

Chapter 12

Urban architecture for well-being: a design canvas for inclusive green cities

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Abstract

Landscape and urban planners, designers, as well as architects, can take up inclusive planning and design processes that acknowledge human needs and dignity, and foster participation in shared decision-making. Underpinning these processes are values of empathy, placation, accessibility, and identity essential to imagining and creating inclusive green cities. This chapter provides a deeper understanding of the different dimensions of an inclusive green city and how social equity is an integral part of any design effort. We begin by exploring our vision and the values necessary for green urban design. A framework for three aspects of equity – recognitional equity, procedural equity, and distributional equity – is presented with selected case studies that serve as evolving good practices for equitable green urban design. From this framework and resulting values, we built on a value-inclusive design canvas and present design principles that planners, designers and architects can adopt as their own.

Keywords: inclusion, equity, greening cities, architecture, urban planning, equity, accessibility, placation, identity, empathy

12.1 Introduction: the urgency of inclusive green cities

Citizens need to be part of the design process to co-create their neighbourhoods, wards, and districts. In the coming years, it is essential for landscape and urban planners, designers and architects to orchestrate inclusive planning and design processes that acknowledge human needs and dignity, explore ideas, foster participation in shared decision-making, and result in healthy environments that enhance well-being and access for all individuals. The city of the future, therefore, develops wildlife and biodiversity, as well as social capital (Bourdieu, 1972; Putnam, 2000).

This matter is becoming more pressing as the current world population is approximately 7.9 billion (United Nations, 2021) and by 2057, the population is estimated to reach 10 billion, with growth mostly occurring in urban areas, causing economic, ecological, and environmental challenges for citizens to live in these cities. The proportion of people living in cities is expected to increase from 54% in 2018 to 68% by 2050 globally as a result of urbanisation. Migration issues, population growth, and socio-economic challenges lead to shelter, food, education, job insecurity, and ultimately, social degradation and exclusion (UNHCR, 2018). The design of cities and urban

spaces either divides or brings people together based on socially equitable design decisions. We must recognise the significance of the opportunity to transform our local communities into green cities through co-creation and ‘value-inclusive’ design approaches with an empathic lens and perspective for well-being.⁴

According to Travis Price (2006) in *The Archaeology of Tomorrow*, archaeology is the architecture of today. He concludes that how time treats the cities we build this century is our legacy and what endures can create awe or leave nothing. He describes three distinct characteristics of significant architecture: (1) Stillness – the eternal mythical time; (2) Movement – the transient, changing aspects of time, change; and (3) Nature – time’s perpetual consistency. These design characteristics, continually at play, need to become a balanced element of what we call, inclusive design to capture the legacy of architecture hovering between the dual infinities of time past and time future.⁵

This chapter aims to support landscape and urban planners, designers, as well as architects to develop a deeper understanding of the different dimensions of an inclusive green city and how social equity is an integral part of any design effort. We begin by exploring our vision and the values necessary for green urban design. A framework for three aspects of equity – recognitional equity, procedural equity, and distributional equity – is presented with selected case studies that serve as evolving good practices for equitable green urban design. From this framework and resulting values, we built a value-inclusive design canvas and present design principles that planners, designers and architects can adopt as their own.

12.2 Point of departure: green urban design

Urban design is the design of public spaces, buildings and infrastructure for people. From the beginning of time, architecture has explored various means for developing form, addressing function, shaping space and experience, and using materials in new ways – all to create places and space for humans to meet their needs. In recent years, more and more voices have been advocating green urbanism, to provide healthy environments that are safe for all and promotes wellness to its occupants. Architects, planners, designers, scientists, and other stakeholders need to promote green urbanism and create sustainable and resilient spaces for the quality of life. Green urbanism means that cities are eco-friendly, cut waste and emissions, use sustainable construction materials, and promote electrified mobility. Green urbanism aims to minimise the use of energy, water, and materials at each stage of the city’s life cycle.

The theory of ecological design was conceived in the early 1970s by Dr Kenneth Yeang. The theory commenced the industry’s vigorous focus on sustainability, shifting the paradigm for standard practice, changing the future course of design, and establishing sustainability as a new standard for success (Franz, 2013; Franz *et al*, 2013). His partitioned matrix, a systems model depicting

⁴ E. Harris, personal communications.

