these groups react, once they learn about the project and realize they were not part of it? Trust is easy to lose, but very difficult to gain (Lehtonen and De Carlo, 2019). Therefore, this project may build trust in the currently included groups and encourage them to participate again, but could also cause mistrust in the excluded ones, thereby making them more prone to later self-exclusion.

Setbacks and recommendations

The three indicators of the framework showed that the process of Klostergata56 had significant limitations in being inclusive. Children, older persons, rehabilitation patients, the Deaf Center community, the migrants and the income poor - marginalized groups already at risk of being left behind - were exactly the least included ones. On the other hand, the actively involved and constantly engaged were a small group of high income, highly educated, cultural creatives.
There were some cases where participants themselves chose to self-exclude, due to lack of interest or practical difficulties related to time. However, as previously mentioned, many of the setbacks to the process being inclusive were caused by the facilitators. Usage of different methods of participation for different groups, while done in an attempt to adapt to their profile or requests, resulted in different opportunities to influence the design. Secondly, treating the categories of stakeholders as bounded units made invisible the exclusion of certain subgroups, for whom the digital venues and outreach methods were inaccessible. Nonetheless, in some cases, even if the setting and method were specifically designed to meet a target group's needs - such as integrating a sign language interpreter to engage the Deaf Center community, or sending anonymous

surveys for the rehab patients to protect their privacy - their representatives became gatekeepers in facilitating communication.

Challenges were lastly posed by deep-rooted aspects of society, for instance, the social ties and feelings of belonging, determined by ethnicity, length of residency in the area, or socio-economic state.

One's ability to be part of a decision-making process depends on one's capital of skills, time and other resources. Faced with the many difficulties of engaging participants, it is easy for facilitators to fall in the trap of relying on a minority of active resourceful citizens who create no friction and are highly interested. The high range of setbacks, caused not only by the facilitators, but also other factors out of their control, makes including everyone equally an ideal seemingly impossible. Even if so, it is crucial for explicit efforts to be put to reach towards it as closely as possible. We cannot, after all, talk about people-centred design, if we are not including a large spectre of the population. It is only through inclusive processes that we can create inclusive spaces, which are high quality, accessible, safe public spaces that welcome and accommodate everyone (Gehl, 2018). Participatory placemaking is moreover not just a means to an end product. The value lies not only in the redesigned public space, but more so in the process itself, as it creates strong relationships and feelings of belonging. If the participating groups are the already privileged ones, empowering and giving ownership to the already better off will increase the inequalities with the rest. This is exactly why it is crucial to have processes that help build capacity and nurture voice, enabling especially the marginalized groups to share their views and empower themselves (Cornwall, 2008).

To encourage inclusive participation for all, we need to increase access for everyone by bringing down attitudinal, physical, social and cultural barriers created by society. It is these boundaries, and not diversity, that hinder an equal basis of participation in society's physical, social and political realm. While there is no one-size-fits-all solution, combining pro-active efforts in multiple directions can contribute to minimizing said obstacles.

Klostergata56 exposed the importance of extensively analysing the context before a process starts, in order to recognize the existing power dynamics, understand the level of social capital and civic trust, and identify the groups at risk of being excluded. This should lead to a detailed, yet flexible plan with specific goals, regarding the number and type of events, alternative methods of engagement, as well as time and efforts to be invested to reach an engagement as inclusive as possible. Having a set of concrete goals would make it possible to continuously measure if the process is on the right track, and make adaptations in real time if someone is being left behind. Because participatory placemaking is iterative and allows for multiple points of entry to the process, this constant evaluation enabled the facilitators of Klostergata56 to put additional efforts in involving the less included groups later in the testing phase.

Efforts should be specifically put forth for the process to encourage capacity building and independent engagement. This can be achieved by ensuring that information is available in accessible formats, the workshop venues are barrier-free, and that they incorporate suitable support methods, tailored towards older persons, migrants, or persons with disabilities, such as sign speaking interpreters, translators, easy read materials and tactile graphics. Additionally, appropriate use of notification and announcement should be used for direct outreach to the intended group, to avoid

dependency on representatives who can act as gatekeepers. With the increase in the use of digital tools, it is also crucial to promote digital equity and make accessibility enhancements to websites, apps, maps and platforms of participation, such as Decidim. Direct and personal contact is an effective way to establish contact dialogue when other means cannot. Once pandemic restrictions were lifted, the project facilitators were able to organize a pop-up Christmas event in the site. This allowed them to be present where people are, and communicate directly even with rehabilitation patients and migrants from the area. The latter was additionally supported by the presence of multilingual facilitators.

By developing parameters of inclusion, performing constant evaluations and routinely implementing improved measures, communities' democratic competence and ability to participate will increase. Access and inclusiveness in participatory placemaking can truly be catalysts for change. Co-designing spaces that appeal to all can lead to unified communities and cities that empower and celebrate everyone beyond their differences.

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The Accessibility Chain: a Challenge and an Opportunity for Cities and People with Disabilities

Alba Mestres Petit, Sergi Morera, Laura Trujjillo Parra, Meritxell Valladares
Barcelona City Council, Institute of People with Disabilities
amestrespe@bcn.cat | smorera@bcn.cat | ltrujillo@bcn.cat | mvalladares@bcn.cat

Abstract
Barcelona has been striving to become a completely accessible city with fully guaranteed rights for people with disabilities for over 40 years. In 2008, the Municipal Council announced its commitment to the pursuit of the rights set forth in the UNCRPD. This was followed in 2017 by the City Council's approval of a Government Measure to draw up a universal Accessibility Plan for the city (2018-2026) in line with SDG 11 on sustainable cities and with milestones 11.3 and 11.2 of the 2030 Agenda. The universal Accessibility Plan started with an initial diagnosis phase and an analysis of the degree of physical, sensory and cognitive accessibility of over 636 municipal facilities, the entire public transport network and over 1,013 km of public highway in 61 of the city's neighbourhoods.
In 2020, having obtained the data and in the middle of the pandemic, the City Council was forced to redesign its roadmap, setting in motion a number of cross-cutting actions for the city focused on accessibility and caring for people with disabilities in order to ensure greater health security for everyone. Factors such as social distancing, new safety signs or even the use of masks emerged as new barriers that needed to be addressed to ensure no one was being left behind.

Keywords: accessibility, blindness, sustainable cities, labour market inclusion, pandemic, visual disability

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Barcelona has been working to become a completely accessible city where the rights of people with disabilities are fully guaranteed for over 40 years. Helping the city to achieve this is the Municipal Institute for People with Disabilities[1], an independent body that works with every area of the City Council to promote accessibility and inclusion in the city's public policies. In 2008, following its initial Accessibility Plan (1997-2006) which focused on accessibility in the city's streets and public spaces, the City Council reaffirmed its commitment to guaranteeing the rights set out in the United Nations' Convention on the Rights of Persons with Disabilities (CRPD). More recently (in 2017) it approved a Government Measure for drafting the 2018-2026 Universal Accessibility Plan for Barcelona (PAUB in Catalan), which will deal with improving physical, communication and cognitive accessibility in a wide range of venues and facilities.

The Government Measure, inspired by Sustainable Development Goal 11 "Sustainable cities and communities" and targets 11.2 and 11.3 of the 2030 Agenda[2], established a three-phase implementation of the new Accessibility Plan: a first phase diagnosing the degree of accessibility of the various public spaces and services; a second, participatory phase, aimed at reaching consensus on the best accessibility solutions to be implemented in the city, and third and final phase, where the Plan will be implemented with the requisite budget.

In this article we will run through the various stages of the Accessibility Plan's diagnostic phase, which was carried out between 2017 and 2021 (in facility interiors, public streets and squares, green spaces and play areas), identify the unique projects implemented with over 100 people with disabilities hired by the City Council and highlight the role of the accessibility chain as the backbone of the various initiatives carried out in the city. At the same time, the article also presents an innovative project driven by the City Council whose main goal is to address accessibility needs that persons who are blind and partially sighted have in getting around the city and enjoying developed environments on an equal basis.

Accessibility to facility interiors and services

First of all, once the Government Measure for drafting the Accessibility Plan had been approved, the first stage of the diagnostic phase was carried out between 2017 and 2019. This included analysing the degree of physical, sensory and cognitive accessibility

[1] Barcelona City Council has an autonomous body, the Municipal Institute of People with Disabilities (IMPD), whose mission is to promote activities and services accessible to people with disabilities. To do this, the IMPD staff work together with all the areas and districts of the city administration to guarantee that citizens with disabilities have access to services, activities and public spaces, meaning both the chance to move freely and the possibility of enjoying these resources.

IMPD's governing board is composed 50% of elected politicians and 50% of people with disabilities, elected by citizens with disabilities every four years. With a staff of 70 workers, the IMPD strategy consists of mainstreaming accessibility and inclusion throughout the city administration. It also provides some special resources and services for people with disabilities: Early Child Care Development Centre, Labour Inclusion Service, Independent Living Programme and Information Office.

The IMPD is currently leading the 2018-2026 Accessibility Plan, which has three stages: 1. Diagnosing the level of accessibility in various city services; 2. Drawing up solutions for improving accessibility with the participation of people with disabilities; and 3. Implementing the solutions adopted in coordination with the different municipal areas involved. More information available:
https://ajuntament.barcelona.cat/accessible/ca/impd/historia

[2] Sustainable Development Goal 11: https://sdgs.un.org/goals/goal11

of 636 municipal facilities and services (social services centres, sports centres, citizen help and information offices, community centres, primary health care centres, markets, libraries, universities, cinemas, restaurants and hotels), the entire public transport system (metro, buses, trams and trains) and 60 municipal websites.

Figure 1. Facilities and services analysed during the Accessibility Plan diagnostic phase.

This initial field work was carried out by a working team of 40 people with disabilities, who visited the facilities with questionnaires to gather all the data needed to determine the level of accessibility of the environment, access points, public assistance point, horizontal and vertical mobility, access to the facilities' hygiene services and their various spaces (offices, auditoriums, changing rooms, etc.). So, between 2017 and 2019, they accurately recorded data such as the distance from each facility to the nearest public transport point; the presence of nearby parking places for people with reduced mobility; door and corridor width; the presence of steps; ramp gradients; the presence of tactile paving, dual-height counters/desks, communication-facilitating features (touch maps, materials in Braille, signage with pictograms, magnetic loops); the level of lighting, accessibility of lifts and toilettes.

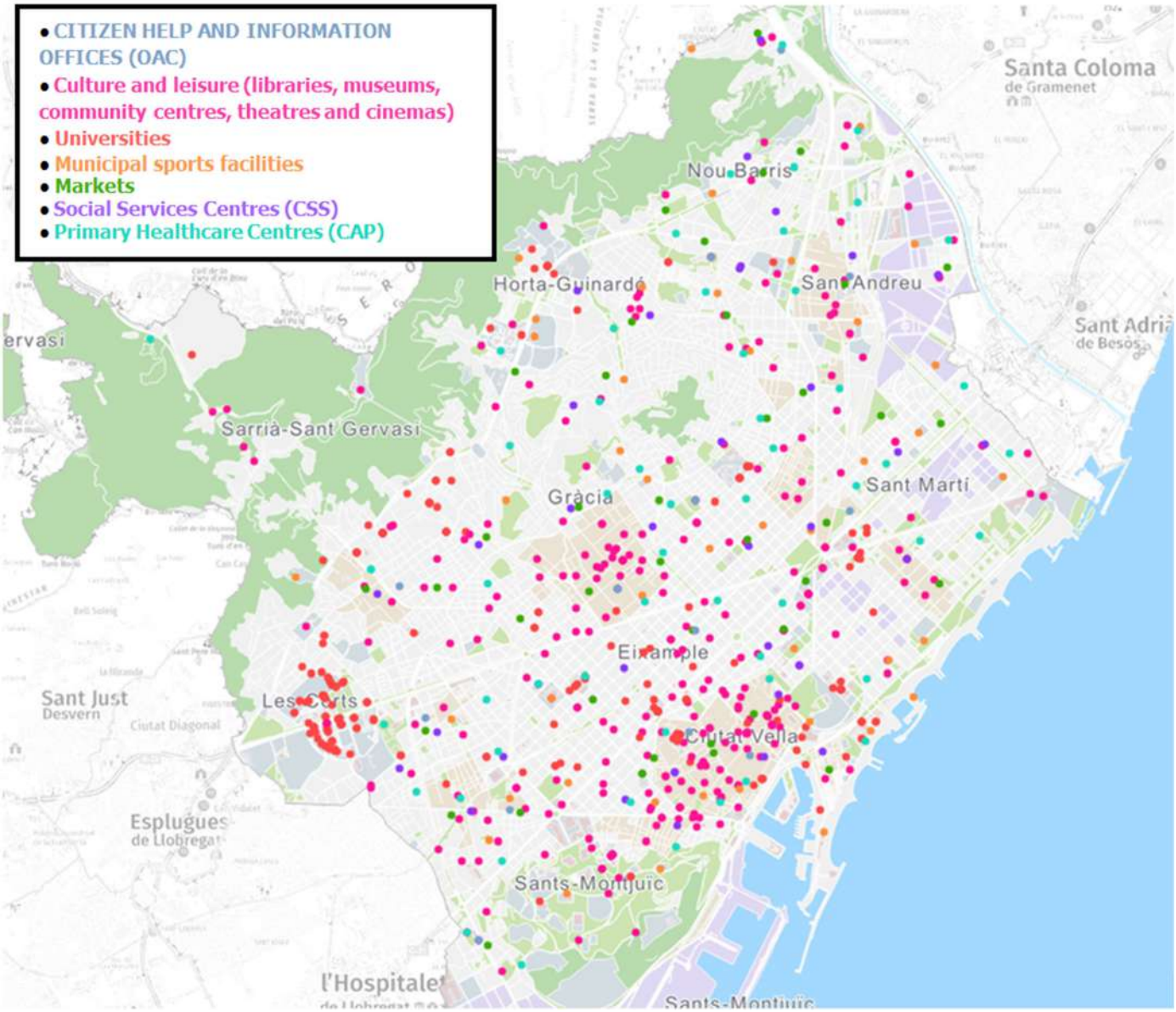

Figure 2. Map of Barcelona with a sample of the facilities analysed (from BCN Street map: https://w33.bcn.cat/planolBCN/ca/)

That way a map of the city was compiled from an accessibility perspective. By mapping the data on accessibility, a clearer picture with the challenges could be identified for improving the future, which will certainly depend on focusing our efforts on communication and cognitive accessibility.

Figure 3. Dual-height reception desk at the Ciutat Vella Citizen Help and Information Office
(Diagnosis PAUB 2017-2018, IMPD).

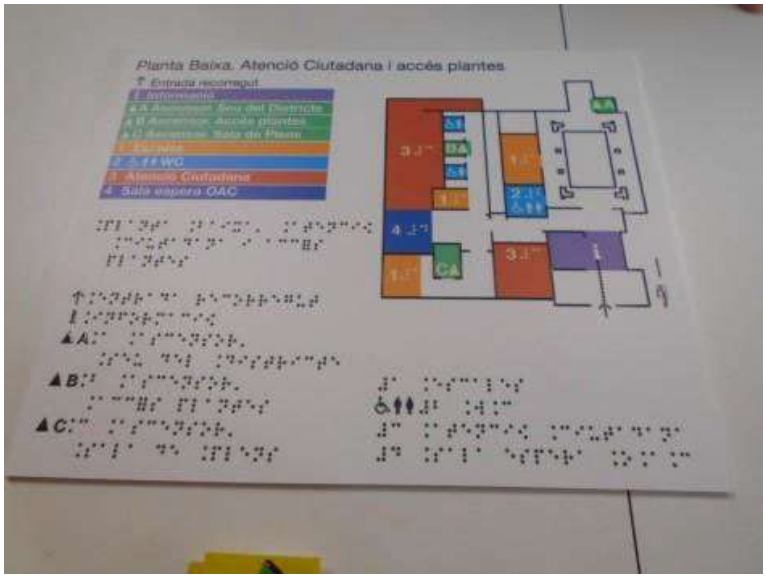

Figure 4. Tactile floor plan with Braille at Les Corts Citizen Help and Information Office
(Diagnosis PAUB 2017-2018, IMPD).

Figure 5. Accessibility web at Citizen Help and Information Offices
(Diagnosis PAUB 2017-2018, IMPD).

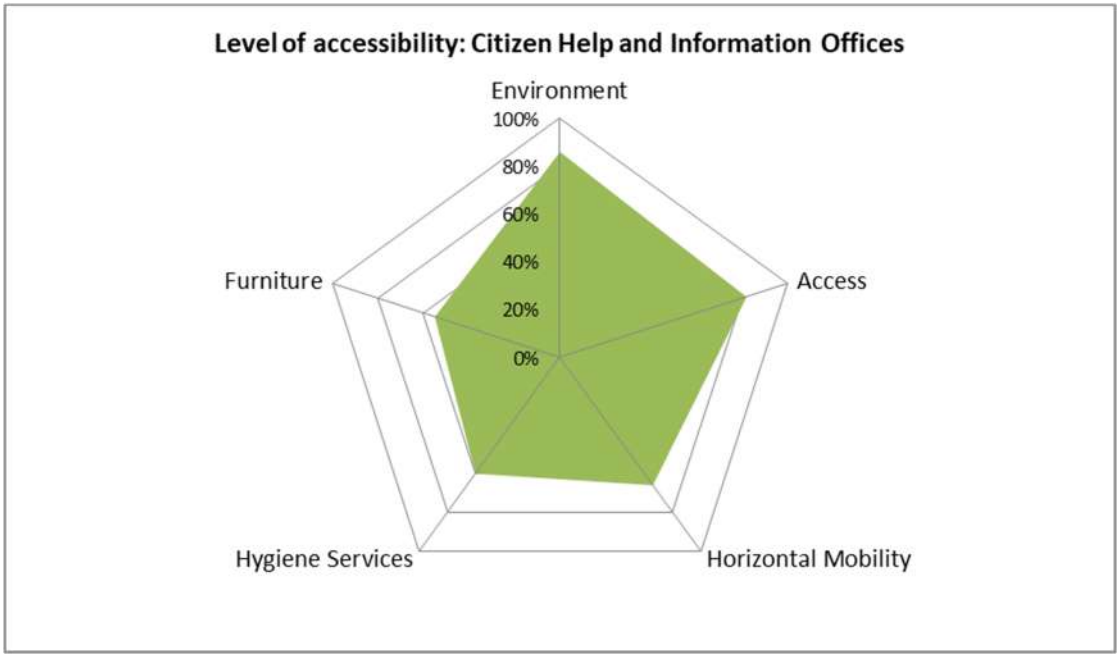

Figure 6. Radial accessibility-analysis chart of Barcelona's Citizen Help and Information Offices. (Diagnosi PAUB 2017-2018, IMPD).

Accessibility of the public highway

In parallel with the facility accessibility analysis, a public highway accessibility analysis was started between 2017 and 2021, during which more than 1,000 km of streets and squares were covered in the 73 city's neighbourhoods. Two working teams with training in architecture and building were used to collect and group the data. Those professionals collected accurate data on accessibility and grouped it under 9 headings (the state of paving, slopes, the presence of obstacles on accessible pedestrian routes, pavement width, dropped kerbs at crossing points, parking places for people with reduced mobility, changes in ground level, forms of protection – with railings and handrails– and the presence and correct layout of tactile paving). All this information was entered into Barcelona's Geographical Information System, to ensure access to updated data for every technical team in the city's neighbourhoods and districts, and to guarantee that the investments over the coming years are based on detected needs that can be established as priorities.

Figure 7. Accessibility parameters in diagnosing the Public Highway (Diagnosis PAUB 2017-2018, IMPD).

Figure 8. Street plan with various public highway analysis parameters. Image extracted from the InCa Geographical Information System (Diagnosis PAUB 2018-2021, IMPD).

Figure 9. Example of the accessibility features analysed in a street section.

Figure 10. Directional tactile paving on Passeig de Gràcia (Diagnosis PAUB 2021, IMPD)

Accessibility to open spaces

After the outbreak of the pandemic in 2020, the City Council was compelled to redesign its roadmap in response to the health emergency. This led to the launch of a series of cross-cutting city initiatives with a focus on accessibility and assistance for people with disabilities, to ensure greater health safety for everyone. The Accessibility Plan had to be adapted to the new needs appearing, since factors such as social distancing, new safety signage and use of masks became new barriers that needed to be tackled, to prevent anyone from being left behind. These circumstances prompted the City Council to adopt specific measures around the Plan's new diagnostic stage. On the one hand, they made recommendations in relation to accessibility and safety in the context of the pandemic[3]. On the other hand, they proposed a series of initiatives to be implemented in 2021, which are explained below. The study of accessibility in open spaces, employing people with disabilities and promoting communication accessibility was meant to become the working framework in the new crisis context the city was going through.

It was decided to end the Plan's diagnostic phase by incorporating the collection and analysis of accessibility to outdoor environments, such as parks, children's play areas, green zones and beaches. Since the field work had to be done outdoors, the safety requirements of workers during the pandemic were ensured and so safety was not an obstacle to include open spaces in the Accessibility Plan. During the hardest times of the pandemic outdoors had become important as spaces for recreation and a respite for many people.

The field work was divided into two large blocks. One was for collecting data and measurements in parks and children's play areas and the other for facilitating access to these areas for people with visual impairment. The collection of data and measurements, was carried out by a team of 44 people with disabilities (physical, learning, psychosocial and hearing impairment). The team visited 889 parks and children's play areas to gather information and identify points for future investment in achieving a "city where every child can play", in line with municipal policy[4]. Collecting data included features such as the width of entry points, paving type, play-feature usability and ease of moving around inside.

In the second block a team of five people, comprised of persons who were blind and partially sighted, were tasked with creating a model fact sheet for itineraries, parks and green spaces as points of urban interest. This project was based on the determination to strengthen the accessibility chain, in response to demands from people with visual impairment.

Communicative accessibility on itineraries: a model for an innovative descriptive fact sheet for people with visual impairments.

The project for compiling descriptive fact sheets for itineraries is aimed at offering clear and detailed information on the various sections of the routes people pass through from when they get off their nearest public transport to when they reach their desired destination (park, play area, green area, museum or beach). These fact sheets would be

[3] https://bcnroc.ajuntament.barcelona.cat/jspui/handle/11703/121623
[4] https://bcnroc.ajuntament.barcelona.cat/jspui/handle/11703/116054

targeted at people who are blind and partially sighted, who mostly get around by using a white cane or with a guide dog. As a result of the project, they will be able to get hold of valuable information, before leaving home, for planning and finding out about the routes they would follow.

Figure 11. Photos of the children's play area at the Jardins d'Elx, in the Sant Andreu district, with points marked where measurements were taken.

Up to then, accessibility had always been analysed separately from websites, transport, public thoroughfares, facilities and services. After listening to people with visual impairment, it was decided to go a step further than the mandatory regulations and respond to the needs for travel support, thereby taking into account all aspects of the accessibility chain. That way, besides equipping facilities and services with signs in Braille, tactile floor plans and 3D models, it would be possible to ensure people would know how to get to their desired destination and that full use would be made of resources that had already been installed.

So technical staff and people with visual impairment worked on identifying itineraries of interest, designing an information sheet and reaching consensus on what the best way

would be for standardising descriptions, which would eventually be used by people with visual impairments. Implementing the project enabled us to move on from the purely diagnostic phase of the Plan to the solution design and preparation stage for improving accessibility for a specific group.
First, a decision was taken to identify a significant number of parks in each of the city's 10 districts. Then it was decided that the description would be based on the nearest public transport point to each park entrance. After checking with the representative associations of blind and partially sighted people, it was agreed to prioritise the Metro as the setting-off point, before the other public transport options, given that the metro network is more stable over time (compared to the bus network, where stops can be more easily changed). Finally, once the itinerary setting-off points and destinations had been established, potential useful reference points were identified in the route descriptions.
The sheets were divided up into several sections to make them easier to read: one from metro platform to ticket-validation point; another from ticket-validation point to outside the Metro and another from the Metro exit to the park entrance. In addition, all the sheets included the return route as well.

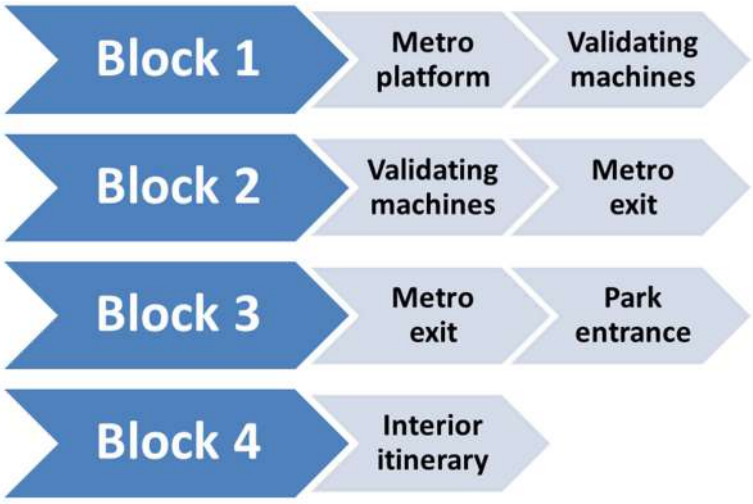

Figure 12. Diagram: blocks of the description in the itineraries to the parks (Diagnosis PAUB 2021, IMPD).

As regards the references and method of providing information in the sheets, standards were established for ensuring homogeneity, although some leeway was granted for workers to adapt descriptions to each type of itinerary according to their own criterion. The parameters common to all the sheets included the presence of tactile routing or paving inside metro stations or on the street; a person's position in relation to walls or façade lines; rotations in degrees or clockwise; the presence of dangers (such as car park exits or sharp changes in ground level); the traffic situation in relation to people; the presence of acoustic traffic lights on the itinerary and approximate distances in metres.

"We get off the metro train coach and walk ahead until we reach the tactile routing paving.
We turn 90 degrees to our left and walk ahead along the routing to the head of the train.
As soon as we detect a change of surface under our feet, we will know that the lift is on our right.
We continue moving along the routing, which we will note turns slightly to the left (approximately 10 o'clock clockwise) and we will reach the ascending stairs for leaving the platform.
We now face a staircase with 3 flights and 2 landings.
There are escalators on the right.
We go up the stairs and once we are at the top, we turn 90 degrees to the left, and just in front we will have the ticket validating machines FOR LEAVING."

Figure 13. Example set of instructions from the metro exit to the park gate included in the accessible communication instructions (Diagnosis PAUB 2021, IMPD)

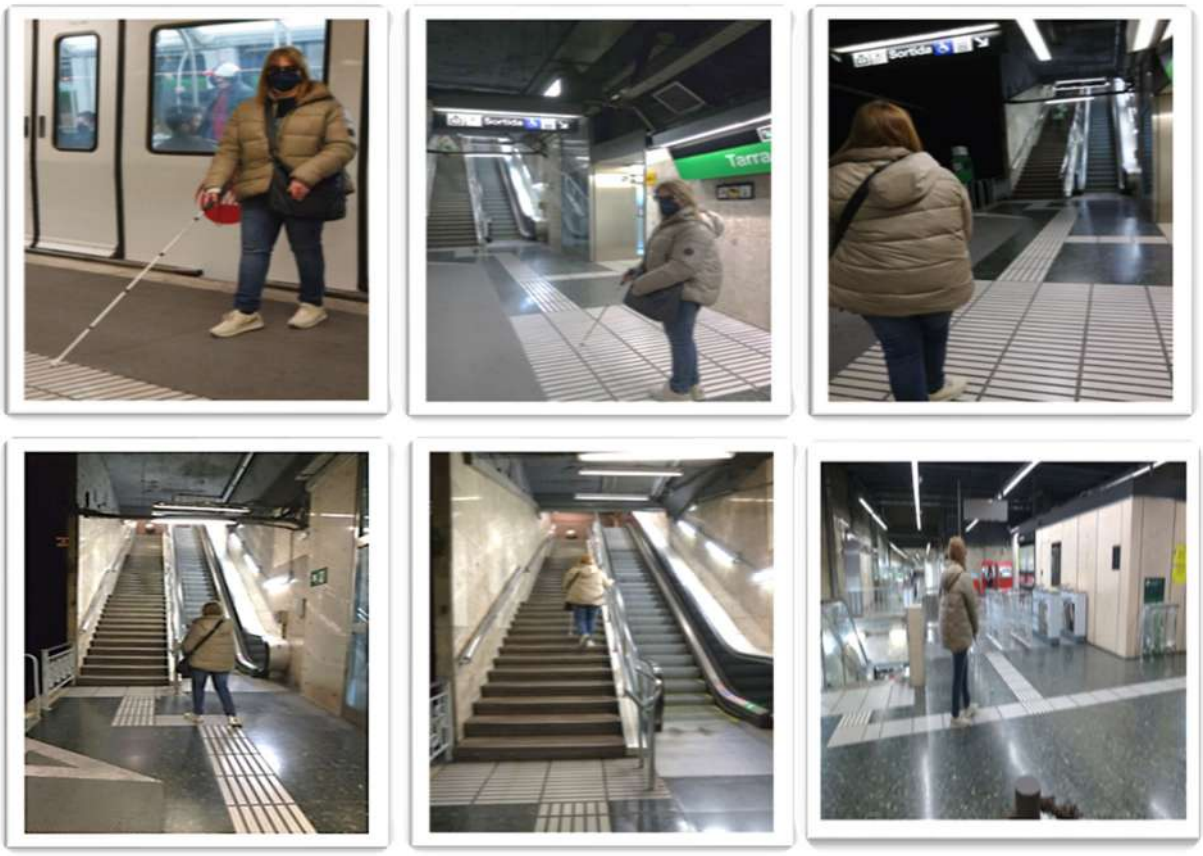

Figure 14. Set of six photos picturing a blind person who follows the example itinerary, from the Metro platform to the exit (Diagnosis PAUB 2021, IMPD).

For the purposes of ensuring optimum results, several roles were assigned to the five members of the working team: a coordinator organised the itineraries to be followed every week and revised the quality of the content of the sheets handed in; a specialist in document accessibility prepared accessible templates and verified the documents drawn up met digital accessibility requirements, and the other three individuals (two blind and one partially sighted person) went out to do the itineraries and fieldwork.
The work methodology ensured that the pair who did the itineraries always comprised a blind person and a partially sighted person. That ensured tactile and visual references were collected for as many people as possible. The organisation of the team consisted of daily outings, engaging the visually impaired person with the two blind people for the collection of data on alternate days: one day the pair explored the most accessible route with most references, recording every step orally; the other day, the blind person who did not join the pair along the itinerary worked on reviewing the itinerary itself and the related collected data and creating a sheet in digital format.
As a result, 38 itineraries from transport to park entrances were compiled. In view of the sheets' considerable usefulness, the areas of action were extended, and descriptions of itineraries were included for as many as 10 museums and 3 beaches with bathing-support services for people with disabilities. Finally, thanks to the motivation of the team and satisfaction with the results, the project ended up creating descriptive fact sheets for the interiors of 13 of Barcelona's iconic parks, located in its 10 districts. To that end, the teams were reorganised, this time coordinating people with visual impairments and people with non-visual disabilities. These teams examined the park interiors, working together to look at the structure and divisions of the park and make a proposal for the most accessible itinerary with comprehensive description. Thanks to this methodology descriptions were compiled for places of great historical and cultural interest in the city, such as Parc Güell, Parc de la Ciutadella and Parc de Cervantes, with the intention of publishing the various sheets on websites for public information and making them available to associations and to members of the population with visual impairments.

"At this point we are standing before Parc Güell's iconic staircase.
It is divided into 3 flights of stairs and 2 landings.
The staircase floor is white but its sides are covered with *trencadís* (broken ceramic-tile mosaics in several colours and shades).
There are ornamental forms at the top of the first flight, the Catalan coat of arms on the second and, above that, the famous Dragon or Salamander figure covered in *trencadís*.
We walk up the steps, noting the low walls on the right and the water flowing from the fountains on the left.
Once we reach the top, we will have a low wall on the right and the Hypostyle Hall on the left.
This hall is noted for having 86 columns supporting Nature Square above.
To continue the route, we move on, following the wall on the right till it finishes. Here we turn 90 degrees to the right and continue for some three metres following the guide bump and shrubs on the right.
We are now in front of the iron gate to the Austria Gardens."

Figure 15. Description of Parc Güell interior (Diagnosis PAUB 2021, IMPD).

The aim behind including the descriptions of these must-visit, emblematic city sites is to take a step forward in making Barcelona's heritage more accessible and ensuring that persons who are blind and partially sighted have the right to enjoy these green public spaces. Examples of the data gathered in these sheets included information on the park's exterior (rectangular, oval, triangular), the areas it is divided into (such as a children's play area, a historical area, an area for dogs, a water area, lakes, fountains and so on), how to get from one area to another, the presence of guide bumps or other references, the form and colours of the architecture present and the plant species found there.

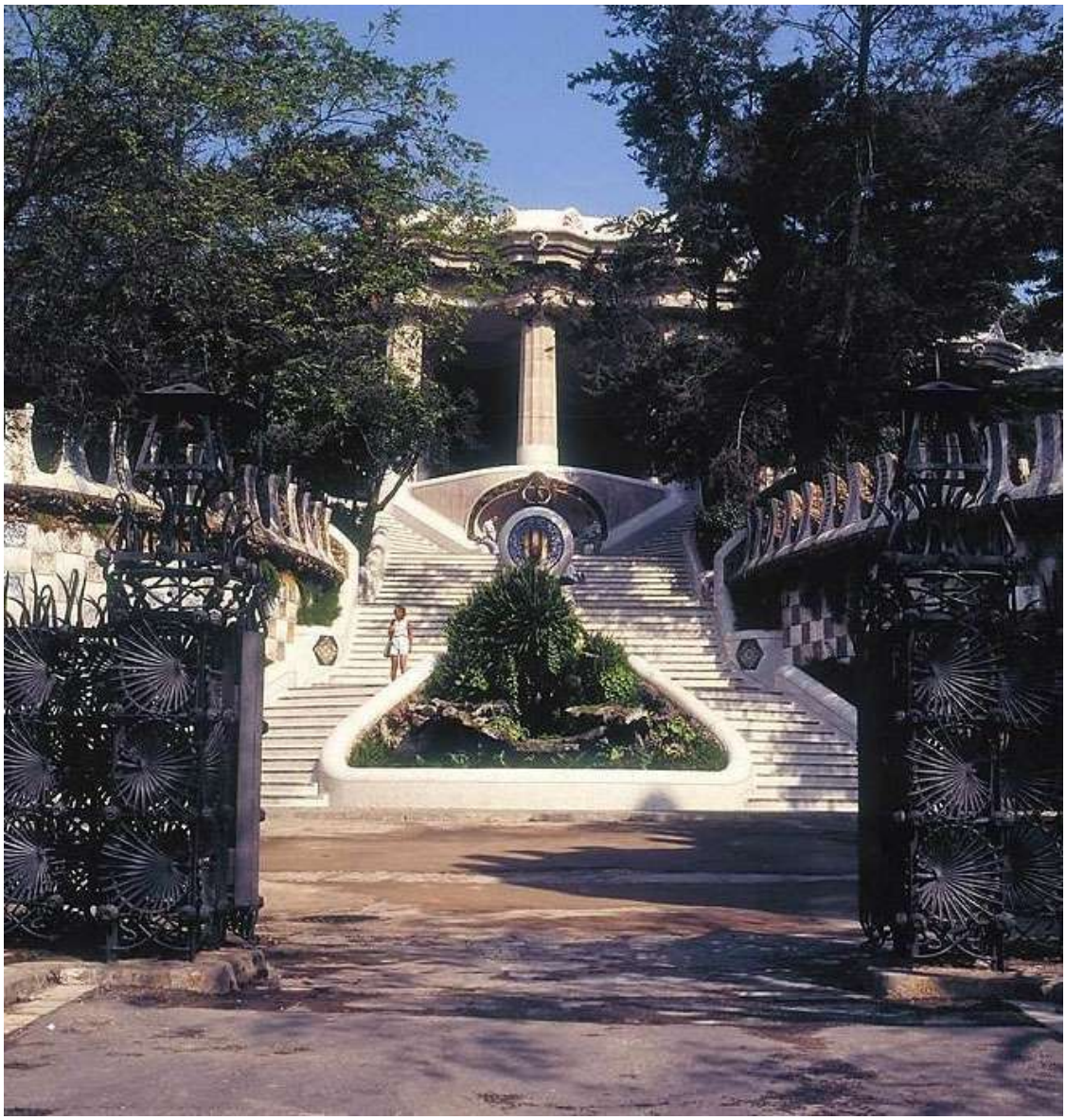

Figure 16. Entrance to Park Güell (Antonio Lajusticia, 2004, CC-BY 4.0, http://hdl.handle.net/11703/75119. Amendment: image cropped)

Figure 17. Images of the experimentation area. Jardins Joan Brossa (2022, IMPD).