⁵ <https://travispricearchitects.com/philosophy>.

internal interdependencies, total inputs, total outputs, and external interdependencies was later enhanced by ‘red’, ‘grey’, ‘blue’, and ‘green’ eco-infrastructures (Yeang, 1980, 2010). This approach, highlighting the importance of energy-efficient and environmentally sound architecture and the built environments’ connection of people, society, and culture to nature and water, has grown to become a standard of sustainable practice for the industry (Franz, 2013; Franz *et al*, 2013).

Steffen Lehmann and Gaëll Mainguy (2010) define green urbanism as ‘a conceptual model for zero-emission and zero-waste’. They formulated a series of principles based on different schools of thought and practices that started in the United States in the 1990s, promoting compact energy-efficient urban development. Their 15 Principles address all the key aspects needed to establish green urbanism and form a sustainability matrix that can empower the urban designer to implement measures on a neighbourhood and district scale (Lehman, 2010).

In *Cities and Health*, Helen Pineo proposes an urban design and planning framework, outlining how theory translates to praxis. The framework presents three core principles for healthy urbanism describing it as inclusive, equitable, and sustainable (Pineo, 2020). Details of this high-level framework for inclusion are further outlined in *The International Journal of Sustainable Development & World Ecology* where key features and dimensions of an inclusive city are presented in a systematic bibliometric analysis and literature study (Liang *et al.*, 2021). Five dimensions of the model include economic, social, political, spatial, and environmental inclusion. Combined, these dimensions create equitable and inclusive green spaces which enhance wellness and quality of life.

Galen Cranz, a social architect once said: ‘If architecture is the integration of social purpose, materiality, and aesthetics, then social factors are fundamental to design. Social purpose, behaviour, and feelings are not a constraint on artistic freedom, but rather a basis for inspiring new forms or refining traditional ones. Any design that fails to integrate social, technical, and sensory dimensions is immature’ (Sinha, 2018). Architecture is unavoidably social. And as for science (rather than as a practice or art which architecture also can be), an architectural design is a type of hypothesis about how people might respond to a building or a public space and the conditions it creates.

Designs are grounded in theories about how people behave and what organisations, families, and individuals need spatially. These theories are taught in architectural schools and developed through historical studies of building types and their layouts as well as empirical research into how people use buildings and public space. And architects develop their theories too, from their experience of the world and how people live in it (Wood, 2015). Many of these theories have emerged from approaches such as user-centred design, design thinking, and co-creation.

Robert Gutman, an architect and sociologist once stated, ‘there has never been an architect who was not, in some sense, a student and critic of society.’ (Gutman, 1972, 2010). The idea of architecture as a social science might seem odd but there isn’t much that more powerfully places, joins, separates, and patterns people, and relations between people than the built spaces we live, work and learn in (Wood, 2015). Empathy, therefore, is a crucial component of design thinking that allows architects to solve rather intricate, sensitive, and complex problems.

In general, though, the social sciences are reticent about architecture itself, its buildings, and particularly its interiors in terms of what they (attempt) to do to people (or allow people do to themselves, depending on your take on things) and how people respond to those stipulations/invitations. Similarly, although architecture frequently deals with social questions in the design of public buildings and institutions such as housing, hospitals, and schools, where the social here is commonly a synonym either for 'lots of people and/or for 'government-funded', it nowadays tends to avoid serious issues of internal space, relationality and the issues discussed here (Wood, 2015). However, addressing, acknowledging, and beginning the process of solving these intricate, sensitive, and complex social problems of human needs and dignity is essential to design inclusive urban environments and promote healthy living.

12.3 Three building blocks for inclusive design

Our framework for design is based on the three building blocks of social equity presented in the Tripartite Framework for Social Equity (Meerow *et al.*, 2019). This framework was initially used to study the extent to which cities focus on equity and found that the dominant conceptions of equity are generally tied to a distributional orientation, with less focus on the recognitional and procedural dimensions.

The difference between equity and equality is relevant (Cook and Hegtvedt, 1983; Reeskens and Van Oorschot, 2013). In short: equality refers to equal measures, despite the outcome; equity refers to a fair outcome that does not have to be equal. For instance, for health reasons, an equity approach would promote measures such as green space, healthcare, and social work in deprived neighbourhoods, while an equality approach would provide each neighbourhood with the same number of measures (De Haas *et al.*, 2021). Nonetheless, inclusive design requires both equitable and equal approaches.