> "Once we reach the end of the path, there will be an experimentation area on the left. There is a wooden telephone with two boxes, some fifteen metres' apart and connected by an underground metal tube.
> We move forward a few metres in a straight line, where we will find a play space on the right, with musical cushions.
> Note: there are 5 cushions, which are black and arranged in a circle.
> If you jump on them, several melodies are generated."

Figure18. Description of the route to the experimentation area. Jardins Joan Brossa (2022, IMPD).

Figure 19. Accessible play area at Parc de Joan Miró (image of the Diversem project, 2021, IMPD).

The project, developed by and for people who are blind and partially sighted addresses their accessibility needs and preferences when getting around the city on their own and which have been further highlighted by the pandemic. At the same time, thanks to the experience, good practices have been identified as well as new challenges and aspects that could be improved in areas such as tactile and acoustic signage in open environments that include parks and points of interest such as entrances to public facilities.

Likewise, and thanks to the 13 sheets for the interiors of the city's most significant parks, persons who are blind have been offered valuable information hitherto unavailable to them. So, for example, blind parents who wish to travel with their child to the park can find out, before they leave the house, the games they will find at the park and whether there will be nature spaces available with animals such as ducks and frogs. Processes that are simple for sighted people , such as taking a quick look at images on the internet to decide on whether to visit one place or another, can be very complicated for someone who is blind. Blind tourists will also benefit from the information on the sheets, as it will enable them to discover each space's architectural heritage, find out whether the parks have sculptures or other attractive tactile features, discover sites for listening to the sounds of native fauna or spaces with trees or aromatic plants that stimulate the olfactory senses. That way visits to and stays in the city will become much more attractive experiences, adapted to each person's senses.

Conclusions and future challenges

This innovative project in the framework of Barcelona's Universal Accessibility Plan has increased the accessibility resources available for Barcelona residents and visitors with disabilities, offering employment to a group of people with disabilities, whose personal expertise is contributing to a better investment in public policies. The descriptions for facilitating itineraries ensure the accessibility chain is maintained to the full, as stated in Article 9 of the Convention on the Rights for People with Disabilities (CRPD): from when the person decides where they wish to go to when they receive the itinerary information, they go there, reach the service point and can enjoy it all as an equal. In addition, thanks to exploring various environments, city needs have been detected and some of the political priorities on accessible communication have been set for the coming years, which depend on drafting a Tactile Paving and Flooring Installation Plan, an Acoustic Traffic Lights Plan (to go from the current figure of 81% to 100%), the integration of accessibility information into accessible multi-channel platforms and an Acoustic Devices Implementation Plan that enables blind people to locate the entrances to public facilities or points of interest in the city.

People with disabilities have taken part in the diagnosis of the Barcelona Universal Accessibility Plan[5], whether working for the City Council or through participatory mechanisms run by the Municipal Institute for People with Disabilities. The procedure for improving universal accessibility was to carry out an operational audit of the services offered by the city and of the suitability of its streets and facilities. This audit has enabled a layer of accessibility data to be built that needs to be extended and kept up to date for the purposes of taking informed political decisions. In the short term, measuring the

[5] The Barcelona Universal Accessibility Plan is promoted by the Municipal Institute of People with Disabilities (IMPD) and coordinated by the Department for Planning and Evaluation.

degree of accessibility of everyday environments has enabled several city locations and services to be compared, accessibility solutions to start being noted and innovative projects implemented. In the first case, low-cost initiatives relating to facility and public highway maintenance can be highlighted. In the second, projects such as the descriptive fact sheets for improving communicative accessibility to itineraries enable the addition of accessibility content to municipal communication platforms.

To sum up, working together with people with disabilities is essential to cities in their action to maintain accessibility standards. What is more, it is decisive specially for those cities willing to champion universal accessibility and build, through continuous innovation, a more inclusive, egalitarian and barrier-free environment, where facilities, services and public space welcome everyone.

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What Do the Students Want?
Reflections from a Participatory Approach to Creating Safe and Inclusive School Zones in Banjarmasin, Indonesia

Vanesha Manuturi, Nina Asterina
Kota Kita Foundation, Indonesia
vanesha@kotakita.org | nina@kotakita.org

Febpry Ghara Utama
City of Banjarmasin Transportation Agency, Indonesia

Abstract
Many public spaces in Indonesian cities are inaccessible to vulnerable and marginalized groups such as children, older people, and persons with disabilities, partly due to a lack of accessible environment and limited understanding by citizens and government agencies. The design and planning of these spaces are typically conducted in a top-down approach, with little participation from citizens. Regulation by the Indonesian Transportation Ministry[1] stipulates that school areas with heavy traffic and a high risk of accidents should have a Safe School Zone (Zona Selamat Sekolah, in Indonesian). The regulation details a technical guideline for the Safe School Zone, i.e., traffic signs, crossroads, and speed bumps, but its implementation does not yet consider inclusive principles and universal design. To build a more inclusive and accessible city for all in accordance with the New Urban Agenda, a participatory design process with multiple stakeholders—teachers, local government, and most importantly, students—plays a vital role in ensuring inclusive planning in cities. This paper reflects on the experience of Kota Kita and the Banjarmasin City Transportation Agency implementing a participatory Safe and Inclusive School Zone pilot project in Banjarmasin, Indonesia, to promote inclusive city planning and build the community's capacity to improve their living spaces.

Keywords: participatory design, inclusive planning, children participation

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I. Introduction

Indonesia has made notable commitments toward social equity and inclusion in urban development in the past decade, with the ratification of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) in 2011, a disability rights law in 2016 (Law No. 8/2016), and several ministerial decrees standardizing physical accessibility obligations for public buildings and facilities (Housing and Public Works Ministerial Decree 30/2006 and 14/2017). However, such pledges have faced implementation barriers at the neighbourhood and city level, with many public spaces in Indonesian cities remaining inaccessible to vulnerable groups such as persons with disabilities, older persons, children and other marginalised groups/communities. A participatory research study by Kota Kita Foundation ("Yayasan Kota Kita") in two Indonesian cities—Surakarta, Central Java and Banjarmasin, South Kalimantan—evidenced a lack of accessibility of the built environment and limited understanding of inclusion principles by the government and the general public as well as has hindered citizens, particularly those living with disabilities or are older persons to participate meaningfully in social, economic, and political activities on an equal basis. Furthermore, their perspectives are often not included in design and development processes—or if included, it is typically conducted in a formal consultative manner.

Supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Transformative Urban Mobility Initiative (TUMI), between 2019 and 2021, Kota Kita Foundation collaborated with the City Government of Banjarmasin, urban designers and practitioners, academics, and civil society organizations to address accessibility and mobility issues in Banjarmasin, as part of the TUMI Inclusive Banjarmasin initiative. Through citizen-driven processes and multi-stakeholder engagements, the initiative aimed to promote inclusive city planning in Banjarmasin as a model of inclusive cities and build the community's capacity to improve their living spaces through participatory pilot projects.'

This paper reflects on the results of the program coordinated by the Kota Kita Foundation and the City Government of Banjarmasin, particularly on the implementation of a safe and inclusive school zone. While certain aspects of the project are tailored to specific cultural, social, and spatial contexts in Banjarmasin City, learnings from this case study may provide a model of how participatory approaches can play a role in the creation and management towards more accessible and inclusive public spaces in Indonesia.

Challenges in creating accessible and inclusive public spaces in Indonesian cities

Accessible and inclusive public spaces in cities are created with the involvement of diverse perspectives, particularly of vulnerable and marginalized communities, in the decision-making process to ensure their needs and aspirations are adequately addressed (2016, New Urban Agenda). Furthermore, community ownership and management in the planning and management of public spaces can contribute to an effect on safety and people's feeling of safety (Safer Cities UN-Habitat, 2019). And yet, inclusive planning practices are still overlooked in Indonesia. Common barriers that typically hinder the implementation of an accessible and inclusive built environment in Indonesia include 1) Attitudinal and knowledge barriers, i.e., a lack of understanding of inclusive planning practices and universal design principles (Kota Kita Foundation, 2019, p. 2) Administrative barriers, i.e., challenges concerning cross-sectoral coordination,

budgeting and timeline, political will (Hutabarat Lo, 2011, p.15).
In practice, there remains a general lack of awareness on disability inclusion, rights of persons with disabilities and accessibility requirements in Indonesia, which has resulted in stigmatization and poor decision making during the design and construction of public spaces. This is further compounded by a gap in the enforcement of the standards and the monitoring of construction and procurement procedures in government-led construction projects.
From an administrative perspective, the creation of public spaces in Indonesia is often conducted in a top-down manner involving multiple departments i.e., Transportation Agency, Public Works Office, and Environmental Affairs Department. These departments typically execute plans according to the mayor's agenda, and their function is limited to their corresponding ministries at a national level. For example, the Banjarmasin Transportation Agency heeds the vision of the Banjarmasin Mayor in office, but its regulatory jurisdictions are overseen by the Transportation Ministry. Furthermore, public space implementation and management falls under the purview of two overlapping agencies at a city and national level: Public Works oversees the built environment, including streets and main roads, while Transportation regulates activities related to mobility, such as traffic lanes.

The Case in Banjarmasin: A Safe School Zone for Who?
One example of the gap between national commitments and local planning is the regulation overseeing how Indonesia's Safe School Zones, or Zona Selamat Sekolah (ZoSS), are designed and implemented. Indonesian Transportation Ministry regulation stipulates ZoSS should be implemented in schools located near highly trafficked areas with a high risk of accidents to ensure the safety and security of children and pedestrians. An area is categorized as a ZoSS when it is equipped with mandatory tactical traffic management and road safety features such as traffic signs and signalling devices, road markings, and rumble strips. Meanwhile, accessibility facilities for pedestrians, cyclists and persons with disabilities are an optional supplement to the minimum ZoSS regulation.
In the case of Banjarmasin, the Banjarmasin Transportation Agency noted that the planning and implementation process for ZoSS, as in the case of many infrastructure developments in Indonesian cities, is typically done as a formality as it relies solely on the technical specifications detailed in the regulations. With limited resources i.e., time, budget, and knowledge, the design and implementation process of ZoSS is usually conducted in a top-down manner with limited involvement from communities—particularly persons with disabilities, children, and older people. This is further compounded by cross-sectoral coordination challenges, which place a dent in the enforcement and monitoring of universal design standards in ZoSS and other public spaces and result in the poor—in some cases, ineffective and damaging—implementation of accessibility features.

II. Methodology

In collaboration with urban design firm Urban+ Institute the aim of the Safe and Inclusive School Zone pilot project is to address existing traffic problems in inclusive school zones and improve the safety and accessibility by facilitating the meaningful

participation of all key stakeholders, particularly students. In strengthening the agency of citizens, urban spaces can then be co-designed and co-produced according to the collective needs and aspirations of citizens - thus achieving a truly accessible and inclusive public space for all. (Lefebvre, 1968).
The pilot project focused on two inclusive schools: SDN Gadang 2 primary school and SMPN 10 secondary school. The schools were in the Gadang neighbourhood of Banjarmasin, which was notorious for poor road safety and inefficient waste management that has led to mobility challenges for students, persons with disabilities, and older people in the area. Although the schools were in a densely populated neighbourhood, there were no dedicated sidewalks nearby. Moreover, waste spill over on streets exacerbated traffic during rush hours. Inclusive schools are educational institutions in Indonesia that enrol both students with disabilities as well as those without disabilities, with a founding principle that all children should receive the same education and be a part of the same learning environment, regardless of their differences. In SDN Gadang 2 elementary school, 66 students out of 350 total have a form of impairment as of 2019 (60 students with cognitive impairments, 4 students with mobility impairments, 1 student with hearing/speech impairment, and 1 student with cerebral palsy). Between September 2019 to October 2021, the project used a participatory approach and a multi-stakeholder engagement process to conduct observation, several interviews, participatory design workshops, and remote engagement in order to understand each aspiration and point of view, and genuinely make the space inclusive for all.

Observation & Interviews
The project began in September 2019 with site observations of the Gadang neighbourhood. We first observed the general school area during school time to better understand the situations and challenges students may encounter. Preliminary findings included: a lack of dedicated sidewalk and crossroad for safe school access; no parent pick up zone, limiting the safe movement room for students; limited space for teacher parking; and mismanaged garbage in a nearby waste management building, which congested traffic and possibly endangered children. We then presented these findings when interviewing residents, schoolteachers, neighbourhood offices, and city government agencies—including the Departments of Transportation, Environment, and Public Works to compile perspectives on these issues and understand their roles and aspirations.

Participatory Design Workshops
In March 2020, we conducted participatory design workshops with 34 elementary students in SDN Gadang 2 Banjarmasin and 19 junior high school students in SMPN 10 Banjarmasin, in collaboration with Kaki Kota Banjarmasin, and Urban+ Institute. Out of 53 total participants, 21 have cognitive impairment and mobility impairment.
Students are rarely parties to school zone planning discussions despite being key stakeholders, so to address this we conducted participatory workshops involving 40 students — with and without disabilities — across both pilot schools. A total of 40 students with and without special needs in the primary and secondary schools participated. Through journey mapping, role play, co-design and participatory art activities, the workshops aimed to capture students' nuanced challenges, needs and

aspirations. Students highlighted the importance of safety, comfort, and enjoyment of the school environment during the workshops — enriching and validating our preliminary findings pertaining to the safe school zone. We presented these findings to our multi-stakeholder focus group which involved parents, schools, city government representatives, civil society organizations, and community-based organizations around the area of intervention. This process allowed us to confirm national and city regulations pertaining to safe school zones, and to establish cross-sector coordination and integration in government. Our final findings were presented to Banjarmasin's mayor to gain leadership support for establishing a safe school zone by providing a tactical traffic management zone equipped with safe and accessible drop-off, parking, and pick-up areas.

Figure 1. Preliminary observation and interviews were conducted around the school area of SDN Gadang 2 and SMPN 10 Banjarmasin. Source: Authors.

Remote Co-Design

Between August 2020 and March 2021, we reviewed three alternative designs to address the implementation of safe school zones while addressing the challenges (i.e., waste management issues, street vendors, parking areas) and sought the final buy-in from all stakeholders involved prior to construction. The COVID-19 pandemic posed challenges to stakeholder engagement, but remote consultations and engagements with support from local facilitators made it possible to continue the project in a participatory manner. The design of the safe school zone was conducted in consultation with An organization of persons with disabilities (OPDs) — Indonesia's Association of People with Disabilities (PPDI) Banjarmasin and the Indonesian Association of Women with Disabilities (HWDI) Banjarmasin and finalized in collaboration with Urban+ Institute. Our safe school zone implemented accessible design features and universal design

principles in the sidewalk and crossroads including dedicated zoning and sidewalk, curb ramps, guiding blocks, sidewalk edging, clearly legible traffic signs, rumble strips and sheltered space. A redesigned waste management system addresses previous traffic congestion issues, and handwashing facilities encourage hygiene practices amid the pandemic. Finally, a participatory mural showcases inclusive values shared by students and fosters social cohesion.

Figure 2. Elementary students from SDN Gadang 2, Banjarmasin participating in a co-design workshop held by Kota Kita and Urban+ Institute. Source: Authors.

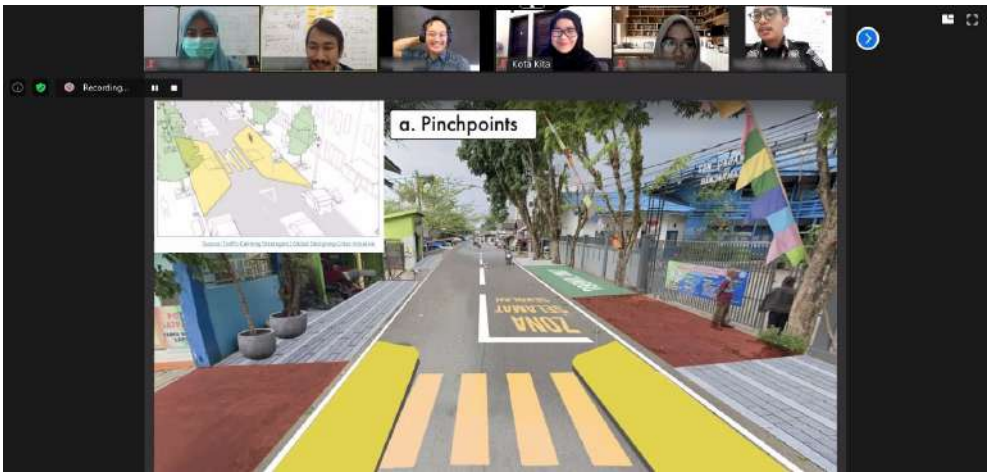

Figure 3. A remote consultation with key stakeholders in Banjarmasin on the safe school zone design. Source: Authors.