In this chapter different types of equity are explored. Case studies are presented to highlight the types of equity (while recognising that elements of each of the cases may fit into another category).

12.3.1 Recognitional equity

The first block is Recognitional Equity. This aspect of equity values human differences and comprehensively considers the needs of all races, cultures, and populations in design. It considers the importance and representation of history and culture in place-making, and place-finding. It eliminates structural racism and promotes equal access and use. Success is measured through changed attitudes among people.

For example, Rotterdam in the Netherlands is recognised as a diverse or a 'hyper-diverse' city where the diversity of the population manifests not only in socio-economic, social, and ethnic aspects, but also in terms of lifestyle, attitudes, and activities (Tersteeg *et al.*, 2017), with Feijenoord as one of the most diverse neighbourhoods in this city. During the past years, there have been several local and municipal initiatives to improve the liveability of the public spaces in this

neighbourhood. One of these initiatives was the redevelopment of the Afrikaanderplein, an area previously notorious for street crime. The redevelopment, which was carried with close communication between authorities, designers, constructors, and local stakeholders, turned this area into a flexible multi-use space that people from different age groups, ethnicity, and gender can use.

12.3.2 Procedural equity

The second block is Procedural Equity. Procedural equity engages different members of the public and stakeholders to create ideas, imagine solutions, and decide and plan initiatives and development. Success is measured through community participation and co-creation of improvements in the built environments and services.

For example, Rotsoord is a former industrial area on the bank of the river Vaartsche Rijn just outside the centre of Utrecht, the Netherlands. This area has been converted into a popular hotspot and a breeding ground for the creative sector and local initiatives in recent years (Duineveld *et al.*, 2021). Rotsoord is an example of procedural equity, where the municipality of Utrecht adopted a participatory approach to include citizens in the planning and decision-making process along with businesses and societal organisations.

This project was implemented in the context of Motion 99, which was the policy adopted by the Utrecht city council in 2016, focusing on the inclusion of social values in area development. This motion was started by a group of citizen-initiated discussions among civil society, governments, and developers and encouraged collaboration in the redevelopment of neighbourhoods (Duineveld *et al.*, 2021).

One other example is Steenbreek Foundation in the Netherlands, which also is addressed in Chapter 11: this is a foundation that organises awareness-raising campaigns and helps municipalities and citizens with greening private gardens.⁶ This initiative is helping municipalities to provide support for access to green across the urban areas, so citizens have almost equal opportunities to receive the benefits of living near green areas. In this initiative, citizens are playing an active role in the development actions, which can be recognised as a form of procedural equity.

12.3.3 Distributional equity

The third block is Distributional Equity. Distributional equity demonstrates strategies to fairly distribute high quality, sufficient and accessible resources for food, affordable housing, education, and health care across a city and within communities. It provides planning and development for infrastructure, ensuring ample public transportation to essential facilities and services, and equal access to land for food production and distribution. Economic opportunities are offered in policy

⁶ <https://steenbreek.nl>.

and programmes, providing jobs through education and training along with strategies to fund and enhance business opportunities. Success is measured through resources, infrastructure, and economic improvements.

The 15-minute city is an initiative in Paris, France that has received much attention, especially after the COVID-19 pandemic. This initiative aims to provide car-free access to necessities and decentralise city life and services. It means reducing unnecessary travel across the city, increasing the liveability of streets and public areas, improving health and well-being, and many more benefits. This concept developed by Carlos Moreno in Paris has been adopted increasingly by cities, especially across Europe, for a better recovery from the COVID-19 pandemic and an equitable sustainable transition (Moreno *et al.*, 2021).

In Paris, the 15-minute city was a key pillar of the elected Mayor's election campaign in 2020. As the flagship of this initiative, Paris aims to achieve carbon neutrality by 2050 with the help of this approach (Moreno *et al.*, 2021). One of the main goals of this approach in Paris is to reduce the share of urban spaces occupied by cars and dedicate them to other uses. The construction of pedestrian and cycling paths has been significantly scaled up. As another action, school playgrounds have been made accessible to the public outside school hours to improve accessibility to green areas.

The green initiative 'Oost Indisch Groen' in Amsterdam, the Netherlands (East Indian Green) is an example in which all three types of equity are addressed. This is a citizen initiative for transition to a more sustainable and liveable neighbourhood through active citizenship. The initiative started with the creation of a community garden, followed by the creation of a community group.⁷ The municipality of Amsterdam provided funding for the creation of the community garden and recognised the power of citizens to implement and maintain a public space. This community garden provides an environment in which people with different ethnicity, gender, and socio-economic backgrounds can collaborate and co-create.

In the United States, Miami's Inclusive Underline Project, as shown below in Figure 12.1, is also an example of all three types of equity. The Underline's northernmost portion, the Brickell Backyard, is a procession of unique rooms around the park's dedicated bike and pedestrian paths. Each room is designed to respond to the specific needs of local community members (Oberliesen *et al.*, 2021). The Underline's community priorities, for example, include natural elements, like a pollinator park; gathering places, including a 50-foot dining table and smaller tables with dominoes; and playground and recreational areas. It also offers free amenities for entertainment and a variety of venues for artistic and cultural expressions. Free, intentional programming, such as Miami Ballet performances and yoga classes, offer options regardless of income or ability. A gym, track, and flex sports court serve those needs too. And because visitors can get to the park without driving, actively engaging with the community's youth and senior populations has been a priority. The

⁷ <https://oostindischgroen.nl>.

Underline has taken this into consideration in various ways, including plans for a mix of affordable housing for seniors directly across from tall condos (Oberliesen *et al.*, 2021). And, they also have plans for youth outreach and training.

Meg Daly, founder of the project says that high school students will soon test their tour guide skills and plant species knowledge as part of a youth engagement programme funded by a grant from the Nahmad Family Foundation (Oberliesen *et al.*, 2021). ‘It’s an experiment to train juniors and seniors to be ambassadors, while also teaching them about ‘the power of smart plants that help with drainage,’ Daly says. Another key part of the Underline, flexibility, is a valuable tactic for creating a welcoming atmosphere. Flexibility also can help ‘future proof’ design, and one of the things planners and urban designers have learned from the COVID-19 pandemic is that things can shift dramatically, and often, quickly. Designing inclusivity from the start can help public spaces and communities adapt and thrive in a rapidly changing world (Oberliesen *et al.*, 2021).

12.4 Value driven inclusive green design

A model with four values underpinning the inclusive design processes is shown below in Figure 12.2. The model intersects the three aspects of social equity and related dynamics of Meerow *et al.* (2019) with four values that emerge as essential to achieving value-inclusive green design: identity, placation, accessibility, and empathy.

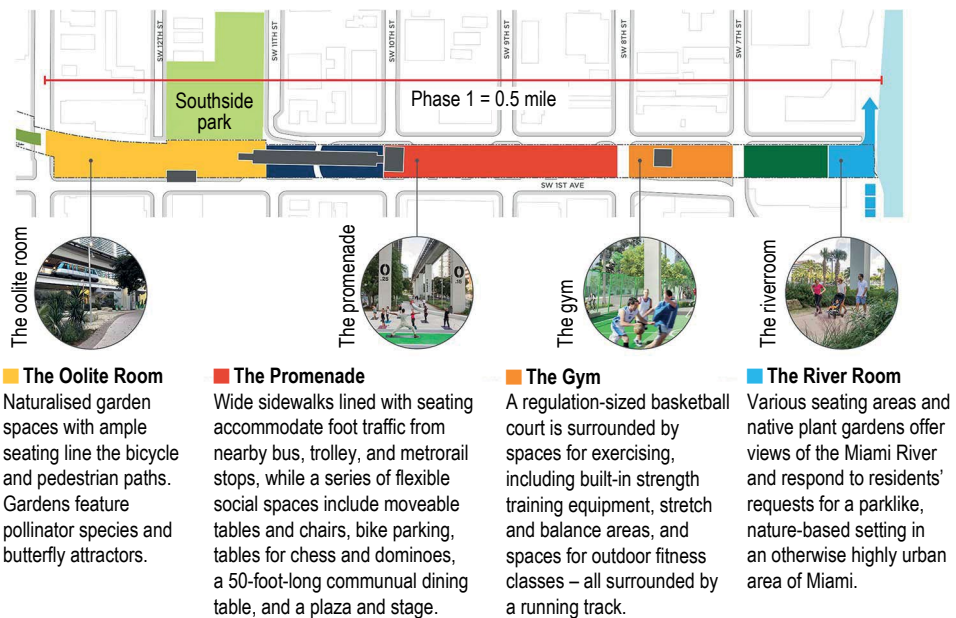


Figure 12.1. Miami's inclusive underline project (Oberliesen *et al.*, 2021).