III. Results and Reflection

The participatory process was able to address physical barriers to accessibility while addressing urgent needs brought by the COVID-19 pandemic

The participatory design and multi-stakeholder process of the project resulted in the addition and improvements of accessibility features in the space, such as curb ramps, guiding blocks, and signage that comply with the universal design standard. The space also addressed urgent needs — including waste issues near the school creating discomfort for students, and COVID-19 health response.

Table 1. Features of the Safe and Inclusive School Zone in Gadang

No	Feature	Description
1	Curb ramps	To provide a safe and accessible entrance for those with disabilities, particularly when going from the road to the sidewalk, and vice versa.
2	Guiding blocks	For those with visual difficulties navigating the sidewalk, thus creating a safer environment for all pedestrians.
3	Bright colors on dedicated sidewalk	One of the early problems identified in the area was the absence of a dedicated sidewalk. This meant that pedestrians and motorists had to share the same area of the road, and thus prone to accidents. Bright colors were intentionally used in the final design of the sidewalk to mark a clear distinction between areas where pedestrians walk and where vehicles pass.
4	Zebra cross	Three zebra crosses are installed in the area to further improve traffic management and create a safer pedestrian crossing for all
5	Rumble strips	These strips are installed within 50 meter from the schools to alert and slow down drivers when entering the Safe School Zone.
6	Traffic signs	Traffic signs such as speed limit and Safe School Zone signages have been installed within 100 meter from the schools.
7	Dedicated drop-off zone	A dedicated drop-off zone has now been created outside of both schools for parents in motorcycles and bikes to pick-up and drop off their children.
8	Angkot Ceria' Zone:	The 'Angkot Ceria' Zone is a drop-off and pick-up zone for 'Angkot Pelajar Ceria', a free public transport service for students with special needs run by the Banjarmasin City Transportation Agency.
9	Sheltered space	To provide a comfortable and sheltered space for students to wait for their parents during after-school hours, greeneries are planned to be added on the canopy.
10	Participatory mural	A mural where students of SDN Gadang 2 shared their messages through an annual coloring activity, involving around 60 students from all grades. The participatory art project seeks to bring the students from both schools together to showcase a school environment that reflects inclusive values.

Figure 4. The finished Safe and Inclusive School Zone at SDN Gadang 2 and SMPN 10 Banjarmasin in December 2021. Source: Authors.

Empowering aspirations and introducing urban inclusivity concepts among students

The participatory approach provided a safe space for elementary and junior high students from the SDN Gadang 2 and SMPN 10 Banjarmasin to voice their aspirations in decision-making processes where they are typically unheard of otherwise. The use of board games allowed students to participate in a fun and accessible manner—instead of a formal consultative form. Multiple students showed positive responses expressing that they enjoyed the process, and were able to provide specific points of improvement. For

instance, the consideration to address waste management issues and improvements made to the drop-off zone to protect students against speeding and reckless drivers were direct recommendations made by the students. Furthermore, the process exposed students to concepts of urban inclusivity and improved their sensitivities to the issue. An instance where this was observed was when a male junior high school student of SMPN 10 Banjarmasin expressed concern over having murals painted on the street as it may distract younger elementary students, particularly those with cognitive difficulties when crossing the street. The student then suggested having the mural painting on a nearby vacant wall instead—a suggestion that was subsequently implemented in the final design of the school zone.

Quote

"I really like the idea of having the mural painting in the schools, but I'm concerned that if it's painted on the road, the younger students from the SDN Gadang 2, especially those with cognitive difficulties, will be distracted when they cross the street. I wonder if we could move the painting idea from the primary students to the wall. That sounds great, right? It will be safer for us and enjoy the school environment at the same time."
(Male student, SMPN 10 Banjarmasin junior high school)

Promotion of inclusive planning practices and universal design principles
By facilitating a shared learning process among stakeholders, the approach exposed government officials to inclusive planning practices and universal design concepts while strengthening the voice and aspirations of students, as well as disabled people's organizations. Slamet from the PPDI Banjarmasin, who was involved in the process, noted that the project showed an ideal participatory mechanism as disabled people organizations such as PPDI were involved from the start of the planning process to the monitoring to ensure that each feature was designed to suit universal design standards.

Quote

"[City planning] should be like that [participatory]. [The safe and inclusive school zone project] is what we expect people to do when it comes to development, whether it's infrastructure, public facilities, or anything that benefits everyone. It has to involve persons with disabilities themselves, or the disabled people's organizations, because they could assess the safety of the facilities."
(Slamet, Indonesia's Association of People with Disabilities (PPDI), Banjarmasin chapter)

As a pilot project, the process offered by local government officials such as Febpry Ghara Utama from the Banjarmasin City Transportation Agency with practical lessons learned on designing and planning inclusive public spaces. It expanded the understanding of involved government officials in translating a technical regulation for school zones to reach beyond just formalities and into a comprehensive city-wide agenda to provide

more inclusive spaces for all. When construction was completed in September 2021 and the results were shown to Banjarmasin officials, the pilot project became a model that inspired the replication of safe school zones in five additional sites in Banjarmasin. Still, although the pilot project improved knowledge and understanding, issues relating to bureaucratic matters still present a challenge as the process for the five replicated safe school zones was not fully participatory. Budget constraints and strict deadlines for implementation were reported to be the root of the challenge. Furthermore, components such as universal design for sidewalks and other road features are overseen by a different department, which means another layer of coordination must be addressed.

Quote

"By being involved in the safe and inclusive zone in Gadang, we at the Banjarmasin Transportation Agency learned a different way of planning and thinking about inclusivity. We understand that inclusivity means equal access. It means thinking about how we can involve the citizens as much as we can in the process."
(Febpry Ghara Utama, Banjarmasin City Transportation Agency)

IV. Conclusion

Reflecting on our experience, the success of participatory design practices in devising a model for more comprehensive Safe and Inclusive School Zone provides potential for wider inclusive planning adoption, while noting these takeaways:

- Participatory processes address both develop social and physical inclusivity issues: The participatory design process not only led to the construction of a physical Safe and Inclusive School Zone, but it has also facilitated a safe space for students to voice their opinion without judgment, introduced them to the concept of inclusivity and developed their understanding of different individuals' needs. Resultantly, the needs and aspirations of vulnerable groups such as students and person with disabilities were highlighted to the City Government of Banjarmasin, developing understanding of urban inclusivity on a regulatory level as well.
- Strong leadership agenda is vital to advance cross-sectoral collaboration: Public space development and management are governed by a disjointed arrangement created by an overlap between Indonesia's Transportation and Public Works Ministries and a lack of institutional oversight or effective management. (Hutabarat Lo, 2011) This limited governmental coordination creates a challenging environment for inclusive public planning, particularly for Safe and Inclusive School Zone development. Coordinated strategies and strong leadership, and cross-sector collaboration are crucial for the further development of inclusive public spaces.
- Engagement of DPOs must be maintained to monitor the adoption of universal design and inclusive principles: : The Banjarmasin Transportation Agency has developed five additional ZoSS inspired by the Safe and Inclusive School Zones in Gadang. However, bureaucratic and coordination issues hindered local

government from following through with a fully participatory planning process and addressing every accessibility feature. This replication effort demonstrates the city's political will and increased awareness of universal design and inclusive principles are present, but more advocacy is required for truly inclusive spaces. As the design and planning process also determines inclusivity, DPO engagement remains vital throughout the process — from planning to execution — so the adoption of universal design in the inclusive spaces can be properly monitored and assessed by those who use the facilities.

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On the Road Together.
Bridging the gap between the public space and accessibility for people with disabilities in the Dutch Metropole area

Claudia de Laaf
VNG International
claudia.delaaf@vng.nl

Abstract
Internationally, issues around equality and inclusion such as gender, race and religion have been the centre of heated debate. While these issues also still require close attention, it is striking that the theme of inclusion of people with disabilities seems to enjoy a position that is lower on the international agenda. This article advocates for rights of people with disabilities by addressing the theme of accessibility of the public space. The article critically assesses the accessibility of the Dutch Metropole area. It underscores the obstacles and opportunities for people with disabilities to participle in the public space in an equal manner. It analyses a case study called Samen op Pad (On the Road Together), an initiative that uses geographic information systems (GIS) to enhance the independent navigation of people with disabilities through the urban public space. This article evaluates the lack of accessibility in the current design of the urban space and calls for a localized approach for inclusive governance and service delivery for people with disabilities. Additionally, it explores the added value of the case study of integral and interdisciplinary cooperation across local government entities, GIS specialists, and people with lived experience to improve accessibility of the urban area through smart use of data. Lastly, the article calls for international knowledge exchange to increase awareness to join forces to normalize a public space that is user friendly and accessible to all.

Keywords: people with disabilities, inclusion, accessibility, public space, geographic information systems (GIS)

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Introduction

This paper elaborates on the quest to eliminate the "dis" out of disabled by making navigation in the public space more accessible to all. The topic is assessed through a case study of a pilot project that launched in January 2016 as a partnership between municipalities in Zuid-Holland, a coastal province in the Netherlands. Historically, the Netherlands has profiled itself as a tolerant and inclusive society for centuries. Over time, we managed to have major break throughs in terms of normalization of e.g. female rights and LGBTQ+ rights, allowing women to gain ground in the workforce and people to openly be in same sex or queer relationships. Although there still is a world to win in terms of these themes as well, it seems that people with disabilities remain the cuckoo in the nest. Working, travelling and practicing sports are still not naturally accessible to all. Despite the adoption by the Netherlands of the CRPD in 2016, putting obligations in place to promote and protect the rights of all persons with disabilities, progress to transform these obligations into practice is slow.

For people with disabilities, daily reality is filled with obstacles of which many take place in the public space. A person's full and effective participation in society on an equal basis with others is hindered by the way that the urban area is designed. As a consequence, many people stay home out of the fear of not being able to find their way in the public space. By taking away unnecessary obstacles, people can navigate more independently resulting in a fairer interaction in society. These obstacles can often be avoided by making small alterations in the public space and buildings or by an increased insight on the whereabouts of (accessible) utilities in itself. This case study focuses on the latter, yet paves way for the former.

This paper illustrates the added value of the pilot project "Samen op Pad" (On the Road Together) for local authorities and people with disabilities by making its project setup available for the inter(national) level. It maps out the origin of the partnership, it illustrates the added value of bringing in expertise of people with disabilities with policy making, and shares testimonials of policy makers and users alike to inspire and stimulate others to counter the gaps in accessibility of the contemporary public space.

Data driven inclusion

Originating at the yearly congress for geographic information systems for the Rotterdam and The Hague metropole region in 2016 in Zoetermeer, Samen op Pad is not a typical inclusion project. Instead of being born in an environment that overflowed with inclusion policy officers, the cradle of this pilot project is hard science. At the Geocongress, the participants were challenged by their host, former Public Space manager of the municipality of Zoetermeer, Peter de Visser, to "embark upon an idea that sticks". Driven by the central theme of the event – urban development – a large group including data specialists and inclusion officers brainstormed on a variety of societal themes.

The UN Convention on the Rights of Persons with Disabilities has been an important stepping stone for Samen op Pad, with a thematic focus on improving the accessibility of the public space for people with disabilities. The population with lived experience of disability is increasing, as the public as a whole is ageing . People with disabilities, like anyone else, want to maintain the control over their own lives. As the current layout of

the public space often fails to accommodate this control, the freedom of people with disabilities is obstructed.
A first step in order to retrieve control, is an oversight of the accessibility of the public space. This is the essence upon which the idea has been built and carried out. The close inter-municipal cooperation between four municipalities in the metropole area – Capelle aan den IJssel, Rotterdam, The Hague and Zoetermeer – and Esri Nederland, a local intelligence supplier specialized in GIS software was an essential starting point. The project has an informal organizational structure, with representation of one or two people per municipality and one representative on the side of social entrepreneurship by Esri. The project's funding has been mainly invested by (geo)data management departments of the municipalities, supported by the inclusion policy department.. Together, they shape the steering committee of Samen op Pad, but they enjoy support from other municipalities for data gathering as well as they partner up with disability advocacy foundation Voorall.

Figure 1. Lilian Harteveld, A group picture of Samen op Pad's initiators, 2019.

Framing the field

Samen op Pad informs policy makers and inhabitants of the municipalities through a free online user-friendly application which pinpoints useful information for navigation in the Dutch metropole region. The objective is to contribute to an improved accessibility of the public space for people with disabilities through smart (re)use of digital information. The experience of the members of Samen op Pad as well as the evaluation by The Netherlands Association of Municipalities (VNG) indicate that the Netherlands has made progress in the field of accessibility in the last couple of years.[1] However, this progress is slow and the evaluation states that The Netherlands still has a long way to go. This conclusion is underlined by the recent investigation of the Social and Cultural Planning Bureau (Sociaal en Cultureel Planbureau) which states that our country is "far

[1] Ministry of Public Health, Wellbeing, and Sports, *Eindrapportage 2021 Onbeperkt meedoen!,* p. 105.

from accessible".[2] The involved parties in Samen op Pad facilitate and organize clear information and applications. They are gathering freely available data of the municipalities themselves as well as that of third parties that are relevant to the theme of accessibility. Through transparency of the data, users are empowered to move more confidently and independently while navigating the urban environment.
The project team exists of policy makers of the municipalities with knowledge of policy as well as of geographical information systems. Naturally, they operate in close collaboration with people with disabilities which enables an efficient way of targeting accessibility barriers in the public space, together pointing out the missing links encountered on a daily basis. Hence, working together on a solution to bridge barriers. The information tools of Samen op Pad, mainly created from smart reusage of management data on public spaces, opts to increase the quality and accessibility of public facilities while providing better opportunities for persons with disabilities to live independently and navigate the urban environments with greater autonomy. In addition, the innovation also seeks to inspire local governments and other stakeholders to address accessibility in general.

Nothing about us without us

It is rather unusual to come across someone that denies the importance of practices that endorse an accessible public space. Yet, the grand majority of public spaces function almost like an obstacle course for people with disabilities. How can this be?
Many municipalities that start working on a Local Inclusion Agenda are struggling with raising the right questions and prioritization when drafting policies to enhance the accessibility of the public space. An important factor that is often overlooked is the lack of representation of people with disabilities and organizations that advocate for them in the decision-making process of urban development plans. Surprisingly enough, citizen participation of this sort remains to be categorized as a pioneering practice. At Samen op Pad, the co-creation process makes up a core building block. The steering group has incorporated strategies and mechanisms to ensure meaningful participation as a key factor in their plan of action. The motto "Nothing about us without us", which has become the slogan of the global movement to accomplish full equality and opportunity for, by and with people with disabilities. The pilot project also relies heavily on the principle of participation.
As mentioned earlier, the main partner that enables the initiative to involve people with disabilities in various components of the project is the Voorall Foundation of The Hague. The foundation was established in 2006 with support of the municipality of The Hague and the Ministry of Education and Culture to advocate for inhabitants with a disability. Voorall works with and for people with a physical or psychosocial disability, chronic illness or a combination thereof as well as for organizations that advocate for their rights as well as those that don't have this agenda yet but should be involved. The foundation has a large pool of volunteers that include people with a wide range of disabilities, congenital as well as acquired at a later stage in life.
The volunteers are involved in various ways such as:

- testing areas on accessibility level to obtain data

[2] Vermeij and Hamelink, *Accessible? Not by a long shot*, p. 2.

- the production of advisory reports as well as
- advisory positions for strategic decision-making.

Figure 2. Voorall Foundation, An accessibility test of a theatre entrance.

The fact that the foundation's volunteer pool is extremely popular indicates that many people, especially people with disabilities, feel the need to endorse a more accessible public space. Early involvement of people with disabilities in urban development plans are an efficient way to work towards an inclusive city plan. Research from the World Bank indicates that building in line with the inclusive design principle renders a mere one percent increase of costs compared to the current status quo.[3] Strikingly enough, the involvement of people with disabilities within urban development projects is still rather unique and remains a world to win.

Navigating through the public space

Effective implementation and monitoring of the acquired data and adequate accessibility standards across public spaces, takes shape in two freely available tools:

- the Samen op Pad app, and
- the Samen op Pad Hub.

The Samen op Pad app is an online application fit for usage on computers as well as mobile phones through which users with different types of disabilities can find their way through towns and buildings. The app has been developed by the municipality of The Hague in cooperation with the Voorall Foundation. Users can navigate through the application by filtering on their own profile as well as on aspired themes. You can install preferred findings corresponding to your own profile by filtering on characteristics that apply to you, e.g. physical disability, hearing or visual impairment. Additionally, you can

[3] The World Bank, Design for All, p. 5.

filter whether you would like to find results in the categories of leisure, healthcare and wellbeing, municipal information or within the field of education and jobs. The matching results are presented in an online map that indicates accessibility qualities of buildings and facilities surrounding youWhereas the pilot project is currently taking place in The Hague, the application with its corresponding data is freely available and can be used anywhere.

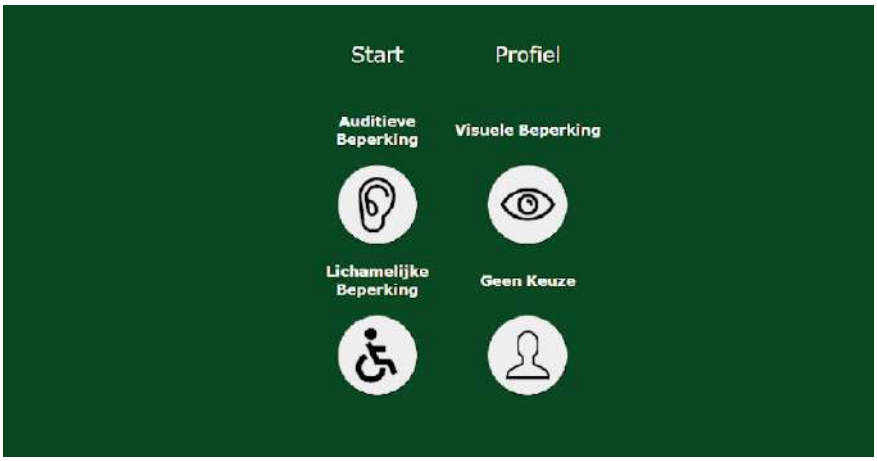

Figure 3. Samen Op Pad, filter options for preferred profile selection, 2022.

The online Hub is a webpage (www.samenoppad.info), currently only available in Dutch, where relevant data and information of various cities are shared through digital maps. To use limited resources as effectively as possible, the webpage is currently focused on four elements: public restrooms, accessible parking spaces, guidelines for blind people, and public playgrounds.

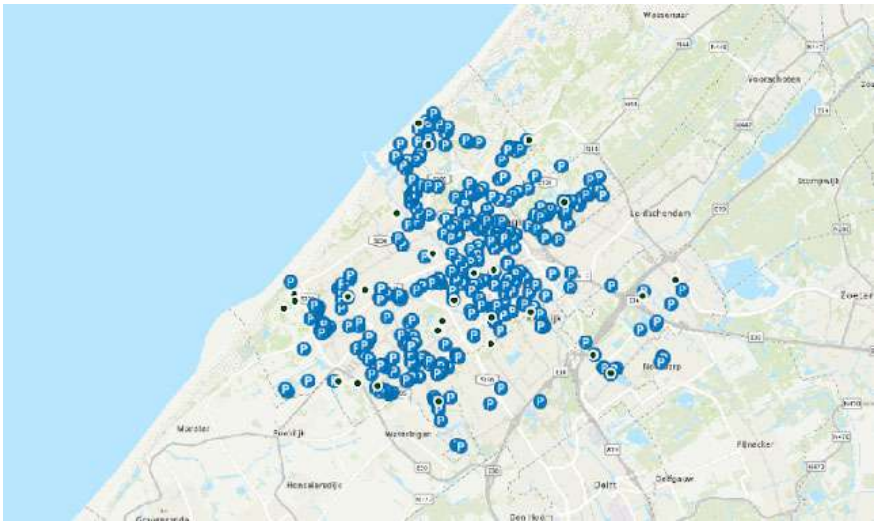

Figure 4. Samen Op Pad, A spatial overview of accessible toilets in the Hagu, 2022.

Most data available in this database derives from the tests executed by Voorall. While the available information is not entirely complete, already 900 locations in the Hague

have been tested and trialed by the volunteer groups. Samen op Pad aspires to expand the themes and data cases in the future, including for instance a filter for older persons, or insight on the available transportation methods. Right now, the application indicates the route from one point to another and available transportation methods, however, there is still a gap on the accessibility of the public transportation on site. After finalizing the pilot in The Hague, the project sets out to map out the entire country with the free data tool, and to cross pollinate the available information across-provinces.

Plant a seed, build a forest

A core strength of this project is the interdisciplinary expertise centred in the initiative. In particular, the participative decision-making process with close involvement of people with lived experience. In order to bring all this knowledge together, an online hub was created. Whereas the data-driven approach and origin forms a core strength of Samen op Pad, it is simultaneously part of its Achilles heel. As the initiative originates from a shared ambition of individuals from various parties that happened to meet at the Geocongress rather than from an already existing municipal priority on the agenda, it remains difficult for the involved partners to anchor the project in their organizations. Subsequently, the initiative lives on without a solid program budget to fall back on.
In sum, the initiative is actually carried by a group of people that are ideologically connected. Out of personal conviction, own time and effort they invested into a theme that should be the new norm. Nevertheless, despite the multitude of challenges faced by the project, small steps are taken to achieve major changes. Within the limited capacity, the group has sparked the attention of colleagues with the integral collaboration across departments. As a slow chain reaction, the initiative is being noticed and supported by municipalities outside of the Metropole area more and more, as well as receiving increased acknowledgement of local (inter)departmental peers.
Parallel to the specific goals sought after by Samen op Pad, the seed is planted for the broader goal to integrate accessibility in the public space in all municipal plans. The steering committee has noticed that the topic of accessibility for people with disabilities is increasingly accounted for by colleagues across departments in local programs, budgets and policies related to public spaces in the urban area. Step by step, the way to accessibility as the standard for infrastructural projects is improved.

One step at a time: local to national to global

The team is aware that the current capacity only allows one step at a time. Moreover, Covid-19 measures have had major impact on the ability to do test-runs on location with the volunteer groups. Nevertheless, the ambition is very ambitious.
First, they want to map out the current state of affairs within the municipalities of the core groups on the focus topics through the pilot that has been kicked off. Once this data is available and clearly communicable, the next step will be taken towards adjustments of the physical public space. In this manner, little by little, it will become easier to pinpoint the bottlenecks of urban development in terms of accessibility and to tackle them.
Parallel to the pilot, lobby and advocacy for the theme is needed to maintain the topic on the agenda, locally as well as globally. To maintain societal relevance, the project has tweaked its goals and objectives in 2021 for the upcoming period. How to provide

continuity and improvement for the future usage of the information tools? How to gain more awareness on the availability of the initiative, getting as many organizations and municipalities on board to increase the impact of the project, and eventually extinguish the necessity of the Samen op Pad tools for the future in the coming three years?
The plan of action that was drafted for the period of 2021-2024, is now under implementation. In the spring of 2022, the app has been launched in the Hague. This version 1.0 is still under construction. National promotion for the app and the hub is planned for fall 2022.
The hub is under shared maintenance of the partner municipalities and a data lab of the local College "De Haagse Hogeschool". In September 2022, students will be invited to work on the hub. A connection has already been made with the city Deal on public space within the developmental team "data-driven steering". This team will provide a presentation on accessibility as a focus when working on integral area development with special attention for the digital support thereof using GIS. This momentum will be used to seek affiliation of the Netherlands Association of Municipalities (VNG).

Call to action

It is important to give small and young initiatives such as Samen op Pad the right stage, and the space to grow. VNG International encourages local governments and local government associations alike to stimulate the elevation of the theme of accessibility of the public space on policy agendas. Increased awareness will stimulate the support of initiatives such as Samen op Pad on their way to go the extra mile, and for its roots to grow in municipal frameworks. This is a call to action to local governments and local governments associations to learn from the valuable lessons that are shown by these case studies and initiatives alike. And to support them in any way possible and to share their knowledge with the world to strive together towards a new norm of inclusive urban development. Towards a more socially and physically sustainable society in which everyone can participate.

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The Right to Play: Snakes and Ladders. A case study

Nadia Odlum
University of Sydney, Australia
nadia.odlum@gmail.com

Morwenna Collett
Independent, Australia
morwennacollett@gmail.com

Abstract
This case study will present learnings from the public art project Snakes and Ladders, a 50-metre ground plane mural in Sydney Olympic Park, in Sydney's western suburbs. This was a collaboration between Digby Webster, an artist with Down syndrome, and Nadia Odlum, an artist without disability who specialises in playful, large-scale public art. Snakes and Ladders was commissioned by the Sydney Olympic Park Authority (SOPA) as a result of a community consultation and co-design process, and was supported by Accessible Arts, the peak body for advancing the rights of New South Wales artists who have disability and/or who are d/Deaf. The result was a public artwork that functions as an inclusive playspace, supporting the right to play for all people who visit or live in Sydney Olympic Park.
The key achievements of this project were the meaningful inclusion of an artist with disability in a significant public art project, and the creation of an accessible and inclusive opportunity for play in public space. This case study focuses on process, including the community consultation and co-design process that led to the commission; the role of peak body Accessible Arts in facilitating and guiding the commission; the methods used to ensure accessibility in the artwork design; and the collaborative process between Digby and Nadia, including the steps taken to support Digby's access requirements and ensure his full participation in the commission from concept to delivery.

Keywords: public art, play, collaboration, inclusion, accessibility

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Introduction

In March 2021, a 50-metre ground plane mural was installed in Station Square in Sydney Olympic Park, in Sydney's western suburbs. Taking the form of a giant snakes and ladders board, the artwork turned this public space into a site of interactive play for locals and visitors.

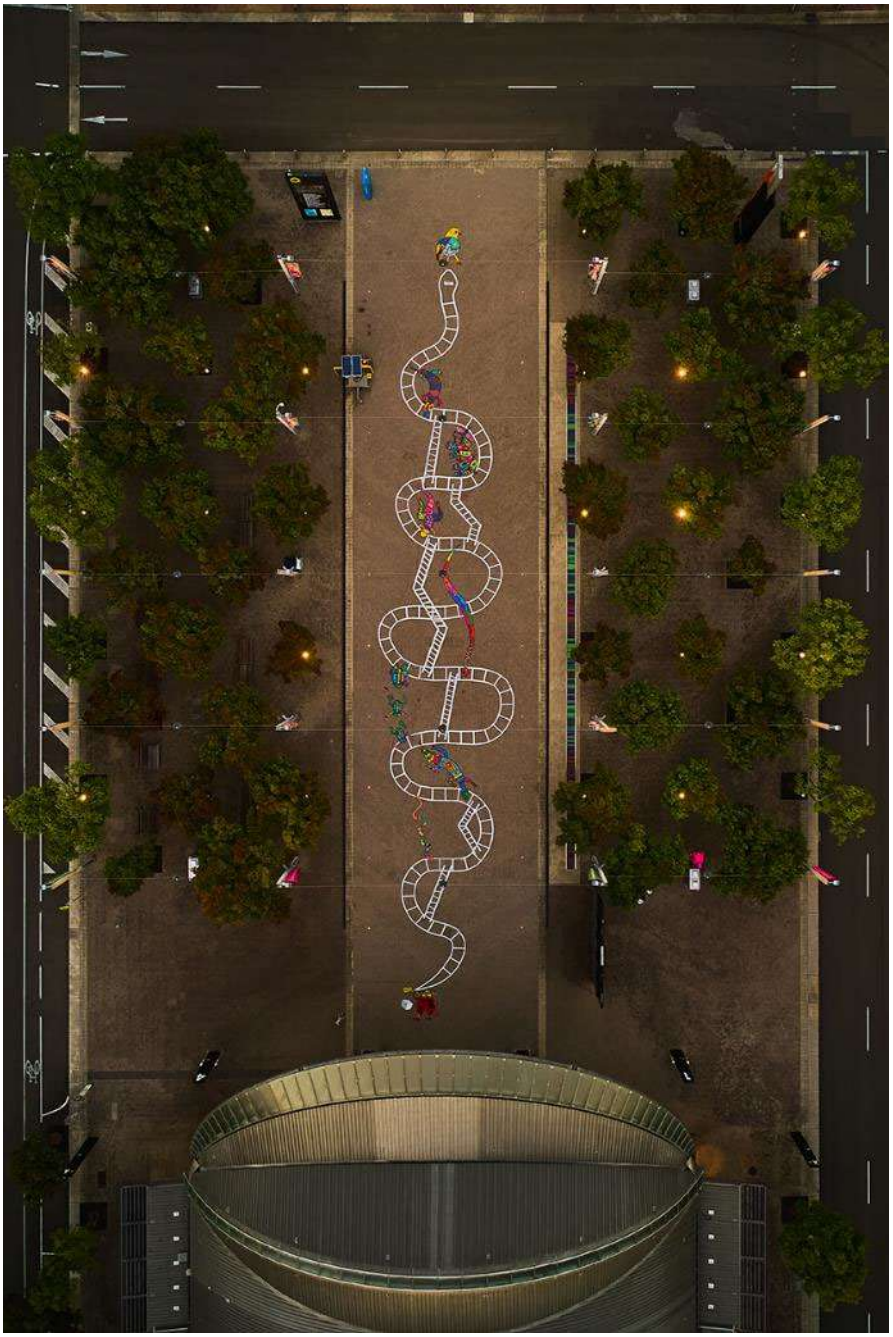

Figure 1. *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum. Synthetic polymer paint on pavement, 5,000 x 800 cm, Station Square, Sydney Olympic Park, Sydney, Australia. Commissioned by the Sydney Olympic Park Authority. Image credit: Alex Kess
Alt text: An aerial view of a mural painted on the ground. The mural is a giant snakes and ladders board.

The project was a collaboration between Digby Webster, an artist with Down syndrome whose style is characterised by exuberant colour, and Nadia Odlum, an artist without disability who specialises in playful public art. It was commissioned by the Sydney Olympic Park Authority (SOPA), as a result of a community consultation and co-design process, and was supported by Accessible Arts, the peak body for advancing the rights of New South Wales artists who have disability and/or who are d/Deaf. The result was a public artwork that promotes inclusive play and community connection. This case study will reflect on the process and learnings behind this joyful project.

Figure 2. Artists Digby Webster and Nadia Odlum. Image credit: Alex Kess.
Alt text: Two artists stand back-to-back, with big smiles on their faces. Behind them is a large mural painted on the ground.

The artwork

The large-scale interactive mural *Snakes and Ladders* draws inspiration from the classic board game of the same name. Painted in white paint on the paved ground, the "game board" is an outline of a snake. The snake's body is segmented into game spaces, which are linked in places by crooked ladders and brightly coloured animals. The ladders were painted by Nadia Odlum, in bold black, white and grey. Many contain playful three-dimensional illusions. The creatures were designed by Digby, and painted by him, Nadia and a team of helpers. They incorporate Digby's distinctive style of brightly coloured patterns, with bold black outlines. Describing the artwork, Digby says:

> "I'm happy I drew animals based on my own artworks. It's not like snakes in all; we've got lady beetle, frogs, lizards, eels, blue tongue, bird. I really like Nadia's curving lines. It's really cool and quirky." (Webster, 2021b)

The artwork is reflective of the surrounding area of Sydney Olympic Park. Located on the traditional lands of the Wangal people, this Western Sydney suburb contains a unique

mixture of large-scale architecture, most notably in the form of the Olympic stadium, and parks and wetlands rich in biodiversity (Paul, 2020). In the *Snakes and Ladders* artwork, Nadia designed the segmented curves of the snake to echo the stadium and station architecture. Digby painted the native creatures after exploring and being inspired by the nearby wetlands. Digby says: "…I'm listening to the sound of wildlife animals, and water animals. And I thought, 'Let's make these animals from the water and sounds come to life.' It's easy to do. Paint, draw and voila!" (Webster, 2021b).

Figure 3. Details of *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum.
Image credit: Document Photography.
Alt text: Four photos showing details of the *Snakes and Ladders* artwork. Colourful creatures and white ladders are painted on brown pavers.

Large project signage near the artwork contains instructions on how to play the game, information about the artists and a QR code. By scanning this code visitors can access a custom online "Digby Dice". Featuring colourful dice drawings by Digby, this interactive digital dice will roll when tapped, allowing for Covid-safe play.[1] The website also contains an audio description of the artwork, read by Digby, and a "making-of" video about the artwork that contains Auslan interpretation.[2]

Collaboration and co-design

Snakes and Ladders is an example of a collaboration between an artist with disability, a queer female artist without disability, an urban governing body and a peak advisory body. The approach used throughout the project has many of the hallmarks of "community design", the foundation of which is the belief that "people should have the right to participate directly in shaping and managing the places they live in" (Zamenopoulos, Alexiou, 2018, p. 16). The project emerged from a process of community consultation and co-design, which sought to collaboratively build solutions for improving public space. In the project's execution, the purposeful engagement of marginalised and disadvantaged groups demonstrates strong principles of inclusivity. The collaborative approach developed by the artists supported equality, equity and access for both parties, enabling an exciting melding of creative expertise.

This artwork was the first collaboration between Digby Webster and Nadia Odlum. The two artists were drawn together by the Sydney Olympic Park Authority (SOPA). Established following the 2000 Sydney Olympics, SOPA is the government authority responsible for the management of public spaces within Sydney Olympic Park (SOPA, 2021a). While the park is best known for its sporting facilities, parklands and economic centre, it is becoming increasingly residential, with a population projected to surge by 480 per cent in the next 10 years (Street Furniture Australia, 2020, p. 3). Particularly in the post-Covid context, SOPA recognised the increasing need for quality experiences of public space for locals: "Place activation is now a 'must-have' and not just a 'nice to have' for a thriving local economy in a post-Covid world." (Street Furniture Australia, 2020, p. 7)

In 2020, SOPA undertook a period of community consultation and co-design titled Homify, an invented word that expressed a desire to create "a sense of home in our everyday public spaces" (SOPA, 2021b). The process was led by Street Furniture Australia, who deployed a "human-centred methodology" to develop placemaking strategies that would improve the experience of the public realm (Street Furniture Australia, 2020, p. 11). The methodology was supported by a discovery phase that gathered quantitative and qualitative data from those who live, work, play or do business in the park. A key finding of Homify was the need to add "colour, vibrancy and experiences" to the public spaces within the precinct (SOPA, 2021b).

[1] https://www.sydneyolympicpark.com.au/Snakes-and-Ladders
[2] https://www.sydneyolympicpark.com.au/Things-to-Do/arts-and-culture/snakes-and-ladders-public-art

Figure 4. *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum. Synthetic polymer paint on pavement, 5,000 x 800 cm, Station Square, Sydney Olympic Park, Sydney, Australia.
Image credit: Alex Kess.
Alt text: Aerial view of the artwork *Snakes and Ladders*, and the surrounding suburb of Sydney Olympic Park. The artwork is in a large paved space outside a train station building with an arched roof.

Station Square was identified as a potential site for a public artwork. This large, open, paved space outside the Olympic Park train station provides a movement corridor for the crowds of people who attend sports games in the stadium, or the annual Royal Easter Show. However, at other times the space can feel vast and uninviting, as feedback from residents in the Homify report identified: "I feel 'small' when there aren't crowds of people surrounding me. Designed for large events, but what about going for a stroll?" (Street Furniture Australia, 2020, p. 16)

The decision to seek out an artist with disability for the Station Square public art commission was guided by SOPA's Disability Inclusion Action Plan (DIAP). Implemented in 2018, this plan was developed after extensive consultation and engagement with the disability and inclusion sectors. This took the form of multiple meetings and workshops with industry specialists and key stakeholders across the main areas of the park's business, as well as widely circulated surveys. These activities were overseen by the park's then Access Advisory Committee, a body comprising members from across the sector with lived experience of disability (SOPA, 2019). The DIAP provided firm guidance for implementing responses to the Homify project, as it outlined a commitment to access and inclusion in all activities undertaken at the park (Nesbitt, 2022).

Figure 5. Artist Digby Webster on the project site.
Alt text: Digby is wearing a white smock covered in colourful paint, crouching amidst colourful dragonflies painted on the ground. He is pretending to fly like a dragonfly.

While SOPA has strong links with disability in the sporting sector, they had less experience working directly with artists with disability, making collaboration with Accessible Arts essential. As a peak body, Accessible Arts works with many organisations (such as SOPA) to help them become more inclusive and accessible in own their practices. Liz Martin, CEO of Accessible Arts explained:
"The arts is one of the most important aspects of our culture and humanity, strengthening our community socially, emotionally and economically. And yet there remains stark under-representation of the one in five Australians with disability, and there are undeniable barriers within the professional sphere. Artists with disability are paid, on average, 42 per cent less than their non-disabled counterparts. Everything we do is about levelling up that professional playing field." (Martin, 2022)
Accessible Arts recommended Digby Webster to Mantej Singh, the manager of Community Engagement and Social Outcomes at SOPA, who was overseeing the commission. Mantej was already familiar with the work of Nadia Odlum via her public art projects throughout Western Sydney. He identified her as a potential collaborator to work with Digby on delivering the project. Accessible Arts continued to provide advice and access support throughout the project's delivery.

Figure 6. Detail of *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum.
Image credit: Document Photography
Alt text: A blue-tongued lizard painted on the ground, joining two spaces in the *Snakes and Ladders* game. The lizard is poking out a long blue tongue with a yellow stripe.

Digby and Nadia approached the collaboration as equals and partners from the outset. The artists met for multiple site visits, exploring Station Square and the surrounding Sydney Olympic Park precinct and wetlands for inspiration. Through discussions about their artistic interests, and buoyed by a mutually playful attitude, the pair decided upon the direction of creating an artwork that was interactive. When brainstorming ideas of popular games, it was Digby who first suggested snakes and ladders. This immediately stood out as a good way to combine their different styles, and to divide up the artistic responsibilities. Nadia took care of the game board and ladders, while Digby created drawings of the creatures in his home studio, which were then scaled up and painted on the project site.

Figure 7. An example of how Digby's original drawings were scaled up and translated into the *Snakes and Ladders* mural.
Alt text: A series of three images. The first image shows a frog drawn by Digby, in oil pastel on paper. The second image shows the outlines of the frogs sketched on pavers. The final image shows three finished frogs painted on the pavers. The final design and colours are similar to Digby's original drawing.

Throughout the project, Digby was assisted by one of his "art mentors", Rosell Flatley. Rosell worked with Digby in the studio and on the project site, guiding him through the many tasks required to complete this large-scale artwork. He was also supported by his parents David and Jen, and once painting commenced, a large collection of friends and volunteers turned up to lend a brush. Digby refers to this network of people, who are all invested in supporting his art career, as "Team Digby" (Webster, 2022). The scale of the artwork certainly necessitated many helping hands, as did the difficulty of working out in the searing Sydney sun. Digby says: "I remember, on the day that we first painted, I remember that day was like the middle of the desert. Very hottest day!" (Webster, 2022) When reflecting on the value of collaboration, Digby's mother Jen commented: "All that, all the people who came and helped… that's inclusion already. And that's the way you do inclusion, because you've got a thing to do together." (Moxham, 2022) SOPA and the artists worked dynamically to establish reasonable accommodations to support Digby's access requirements. An example of this was increasing the budget to include a fee for Rosell, to support her involvement in the project. Another was the expansion of the time allowed to paint the mural, from an initially proposed 5-day window to a period of 15 days. This allowed the team to work flexibly in accordance with weather, health and the availability of assistants. In addition, while the artists maintained an equal division of responsibility in the creative side of the project, Nadia took on a more active role in the project administration. Supported by her experience in public art, Nadia handled correspondence and paperwork regarding logistics, risk management, marketing and budgets. In these instances, Nadia's role in the co-design process resembled the "enabler" or "facilitator", defined by Zamenopoulos and Alexiou as a professional whose expertise is deployed to support the engagement of others in the co-design process (Zamenopoulos and Alexiou, 2018, p. 26). This division of labour allowed Digby to focus on his area of expertise – the creation of an engaging artwork.

Inclusive Play

In conceiving this large interactive artwork, Digby and Nadia were determined to create an inclusive space where all people could play together. In his seminal text "The Right to the City", French philosopher Henri Lefebvre highlighted play as an essential part of the social oeuvre of the city (Lefebvre, 1968, p. 129). In a recent article about play-based public artworks in Australia and New Zealand, artist David Cross identifies that the social isolation resulting from the Covid-19 pandemic has only intensified the need to provide opportunities for play within public space:

> "No longer is there the sense that outdoor play and recreation is something to be taken for granted, instead, it is widely understood as a gift, as a profound release from confinement and isolation." (Cross, 2021)

Figure 8. Installation of *Snakes and Ladders*. Jen, Laura, Digby and Rosell are busy painting.
Alt text: Four people are painting the mural on the ground. They are working with paint trays and rollers, and many colours.

For children living in high-density urban environments, play goes beyond being merely a means for social encounter. Play is a core part of development for young people – as well as aiding in developing motor skills and physical fitness, children use play to acquire an understanding of the way the world operates, and as such it is key to their social and epistemic development (Krysiak, 2020). When designing opportunities for play within the urban environment, it is essential that the needs and rights of people with disability are considered from the outset. Article 30 of the United Nations Convention on the

Rights of Persons with Disabilities outlines the right to full participation in cultural life, recreation, leisure and sport. In particular, it states that parties must take measures "to ensure that children with disabilities have equal access with other children to participation in play, recreation and leisure…" (UN General Assembly, 2017)
The International Play Association identifies that in order to enable all children to enjoy their right to play, it is essential to "remove disabling barriers and promote accessibility" in the space that play occurs (International Play Association, 2015). Similarly, in a new set of guidelines from the NSW Department of Planning and Environment titled "Everyone Can Play", designers of inclusive playspaces are encouraged to answer three questions: "Can I get there? Can I play? Can I stay?" (NSW Department of Planning and Environment, 2021) This highlights that inclusivity in playspaces goes beyond physical accessibility. The whole of the play experience, and the environment it occurs in, must be considered. This is in line with the commitment outlined in the New Urban Agenda, and in Goal 11 of the Sustainable Development Goals, to create safe, inclusive public spaces that support access for all (United Nations, 2017, p. 13, and United Nations, 2016).

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Figure 9. *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum. Synthetic polymer paint on pavement, 5,000 x 800 cm, Station Square, Sydney Olympic Park, Sydney, Australia.
Image credit: Document Photography.
Alt text: A detail of the *Snakes and Ladders* mural, painted on the ground. A child is walking along a painting of a ladder with crooked rungs.

Accessibility considerations

The ground work for the success of the *Snakes and Ladders* artwork as an inclusive playspace was laid in the pre-existing attention to universal design in the surrounding urban environment. As the site for the 2000 Olympic and Paralympic games, access and inclusion was fundamental to the design of the public spaces of Sydney Olympic Park, including Station Square where *Snakes and Ladders* is located (SOPA, 2021c). The site is adjacent to accessible public transport and parking facilities. At the entrance to the station there are accessible bathrooms. Drinking fountains and nearby cafes provide water and refreshment (McClleland, 2010). Alongside the *Snakes and Ladders* artwork are benches set under trees, which provide a shaded spot for accompanying people to observe the game being played. These factors combine to allow children and caregivers to safely and comfortably stay at the site and to play in the artwork. This is an essential aspect in creating inclusive playscapes, for as the International Play Association identifies: "Disabled children have the same right as other children to sufficient time and space to play freely, in the ways they choose, without being unduly overprotected" (International Play Association, 2015).

Figure 10. *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum. Synthetic polymer paint on pavement, 5,000 x 800 cm, Station Square, Sydney Olympic Park, Sydney, Australia.
Image credit: Document Photography.
Alt text: The *Snakes and Ladders* artwork meandering into the distance through Station Square. In the background is the Sydney Olympic Park train station.

Accessibility was also addressed in the project through the signage and interpretation. The large signage around the artwork adhered to best-practice design standards for inclusion, including font size and colour contrast (W3C, 2018). To increase access to the artwork for people who are Blind or have low vision, the artists worked with Accessible Arts to commission an audio description of the artwork. A recording of this was read by Digby, and was accessible by QR code on the project site and online. It describes the materiality and imagery of the artwork, how the artwork can be played with, and locates the artwork with reference to physical and geographical features of the surrounding site (SOPA, 2021d).

Inclusion was at the forefront of the artists' minds when selecting a game to base the artwork on. Snakes and ladders is a classic board game that is well known in many cultures, and across generations. The instructions are simple to explain, and success is based entirely upon luck, making it a level playing field and an engaging game for everyone. Digby says: "I am very proud, for everyone who's out there playing with that game. In their mind they are saying, 'Oh, I grew up with this game.'" (Webster, 2022)

Figure 11. *Snakes and Ladders*, 2021, by Digby Webster and Nadia Odlum. Synthetic polymer paint on pavement, 5,000 x 800 cm, Station Square, Sydney Olympic Park, Sydney, Australia.
Image credit: Document Photography.
Alt text: Two adults and two children are playing on the *Snakes and Ladders* artwork. A colourful snake stretches across the middle of the artwork.

The type of play that the artwork encourages is open and varied. While some visitors engaged with the artwork by playing the game according to the official rules (rolling a dice, taking turns, etc.), many people interacted in ways that were spontaneous,

exuberant and creative. In a short documentary video made about the artwork, people can be seen hopping on the squares, dancing on the backs of creatures, or riding bikes along the curves (*Snakes and Ladders*, 2021). The shape and layout of the artwork is also designed to support physical access for all users. The width of the path is 100 centimetres, and the curves of the board are large and sweeping. This allows for easier navigation by wheelchair users or visitors with restricted mobility (SAI Global, 2015, p. 9). The artwork also supports intergenerational engagement. As Digby puts it, the artwork is "a big playful thing for little kids and also for grown-ups too, like mum and dad, or, yeah, uncle or auntie, or whoever you come with. They can jump on the game and play, really just go for it." (Webster, 2021a)

Project outcomes

Snakes and Ladders has had multiple measurable positive outcomes. "Team Digby" has since gone on to complete another large-scale mural, drawing on practical experience built through the *Snakes and Ladders* project. Nadia has gained a great deal of confidence and experience in collaborating with an artist with disability, and has learnt much about ways to improve accessibility in the arts sector in general. This has already resulted in a large shift in the way she is approaching future public art projects. The relationship between SOPA and Accessible Arts is ongoing. A recent event the two organisations partnered on was "Abilities Alive", an outdoor concert showcasing 12 musicians with lived experience of disability to celebrate the International Day of Persons with Disabilities. Tony Nesbitt, manager of Events and Activation for SOPA, commented: "…this certainly marked a shift in how we celebrate this key day in the park's calendar. Usually, we would play to our strong links with disability in the sporting sector; this time, and on the back of what had been achieved with *Snakes and Ladders*, we thought it timely to work once more with Accessible Arts to focus on musical performance..." (Nesbitt, 2022)

Accessible Arts believes that projects like *Snakes and Ladders* can have a broader impact on improving access and inclusion for people with disability in the arts, and in public spaces. "Representation is key. Seeing works created by talented artists with disability or who are d/Deaf and immersing yourself within these spaces has lasting impacts. The more we see how possible it really is for barriers to be removed, the more we can identify areas where we can achieve real and progressive change and work together towards enhancing access and inclusion." (Martin, 2022)

During its time in Station Square, the *Snakes and Ladders* work has been seen and/or directly engaged with by approximately 500,000 people.[3] It has been the subject of ministerial media releases, drone aerial photography, a short film and consistent positive feedback through social media. The project will also feature in the upcoming "NSW Public Art Toolkit" to be released by Create NSW in 2022. The work stands as a strong example of inclusion of an artist with disability in the design and creation of an inclusive playspace. The artists, SOPA and Accessible Arts hope that it will provide inspiration for similar initiatives in Australia and abroad.

[3] Figure provided by Tony Nesbitt. Based on estimations of foot traffic through the *Snakes and Ladders* site during Royal Easter Show and other events. Nesbitt, 2022

A final word from Digby. When asked what advice he would give to artists or organisations who are working with people with disability, Digby answered: "Well, for me, I think with people with disabilities, just include them, and make sure they are following footsteps of their own. Make sure what kind of activities *they* need to do. If they want to do art, they can do art. Or whatever you do, like art, theatre, film, or whatever. Just go for gold." (Webster, 2022)

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All images courtesy of Nadia Odlum, Digby Webster and credited photographers.
To learn more about Digby Webster, visit: https://digbywebster.com/

Figure 12. Artists Digby Webster and Nadia Odlum. Image credit: Alex Kess
Alt text: Two artists are crouched at the end of the *Snakes and Ladders* artwork. The word 'finish' is painted on the ground. The artists have big smiles on their faces.

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Persons with Psychosocial Disabilities in Public Spaces: Welcomed or Shunned?

Elizabeth Nyabiage Ombati
Users and Survivors of Psychiatry, Kenya
lizombati@hotmail.com

Abstract
This Viewpoint discusses the role of inclusive and accessible public spaces in enabling enjoyment of human rights by persons with psychosocial disabilities. It acknowledges that in accessing public spaces, accessibility requirements for people with psychosocial disabilities often go unnoticed and are rarely taken into account while those of persons with more visible disabilities are often considered.
The Viewpoint bases its propositions on the lived experiences of the author, and uses this foundation to discuss critical issues on how persons with psychosocial disabilities access (or do not) public spaces. Issues addressed include stigma, violence and human rights abuses as they face persons with psychosocial disabilities in public spaces; reflections on urban designs and whether this is done with the broader perspective of supporting inclusion of all persons with disabilities; accessibility as a key concept running throughout the paper; as well as the views on participation of persons with disabilities and industry in making public spaces accessible and inclusive of marginalized populations. A key theme that is also considered is how important attitude changes are necessary in ensuring persons with disabilities are accessing public spaces, and also thoughts around the roles of patience, kindness and empathy.
The propositions in the Viewpoint are based on human rights and development frameworks including the Convention on the Rights of Persons with Disabilities; The 2030 Agenda for Sustainable Development; the New Urban Agenda (2016), as well as the Sendai Framework for Disaster Risk Reduction (2016). Finally, the Viewpoint offers proposals on the way forward; proposing for example that governments at all levels, in particular local and regional governments, together with organisations of persons with disabilities must build the staff capacity of infrastructure service providers and urban practitioners in understanding the different accessibility requirements for all types of impairments when reflecting on inclusive urban designs.

Keywords: persons with psychosocial disabilities, human rights, Convention on the Rights of Persons with Disabilities (CRPD), inclusion, independent living, accessibility, mental health and wellbeing

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Introduction

In a lot of discourse, persons with psychosocial disabilities are seen as a public nuisance. There is a common African Proverb that says that *"every market place has its own mad man"*. There are places in the world where 'Mad Pride' is spoken about[1]. Toronto Mad pride for example states that Mad Pride is an arts, culture, and heritage festival created by psychiatric survivors, consumers, mad people, and folks the world has labelled "mentally ill". Among others, Mad Pride is about: challenging discrimination; advocating for rights; affirming mad identities and developing and empowering mad communities.[2] Mad Pride is written of, from a Western context[3][4].

The traditional African setting does not speak to Mad Pride. As the proverb earlier mentioned, 'mad' is looked at from a condescending perspective. A mad person in the African setting may be looked at as someone who is bewitched. A mad person is not even seen as a person. Constitutions have referenced people of 'unsound mind' to include those with psychosocial disabilities. In this setting, no one can derive any pride from being mad. Because your rights are deprived (you may be locked up both at the home front or in a mental institution); you may not vote (as the law says that one may be a voter if they are not declared to be of unsound mind); you may not marry as per some provisions in the law. Yet still, the laws may change but what remains very pivotal to change, is the attitudes of society towards 'mad people.'

In this paper, I do not use the term mad person. For I respect that this is a term that still carries with it much stigma and isolation in my society. This paper uses the term 'people with psychosocial disabilities[5], acknowledging that persons with mental impairments are facing huge barriers in our communities which is preventing them from being fully included in communities, including how they access public spaces. The paper is guided by both the social model of disability[6] as well as the human rights model. The former notes that disability arises when persons with impairments interact with barriers in their communities which hinders their participation on an equal basis as others. The human rights model of disability that has evolved out of the social model, recognises social and environmental constraints and redefines disability as a human rights issue. Persons with disabilities have a right to full participation in society and a right to equal access to resources because, it is argued, this is the right of all human beings (Degener, 2016, pp. 31-49).

Everyone has rights to the city. To experience its cultures and innovations. Its histories and rich diversities. The question however that lingers is, is everyone actually accessing the city?[7] And if some groups within society are not accessing such public spaces, what does this mean for the enjoyment of their human rights?

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[1] http://www.torontomadpride.com/what-is-mp/
[2] ibid
[3] https://www.nytimes.com/2008/05/11/fashion/11madpride.html
[4] https://www.researchgate.net/publication/234097358_Mad_Pride_Reflections_on_Sociopolitical_Identity_and_Mental_Diversity_in_the_Context_of_Culturally_Competent_Psychiatric_Care
[5] Reference the 'identity' section of this paper.
[6] This model describes disability as resulting "from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others".
[7] https://elizabethombati.wordpress.com/2020/02/12/right-to-the-city-how-inclusive-and-accessible-is-nairobi/

As we consider the critical role of inclusive and accessible public spaces in enabling enjoyment of human rights by all persons with disabilities; improving quality of life and access to services, ensuring independent living and mobility including during emergencies and building back better after disasters, conflicts, or pandemics; what do all these mean for people with psychosocial disabilities?

1. Finding calm in the chaos: the places I avoid

The city, as a public space, can be overwhelming for some people who experience mental distress. In the early days of navigating my own experiences with mental distress, I would experience overwhelming anxiety in public spaces. Looking back, I remember how for example I found it extremely distressing to walk by a traffic jam. There was an overwhelming feeling that everyone in their cars was watching my steps. That they were judging my movements and my appearance and this often resulted in my having panic attacks which made my experiences out of home quite apprehensive.

There are many places I avoided visiting during these years. I avoided shopping malls that had open, unbroken designs that made me feel as though everyone was watching me. I hated all the moments I felt dazed and confused in such public spaces; needing a safe space to calm my nerves down. Such spaces not immediately available to me. Out of my own interactions with peers with psychosocial disabilities; at one point a peer in distress, apprehensive about being followed, crossed the city highway while in a daze and for a moment it was possible to imagine how easy it would have been for him to be knocked down by speeding vehicles. Another peer who experienced a crisis in a public place, had police officers called to calm him down, which only aggravated the situation. What would I have envisioned to be safe, accessible for these peers, who were experiencing a crisis in a public space? Or of the many others, faceless, who have been arrested in their moments of vulnerability? Maybe a populace that would have been kind enough to empathise. Kind enough to find an extra cloth to cover the woman who suddenly undressed in public (and not arrest her); availability of social workers in the urban space, well versed with de-escalating someone in a crisis, and help to calm them down (and not call the police on them); and a population, kind enough not to take videos of the man who suddenly goes into a crisis and starts undressing in public (and not share the videos on social media to mock someone going through a crisis in a public space).

Indeed, considering these experiences and reflecting on the CRPD General Comment 1 on equal recognition before the law (2014); it is necessary to reflect on choices and the possibilities there can be when public spaces are accessible. Whereas inaccessible services may constitute barriers to the realization of legal capacity for some persons with disabilities, the identification and elimination of such barriers to facilities or services open or provided to the public is imperative. Among others, this is critical in offering possibilities of choice and for persons with psychosocial disabilities to have control over their everyday lives, on an equal basis with others.

2. Addressing stigma, violence and human rights in public spaces

An exploratory study of the interaction between the criminal justice system and persons with intellectual and psychosocial disabilities in Kenya (2021) found out that

persons with intellectual and psychosocial disabilities are often at increased risk of arrest and detention under petty offences due to the biases in law enforcement practices. For example, they noted that behaviours such as taking clothes off due to tactile sensitivity may be interpreted as indecent exposure. The report gives data of persons with psychosocial and/or intellectual disabilities who had been detained irregularly in the country's national mental health hospital and never brought before the court. A person had been detained for 2265 days with the reason for police arrest being given as defilement (undressed at the market place); while another had been detained for 1031 days for the same reason of undressing.

It goes without saying that persons with psychosocial disabilities face violence and human rights abuses in public spaces. Arrests[8] have been made where persons with psychosocial disabilities are separated from their communities and incarcerated in inhumane prison facilities with the guise of cleaning the city streets. Women with psychosocial disabilities, who are homeless and residing in public spaces such as cities have faced sexual abuses in the streets[9]. Media images have depicted persons with psychosocial disabilities as 'beggars', 'dirty people,' 'people needing care and charity', 'people disturbing the peace,' 'people that need to be got rid of from streets' [10] [11] [12].

The media has however not, in the same breadth, highlighted all the barriers that people with psychosocial disabilities face to actually be in the predicament they find themselves in: begging, homeless; dirty and unkempt. The media has not put the same focus to find out why public services, like public health are unavailable to persons with psychosocial disabilities; the barriers they face to access work and employment; the barriers they face to receive support within their communities etc. indeed, persons with disabilities have historically been denied their personal and individual choice and control across all areas of their lives. Many have been presumed to be unable to live independently in their self-chosen communities. In many countries, support is unavailable or tied to particular living arrangements and community infrastructure is not universally designed. Resources are invested in institutions instead of in developing possibilities for persons with disabilities, particularly persons with psychosocial and intellectual disabilities, to live independently in the community. This has led to abandonment, dependence on family, institutionalization, isolation and segregation (CRPD General Comment 5, 2017).

It therefore is prudent that a media which shows one face of inequality as it faces persons with psychosocial disabilities, must also put focus on what society should do to eliminate those barriers. Attitudes are a key item that has to be looked into, in efforts to raise awareness, combat stereotypes, ableism and misconceptions and ensure that such public spaces do not become a source of stigmatisation and insecurity for the person with a psychosocial disability. Additionally, States parties, according to General

[8] https://www.standardmedia.co.ke/crazy-world/article/2000089604/each-market-has-a-mad-man-but-luanda-has-one-too-many

[9] Among others, the Committee on the Rights of Persons with Disabilities has expressed concern about the prevalence of multiple discrimination and of intersectional discrimination against women with disabilities; (…) the persistence of violence against women and girls with disabilities, including sexual violence and abuse…(CRPD Gen Comment 3 (2016) on women and girls with disabilities.

[10] ibid

[11] https://nation.africa/kenya/news/provincial/women-sweep-mombasa-streets-of-the-mentally-ill--768466?view=htmlamp

[12] https://www.standardmedia.co.ke/business/work-life/article/2001267849/ex-social-worker-who-cleans-the-mentally-ill

comment (2018) on equality and non-discrimination; must ensure that public authorities and institutions act in conformity with the Convention; that existing laws, regulations, customs and practices that constitute discrimination against persons with disabilities are modified or abolished; and that the protection and promotion of the rights of persons with disabilities is taken into account in all policies and programmes.

3. Reflections on urban designs and the inclusion of persons with psychosocial disabilities

A sense of safety and security is integral to people's mental health and wellbeing[13]. Persons with psychosocial disabilities therefore must be afforded an environment where they feel a sense of safety to explore. A space that is unthreatening. A space that is free of stigma. A space that is designed with an inclusive mindset and with empathy at its heart. A space that celebrates enjoyment of all rights, including the right to live independently and be included in the community.

1 in 4

Research conducted in the U.S before the Covid-19 pandemic has shown that one in four persons will experience mental distress (either in a long or short term) in their life.[14] Emergencies like the COVID-19 pandemic, natural disaster or conflicts have a major impact on people's mental health.[15] A survey conducted by the World Blind Union (WBU) shows that 1 in 10 people who is blind or partially sighted reported experiencing high levels of mental health difficulties on a daily basis during the pandemic.[16]

In appreciating how design positively or negatively impacts the lives of persons with disabilities, as an industry there is a need to innovate so as to ensure that billions of people do not feel isolation and are not left behind. This means thinking more holistically and innovatively about inclusive and accessible infrastructure for people with diverse impairments. This also means that accessibility must be looked at wholesomely to involve both its 'hard' aspects such as technical knowledge and physical designs, as well as its 'soft' aspects which would be inclusive of attitude changes, empathy and kindness to people in public spaces.

Accessibility: a right and precondition to inclusion

The CRPD, in its articles 9 on accessibility, and 19 on living independently and being included in the community, states that accessibility is a right and a precondition for all persons with disabilities to live independently and participate fully and equally in society. The principle of accessibility underlies all articles of the CRPD to safeguard and promote the rights of all persons with disabilities, including in situation of emergencies[17].

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[13] https://www.urbandesignmentalhealth.com/how-urban-design-can-impact-mental-health.html
[14] 1in4 campaign http://1in4.info/.
[15] WHO https://www.who.int/health-topics/mental-health#tab=tab_1
[16] WBU Covid-19 report https://worldblindunion.org/covid-19-amplifying-voices-our-lives-our-say/
[17] It covers all articles but is essential to ensure living independently and being included in the community (Article 19), to access health (Article 24), education (Article 25), work and employment, an adequate standard of living and social protection (Article 28), participation in political and public life (Article 29), and participation in cultural life, recreation, leisure and sport (Article 30).

Accessibility to the built environment, transport, information, communication, public spaces, facilities and services are also considered as integral components of inclusive urban development,[18] disaster resilience and building back better strategies[19] in line with the core commitment of the Agenda 2030 for Sustainable Development Goals with the promise to leave no one behind.

Despite many countries having ratified the CRPD, the level of implementation of accessibility laws remains low and persons with disabilities are often denied their basic rights. Accessibility requirements for people with psychosocial disabilities often go unnoticed and are rarely taken into account in accessibility standards while those of persons with more visible disabilities are more often considered. As reflected in the CRPD Committee General comment 2 (2014) on accessibility, the strict application of universal design is critical to ensure full, equal and unrestricted access for all, including persons with disabilities, in a way that takes full account of their inherent dignity and diversity.

Designing for mental health and wellbeing

There is already clear evidence of the ways in which urban design can help promote good mental health.[20] This includes design strategies that promote green places, active places, pro-social places and safe places[21]. For instance, accessible green public spaces, such as parks, playgrounds, pedestrian and cycling amenities and residential greenery designed for all ages and abilities can promote mental and physical health by providing psychological relaxation and stress alleviation, stimulating social cohesion, supporting physical activity, and reducing exposure to air pollutants, noise and excessive heat (Al Jubeh, Dard and Zayed, 2020, p. 88).

When we consider accessible cities and public spaces for persons with disabilities, and in particular for persons with psychosocial disabilities, some of the design requirements may include[22], but not limited to: good information, signage and landmarks; uncluttered spaces with break out areas; wide usable routes, clear and defined circulation paths, thoughtful lighting and simple building layouts that can help to achieve a sense of safety in the built environment including during emergencies, evacuation and planning of temporary settlements. Such universal designed features protect people from physical harm and prevent barriers that cause anxiety, stress, and psychological harm.

As reflected in the CRPD general comment 2 on accessibility, one of the accessibility goals is for people to enjoy seamless access to and connections between any services or spaces in the city, regardless of all the components that make up a journey: from barrier-free streets, to entering accessible low-floor vehicles, accessing information and communication, and entering or moving inside universally designed buildings, using technical aids and live assistance where necessary. Public spaces are an indispensable link to this unrestricted chain of movement where persons with disabilities can move safely from one space to another with no barriers. Provisions for privacy, security, and

[18] https://habitat3.org/the-new-urban-agenda
[19] https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030
[20] https://www.urbandesignmentalhealth.com/
[21] https://www.urbandesignmentalhealth.com/uploads/1/1/4/0/1140302/urban_design_and_mental_health_policy_brief.pdf
[22] Bridge CRPD-SDGs training initiative reference notes.

safety should be equally available to all users. These considerations are key to enable independent living and full participation of persons with psychosocial disabilities. There also must be sensitized and trained staff available, for example if we are talking about entrance to buildings, or even public transport; or the availability of people within city spaces who would respectfully respond to someone going through a crisis; or someone who has lost their direction. The CRPD Committee in its general comment on accessibility indeed notes that persons with psychosocial disabilities face barriers when attempting to access services due to prejudices and a lack of adequate training of the staff providing those services. This therefore could be extended to mean such services as may be available within cities, towns and communities and their public spaces.

Designing with persons with disabilities

This means working with the persons themselves; recalling Nothing About Us without Us, which relies on the principle of meaningful participation as elaborated in the CRPD general comment 7 (2018) on the participation of persons with disabilities, including children with disabilities, through their representative organizations, in the implementation and monitoring of the Convention.

At the infrastructure design level, there needs to be an engagement that is based on a framework of inclusive policies and programs that support non-discrimination and social inclusion[23]. Steinfield and Maisel (2012, p. 184) state that this engagement whose purpose is to ensure inclusive infrastructure design must be between a wide range of users including persons with disabilities and their representative organisations, designers and the industry. Understanding why and how people with disabilities are excluded gives actionable steps to take towards inclusive design. For the design process to be inclusive, people with disabilities and their representative organisations must have a seat at the same table with designers, urban planners and decision makers so that their voices are heard and their needs are addressed; as well that their expertise and experiences are accounted for; in the early stages of design and planning. Such co-creation processes and design participation strategies, as reflected in the CRPD General Comment 7, will support the full and effective participation of persons with disabilities in the society on an equal basis with others in line with the CRPD.

Governments at all levels, in particular local and regional governments, together with organisation of persons with disabilities must build the staff capacity of infrastructure service providers and urban practitioners in understanding the different accessibility requirements for all types of impairment groups; respecting intersecting identities and diversity of persons with disabilities and also exercising patience, kindness and empathy. This will go a long way to build inclusive societies. An inclusive city means that no one of us is left behind, excluded or isolated. Good design practice for public spaces benefits not just persons with psychosocial disabilities but all of society. In a world where stress levels are rising each day, we all must work together in ensuring good infrastructural designs which support and celebrate human diversity, social inclusion and equality.

[23] UCLG Policy Paper on Inclusive and Accessible Cities (2019)

Important note about terminology/identity

The World Network of Users and Survivors of Psychiatry (WNUSP) in an Implementation Manual for the United Nations Convention on the Rights of Persons with Disabilities (2008), note that during the negotiations in the drafting of the CRPD, the term psychosocial disability was not yet then understood in most countries of the world. According to this Manual, *'the word psychosocial refers to the interaction between psychological and social/cultural components of our disability. The psychological component refers to ways of thinking and processing our experiences and our perception of the world around us. The social/cultural component refers to societal and cultural limits for behaviour that interact with those psychological differences/madness as well as the stigma that the society attaches to labelling us as disabled.*
Consequently, WNUSP agreed to use the more generally understood terminology of mental impairment in the text of the CRPD. Persons with mental impairments are then said to include: users and survivors of psychiatry who experience or have experienced madness and/or mental health problems and/or are using or surviving, or have used or survived psychiatry/mental health services, as well as those who are perceived by others as having a mental disability/impairment.
The CRPD, in its preamble, states that persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.
Over the years the CRPD Committee, the authoritative body interpreting the CRPD, has used the preferred term psychosocial disabilities. The committee understands persons with "mental health conditions" to be persons with disabilities entitled to the guarantees of the Convention.
This guidance therefore is the context that the article uses in exploring how accessible and inclusive public spaces are for persons with psychosocial disabilities.

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Disability Inclusion and Accessibility in Zimbabwe. Sharing Views and Experiences of Blind and Partially Sighted Persons Living in the City of Bulawayo

Edwin Ndhlovu (visually impaired)
Nyunyutai Mudzingwa (blind woman)
Zimbabwe Association of Visually Handicapped, Zimbabwe
eddiendhlovu83@gmail.com | mudzingwaphyllis@gmail.com

Abstract
The viewpoint explores challenges and opportunities for Persons with Disabilities (PWDs) in accessing public institutions in line with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) in Zimbabwe. The study is based on the social model of disability, reinforced by the human rights perspective, which seek to meaningfully address issues bedevilling PWDs in their quest to be accorded the rightful place in the society, particularly in their access to public spaces. It further explains attitudinal, environmental and institutional barriers. Qualitative research method was used, coupled with a few key informant interviews. The target population for this study were first and foremost PWDs. The study also targeted councillors, urban planners as well as administrators. Two subcategories of visually and physically impaired persons were carefully selected. The study findings indicated that attitudes and inadequate knowledge on disability by some community members and duty bearers also contribute to exclusion of Persons with Disabilities in public spaces. The study also found out that there are unfriendly facilities available. Additionally, the negative attitudes of stakeholders and administrative complications have deprived Persons with Disabilities from obtaining the benefits of available entitlements. Inadequate legislation, policy and lack of political will have also been established to be some of the factors leading to the side-lining of PWDs. The research recommends for creation of specific services in public spaces to support the needs of this group, integration of new technologies, and the domestication of the UNCRPD as well as the implementation of the disability policy, including best practices in disability inclusion, Specific policies should be supported by the allocation of funds and rigorous monitoring.

Keywords: disability, accessibility, Zimbabwe, blind and partially sighted persons, Bulawayo

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Introduction

It is undisputable that Persons with disabilities, in their diverse constituency groups, are among the historically most marginalised groups. The recognition of barriers encountered by persons with disabilities has led to the development of international, regional and national instruments to promote and protect their human rights. Persons with disabilities in Zimbabwe remain in the periphery of the development trajectory due to difficulties in accessing public spaces, goods and services owing to attitudinal, environmental and institutional barriers. Overall lack of accessibility considerably limits participation on an equal basis with others, making it more difficult to advocate for inclusion and effectively influence change at policy and legislation levels. As such, this paper seeks to share reflections on the accessibility of public spaces in our context from the outset of the Convention on the Rights of Persons with Disabilities and in light of the 2030 Agenda, New Urban Agenda (NUA), The Sendai framework on Disaster Risk Reduction and Management, and the policy context of Zimbabwe. The international lens helps to understand gaps that currently exist in national and local legislation and policy frameworks, including bylaws for the city of Bulawayo in Zimbabwe. The viewpoint further builds upon our experience carrying out advocacy work as members of the Zimbabwe association of the visually handicapped (ZAVH) an organisation working to champion the rights of blind and partially sighted persons across the country. We believe that sharing our experiences as Persons with Disabilities as we continue to struggle in accessing public spaces and essential services will help to illustrate the negative impact of gaps in legislative and policy provisions on our lives, particularly during the COVID-19 health crisis.

1. Global legal and normative framework on accessibility for persons with Disabilities: CRPD as a core reference

The CRPD is at the centre of the international normative framework for the advancement of the rights and socio-economic development of persons with disabilities. The CRPD recognises accessibility as a pre-condition for inclusion that enables persons with disabilities to live independently and participate fully in all aspects of life. The Convention has a standalone "Article 9" on Accessibility. It emphasises obligations for state parties to take appropriate measures to ensure that all people with disabilities have access to the physical environment around them, to transportation, to information such as reading material, to communication technology and systems on an equal basis with others. This includes facilities and services open or provided to the public, both in urban and in rural areas (CRPD, 2006).

Article 2 of the CRPD defines universal design which is critical to make communities accessible to all populations, not just persons with disabilities. Universal design means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design, including assistive technologies for all persons with disabilities. Adopting universal design approach and strategies in all investments right from the start would help in ensuring that accessibility is comprehensively provided for all and implemented in a sustainable way including via adequate legislation and standards (CRPD General Comment 2). Accessibility is also provided for in other international human rights instruments. Article 25 (c) of the International Covenant on Civil and Political Rights

enshrines the right of every citizen to have access, on general terms of equality, to public service in his or her country. The International Convention on the Elimination of All Forms of Racial Discrimination on Article. 5 guarantees everyone the right of access to any place or service intended for use by the general public. This firmly affirms accessibility as a critical issue provided for in international human rights law. However, while legislation, standards and guidelines at both international, national and local levels have been developed, the implementation is still lagging behind. Much remains to be done to ensure physical or digital environments including the design of public spaces facilities and services are accessible to all persons with disabilities.

Taking stock of the National Policy Environment

The 2013 constitution of Zimbabwe is progressive when it comes to disability issues, however it still has gaps that must be addressed. Disability inclusion in every aspect of society is provided for in section 22, which highlights that the state shall consider the specific requirements of persons with all forms of disability as one of the priorities in all development plans. This is due to the fact that disability issues are a shared responsibility across various government departments and cannot be adequately addressed by a single government ministry (Mandipa, 2013). The new Constitution thus mandates all governmental ministries and departments to recognise the rights of persons with disabilities and to ensure the promotion, protection and fulfilment of such rights. Conversely, the mandate does not extend to private players, hence failing to comprehensively tackle the inclusion discourse. The rights of persons with disabilities are enshrined in section 83 where persons with disabilities are accorded rights. However, promotion, protection and fulfilment of these rights are subject to availability of resources. As such, addressing challenges associated to the issue of accessibility can be complicated owing to the fact that the state may always use the caveat to justify its reluctance to deal with the issue under discussion.

The constitution provides that the state must take appropriate measures to ensure that public buildings and amenities are accessible to persons with disabilities in section 24., However, measures to be taken are conspicuously not pronounced in the said constitutional provision. The same challenge can be found in the Disabled Persons Act of 1992 where it is noted that new public buildings should be built in an accessible manner while those that do not cater for accessibility needs of persons with disabilities should be renovated. Nonetheless, this only apply to public buildings, leaving private building owners doing as they please in violation of the accessibility needs and rights of persons with disabilities. As a result, persons with disabilities are left without any legal basis to challenge those who violate their accessibility needs and rights. It should also be noted that the provision in the disabled persons act only points to the barriers on the physical or built environment, leaving other aspects of accessibility out. This is a cause for concern, since accessibility issues cut across both the built and the non-physical environment. The Act does not provide a clear-cut criteria or strategies on how it would promote, protect and safeguard the rights of persons with disabilities, including the right to accessibility. Worse still, the Act does not provide strategies for ensuring conformity and compliance by stakeholders (Choruma, 2007) buttresses this by emphasising that the there are no clear measures for enforcement of this Act. She further highlights that, the Act is very general, making it difficult for people with disabilities to know how and where to access services. Most institutions are free to

disregard the provisions of this Act, while other policies and Acts are notably silent on accessibility issues for Persons with Disabilities. While it is acknowledged that the Act provides a guiding vision on how to fully accommodate people with disabilities in all facets of life, in practice there are shortfalls in how these aspirations are implemented, resulting in violations of the rights of people with disabilities. There is a need to ensure implementation of the legal provisions and policies in place rather than for them to remain mere tools.

Zimbabwe also has the National disability policy (2021) that also clearly provides for accessibility as enshrined in the CRPD. However, the policy has been criticised as it is a non-binding strategy without any support from existing laws. A national Disability Rights Bill was developed in 2019, which is also progressive in terms of accessibility, but owing to the lack of political will, this has not yet been adopted into binding legislation. Zimbabwe also signed and ratified the CRPD in 2013 but has not domesticated the convention as required by the dualistic law of the country.

Local governments legal instruments in Zimbabwe that govern the planning, design and implementation of urban facilities and services also make positive provisions for persons with disabilities. Urban Councils Act (2008) and the Rural District Councils Act (13 of 2002) provide for self-representation for persons with disabilities however these laws do not clearly promote and protect the right for persons with disabilities to access infrastructure and services on an equal basis with others.

From a legal and policy perspective, Zimbabwe has taken significant steps in implementing the provisions in the CRPD. However, Mtetwa (2011) argues that limitations still exist such as lack of political will to implement the legal provisions, to allocate resources and to establish legally binding provisions in laws that oblige governments at all levels to guarantee accessibility for persons with disabilities. This is illustrated by formulation of the National Disability Policy of 2021 and the bill of rights enshrined in Section 83 of the 2013 Zimbabwean Constitution. Operationalisation of the constitutional provision remain a pipeline dream for persons with disabilities in Zimbabwe. The recently launched disability policy is also not supported by any legally binding piece of legislation, hence making it difficult to rely upon. There are also unclear mechanisms and for its implementation and the Government has not availed budgetary support towards the full realisation of its aspirations.

City by-laws, Standards and Guidelines governing Accessibility of Public Spaces in Zimbabwe

The Department of Physical Planning (DPP), is the technical arm of the government that is responsible for managing the built environment planning system and provision of technical advice for the implementation of the development planning systems (Toriro, 2007). The department provides oversight on the country's local authorities, whose operations must be guided or be in line with the provisions of the Regional, Town and Country Planning Act (RTCPA) (Chapter 29:12) and related legislation. The department also carries out technical evaluation of plans (master plans, local plans and layout plans) originating from local planning authorities to aid the Minister in making decisions on the plans. This gives control to the central government to approve or reject such local plans that would have been proposed. However, the law does not explicitly provide for the minister's intervention in case of violations of accessibility standards and guidelines. Furthermore, the department provides technical assistance relating to the planning of preparation structures for the planning system – that is provided for in the Provincial

Councils and Administration Act of 1984, which directs the management of urban public transport, and carries out surveys and pegging of State land. Physical planning embraces aspects of environmental planning, building codes and balancing between land-uses to avoid incompatibility and conflict in land-use.

The Ministry of Local Government and Housing published the Model Building Bylaws in Zimbabwe in 1977, in accordance with the Urban Councils Act chapter 214 section 183 and section 83A of the Rural Councils Act. They cover issues relating to structural design and other critical aspects of the built environment (Musandu-Nyamayaro, 1993). In essence, these bylaws are central in defining accessibility aspects entailed in the construction of buildings including alteration, subdivision, conversion, reconstruction or building extension. The existing model building bylaws have been criticised as rigid, outdated, and inhibitive to the smooth implementation of infrastructure development works in local authority areas. The model building bylaws are not responsive to physical and climatic conditions, and do not cater for the needs and requirements of the end users particularly those with disabilities (Toriro, 2007).

It should be noted also that some of the country's cities and towns still have the relic of the colonial bylaws which restrict movement of people in public spaces. For instance, the bylaws on the so-called vagabonds which restrict presence and movement of those who leave or work on the streets. Such laws epitomise the repressive laws and policies which infringes on the rights of the general public who might not have homes or relatives whom they may seek accommodation from. This is typical of which some of Persons with disabilities in cities like Bulawayo find themselves in changing patterns of employment leading to urban migration have resulted in the breakdown of the extended family system, living persons with disabilities homeless (Peters and Chimedza, 2000). These changes have seen a considerable number of persons with disabilities in many cities such as Bulawayo and yet failing to have access to friendly mobility and transport services. Due to diminishing family support and the general family disintegration, as well as the breakdown of social fabric, people with disabilities have been locked in houses and placed in institutions, and are generally seen as burdensome (Peters and Chimedza, 2000). Such state of affairs has considerably disempowered persons with disabilities by restricting their mobility and independence, hence compromising their accessibility rights.

2. Transport and mobility: experience of persons with disabilities in accessing public spaces in Bulawayo

Limitations on the movements of Persons with disabilities also mean increased restrictions on our social lives. As highlighted on (CRPD article 19) and further elaborated on (CRPD general comment 5), as Persons with disabilities, we must be allowed to assert control over the way we want to live by creating empowering forms of support such as personal assistance and requesting that community facilities be in line with universal design principles. COVID-19 restrictions coupled with other limitations, have also impacted negatively on our free movement as blind and partially sighted persons. The study conducted by Mlambo and Ndhlovu (2021) found out that *"Some of the World Health Organisation regulations on COVID-19 are not friendly to the blind and partially sighted persons, for example, wearing of masks inhibit use of some sensory activities that are crucial for visually impaired persons in their mobility and independent living."* Personal

mobility promotes independence, which translates to individual autonomy as accentuated by the CRPD.

Barriers to accessing public transport

Zimbabwe transport system is not safe and accessible to people with disabilities in order for them to independently and adequately have access to services such as employment, education and healthcare (The Chronicle, May 17 2017). This also confirms the findings of the World Blind Union (WBU) COVID-19 survey results that noted inaccessible public transport as a significant barrier limiting the full enjoyment of human rights by persons with disabilities during the health crisis. With the advent of COVID-19 and the resultant restrictions, access to transport has become a big challenge for Persons with disabilities. Banning of the private transport operators has made it difficult for easy access to transport by Persons with disabilities. In Zimbabwe, including Bulawayo, the Government has only allowed the Zimbabwe United Passenger Company (ZUPCO), a parastatal, to be the sole transport operator. As such, no other private players are allowed to provide transport services to the public. The few available buses run by the government under the Zimbabwe United Passenger Company have no capacity to meet the demand of travellers. As persons with disabilities, we are then caught in the commotion when trying to board these few buses. In the process we get injured or harassed. In most cases, it is difficult to compete with the non-disabled owing to various barriers presented by such scramble for transport. Further to this, we are then forced to wait for considerable hours in queues, causing us to lose productive time. Under the prevailing circumstances, the city of Bulawayo has no mandate to operate or regulate transport service providers.

In addition, lack of disposable income for a number of persons with disabilities limits their access to public transport. Access to these buses is at the discretion of the conductors and drivers of the said buses. However, this presents challenges for us in that access to public services should not be a prerogative of an individual's decision. This has to be a policy issue that should be evidently put in black and white. Access to transport must also be considered as a right which must be promoted and protected by the duty bearers.

Safety for pedestrians with disabilities

With the exponentially rising socio-economic challenges in Zimbabwe, many roads in the country now pose a great risk for Persons with disabilities, particularly those who are blind or partially sighted. It is now dangerous for us as people who are blind or partially sighted to move around independently. We also struggle to move around independently as most roads around Bulawayo have potholes, which make it dangerous to navigate. As blind and partially sighted persons, we are scared to use those roads with potholes fearing being knocked down by the motorists as we walk on the roadsides. In some instances, there are open holes on the middle of the pavements which also worsens our plight as it becomes difficult for us to navigate around freely. It is therefore, important to realise that our freedom of movement becomes greatly affected. Such situations would mean that as blind and partially sighted persons we should always have someone to assist us in mobility. However, this violates the freedom and independence of an individual who is blind or partially sighted. This is in sync with the findings of Coleridge (1993) who cited that it is unfortunate as people with

disabilities are perceived as incapable of making independent decisions and managing their own lives. They are looked at as people who always need assistance and someone should always be there for them. Consistent with Mandipa's (2013) findings, it is imperative to realise that environmental accessibility addresses the challenges faced by people with disabilities in moving around and living independent lives in society. This may hinder the participation of people with disabilities in public life, including their employment. In keeping with UNESCO (2021), in is crucial to facilitate data collection for enhanced participation of persons with disabilities, particularly this assist in checking the level of accessibility to various services and spaces. As such, it is imperative to promote increased data collection to advance accessibility rights of persons with disabilities. Disaggregated data functions as a tool to promote, protect and fulfil accessibility rights and needs of persons with disabilities. It also plays a role of exposing the existing gaps in accessing services and spaces for persons with disabilities.

The local authority in the city of Bulawayo has failed to appropriately manage informal trading leading to uncontrolled competition for public spaces thereby limiting accessibility for us as blind and partially sighted persons as we try to navigate around the city. Even with the existence of the city bylaws such as the (Bulawayo City Council (Hawkers, Vendors, Flea Markets, Food Carts and Stall/ Table Holders) by-laws, 2017), where the local authority is given responsibility to manage and control the conduct and location of informal trading. Numbers of people that sell their goods and products on the streets overwhelms the city authorities of the Bulawayo City Council. As a result, we struggle to access public spaces and essential services due to the barriers brought about by chaos from poorly managed informal trading. It will be critical that the city authorities consult us as blind and partially sighted persons when it comes to matters of informal trading as such issues also affect us directly.

Additionally, a considerable number of blind or partially sighted people have no access to assistive devices and technologies, including white canes. This put us at greater risk of vulnerability in that most of them are unable to purchase these indispensable devices due to poverty which according to Choruma (2007) is both a cause and consequence of disability in that having an impairment exposes one to a variety of disabling conditions. This further exacerbates the situation for the Blind and partially sighted persons in Bulawayo. Access to white canes by persons who are blind or partially sighted is a necessity and facilitate their mobility and independence that are fundamental indicators of inclusion in line with the UNCRPD which promote improved access to goods and services on an equal basis with others in the society. In most cases, those who have access to such devices would have obtained them from well-wishers or as donations.

Furthermore, in Bulawayo, most of the built environment is inaccessible thereby posing barriers to access to courts, health facilities and other essential services for persons with disabilities. For instance, buildings like magistrate courts, police stations health institutions, among other essential public places, in Bulawayo have limited accessibility features to facilitate easy access for different groups of persons with disabilities. This means that we have to rely mostly on other people to access public institutions and essential services thereby compromising our independence. This is in keeping with the findings of the survey which found out that In Zimbabwe, although most new buildings have ramps with rails, in many cases the recommended gradient of the ramps is not adhered to (Choruma 2007, p. 6). The study further found out that buildings may also lack signs to indicate where the disabled person's entrance, elevators or toilets are

located. Even in the presence of the signs, those are not friendly for the blind or partially sighted persons since they are usually inscribed in the format not accessible for this group of people. UNICEF (2013) survey established that if conducive environment is created and accessibility is enhanced, persons with disabilities can lead independent lives and significantly contribute to the development agenda.

Over-reliance on other people for assistance sometimes presents other challenges such as that This also give rise to the issues of sexual harassment of girls and women with disabilities as people providing support sometimes take advantage of such situations. Article 6 of the CRPD clearly provides for the rights of women and girls with disabilities that are violated in such instances. The plight of women and girls with disabilities is worsened by the complexity of intersecting and multiple discriminations as they try to access public spaces and services. as indicated in (general comment 3) of "*the committee on the rights of persons with disabilities*", on the rights of women and girls with disabilities, women and girls with disabilities encounter both Multiple and intersecting discrimination. Women and girls with disabilities encounter "*multiple discrimination*" as they experience different forms of discrimination that are compounded or aggravated by different factors as highlighted above. When linked to societal attitudes which translate to stigma. This may naturally lead to marginalisation of women with disabilities in public spaces and necessary investments are not made towards improving safety.

3. Recommendations and way forward to address accessibility gaps

The foregoing discussion indicated that attitudes and inadequate knowledge on disability by some community members and duty bearers contribute to exclusion of Persons with Disabilities in public spaces. It was also recognized that there are unfriendly facilities which largely contribute to the marginalisation of Persons with disabilities, in the process hampering their access to essential goods and services. Additionally, the negative attitudes of stake-holders and administrative complications have dispossessed Persons with Disabilities from obtaining the benefits of available entitlements. Inadequate legislation, policy and lack of political will have also been established to be some of the factors leading to the side-lining of Persons with disabilities.

As indicated in this paper, transportation and mobility barriers remain the biggest challenge hampering access to other critical spaces, services and goods. The noted challenges illustrate how poor urban planning can have serious negative impacts on lives of blind and partially sighted people. Moreover, the situation shared in the paper have given particular insights on gender inequalities, as well as the vital role that urban infrastructure has on people's wellbeing, safety and access to essential services. Learning from our experience, we hope that these recommendations can help inform consultations with critical stakeholders such as local authorities, government ministries and other institutions working at a local or national level. Below are recommendations for organisations of persons with disabilities to contribute towards addressing inaccessibility issues in similar contexts:

- Identify and collectively engage with decision-makers, urban planners, and urban practitioners/stakeholders to raise awareness on accessibility practices and barriers faced;
- Identify and engage in existing mechanisms for public consultations on urban development and planning at local levels, including for transportation & infrastructure, public spaces, street design, health facilities and public buildings;
- Join forces across the disability rights movement and in umbrella organisations to advocate for the adoption of national disability policies and legislation, including on accessibility, in line with the CRPD;
- Advocate for the adoption of national and local accessibility standards and guidelines covering access to public spaces, goods and services, including on taking a Universal Design approach;
- Sustain and upscale initiatives to build knowledge and peer-learning amongst disability rights activities, including on accessibility, CRPD, New Urban Agenda, 2030 Agenda and other relevant frameworks and guidance to underpin advocacy for more inclusive and accessible cities.

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