- Identity equates to the values of human needs and dignity and the celebration of different lifestyles and identities. This is at the 'scale of the individual' and captures the understanding of the diversity in human histories, skills, and needs as related to physical, social, mental, and spiritual health. Identity means that people can express themselves without any hesitation.
- Placation is the value of making everybody visible and overcoming anonymity in buildings, technologies, private and public areas as the basis of healthy living. Placation looks at the 'scale of the location' to make everyone visible and equally be represented. It acknowledges 'co-existence' for all creatures (human and non-human) in the city to truly co-create public environments.
- Accessibility is closely connected to both humans and non-humans having access to the city and is at the 'scale of urban resources' Accessibility allows equal distribution of resources in architecture, landscape, and interior and circular design.
- Empathy is the central value in the figure as the basis for urban architecture for well-being. Every inclusive design begins with empathy and recognises both the needs of human and non-human actors (Latour, 2017) in the city. It looks at the 'scale of relationships' and explores social capital solutions by applying building blocks for improved quality of life for all creatures that inhabit the city.

The values of empathy, placation, accessibility and identity are foundational to any design process. Inclusive design depends on the extent that planners, designers, architects, and the community at large acknowledge, embrace and apply these values in designing the urban fabric. We propose that the four values are a necessary first step in commencing inclusive design. To translate the four values to inclusive design, we present a value-inclusive design canvas mapping: (1) physical, social, mental and spiritual health; (2) interactive settings for quality of life; and (3) green inclusive cities. Then, we examine representative images for the four values of identity, placation, accessibility, and empathy (while recognising that the images shown may include multiple values). From these images, design principles for each value are presented that identify key design objectives for achieving urban architecture for well-being.

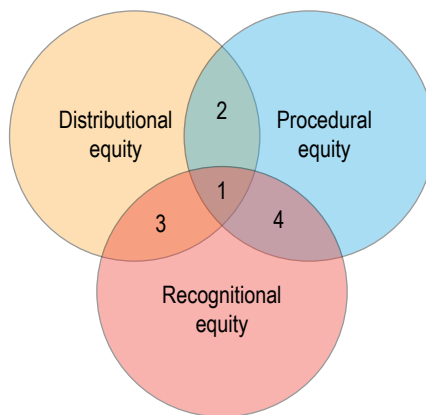


Figure 12.2. Four values that intersect with Meerow's model for social equity (2019) 1 = empathy; 2 = placation; 3 = accessibility; 4 = identity. This figure was developed by M. Stuiwer, S. Sarabi, M. Takken, L. Rondard, R. Valkenburg and T. Yuksel for <https://ewuu.nl>.

One could argue that the four values associated with social equity are the drivers of urban design or one could argue that urban designs drive these four values in society. We propose that the four values and accompanying design principles and key design objectives are integrated and need to become part of an iterative process to create an urban architecture for well-being. Catalytic change and transformation of the urban fabric as discussed in *Architects for Community* by Torti *et al.* (2017) are denoted below in Figure 12.3, imagining inclusive design.

12.4.1 A value-inclusive design canvas

To achieve a user-centred and inclusive design, we present a value-inclusive design canvas in Figure 12.4. Planners, designers, architects and community participants must first co-create and align their goals, visions and theories on design processes and outcomes (Franz, 2013; Franz *et al.*, 2013). Then, their theories need to be translated into practice through design thinking, an iterative approach between theory and practice that evaluates multiple design considerations. This comprehensive process is displayed as a value-inclusive design canvas (Figure 12.4), a visual map connecting knowledge areas associated with recognitional, procedural, and distributional equity (horizontal direction) to theory and practice (vertical direction). Stakeholders can make choices and learn about the values of identity, placation, accessibility, and empathy with the help of this canvas to achieve inclusive green cities expressing an urban architecture for well-being.

The value-inclusive design canvas is meant as a dynamic and iterative tool for design. Imagining inclusive design involves creating sustainable and aesthetically pleasing places that bring new meaning and vitality to urban communities. Using smart technologies and envisioning fresh approaches in the built environment also are essential to drive change. Examples are spaces with indoor and outdoor environmental quality, spaces for energy, nature and water conservation,



Figure 12.3. Imagining inclusive design (illustrations courtesy of Torti Gallas + Partners, 2021).

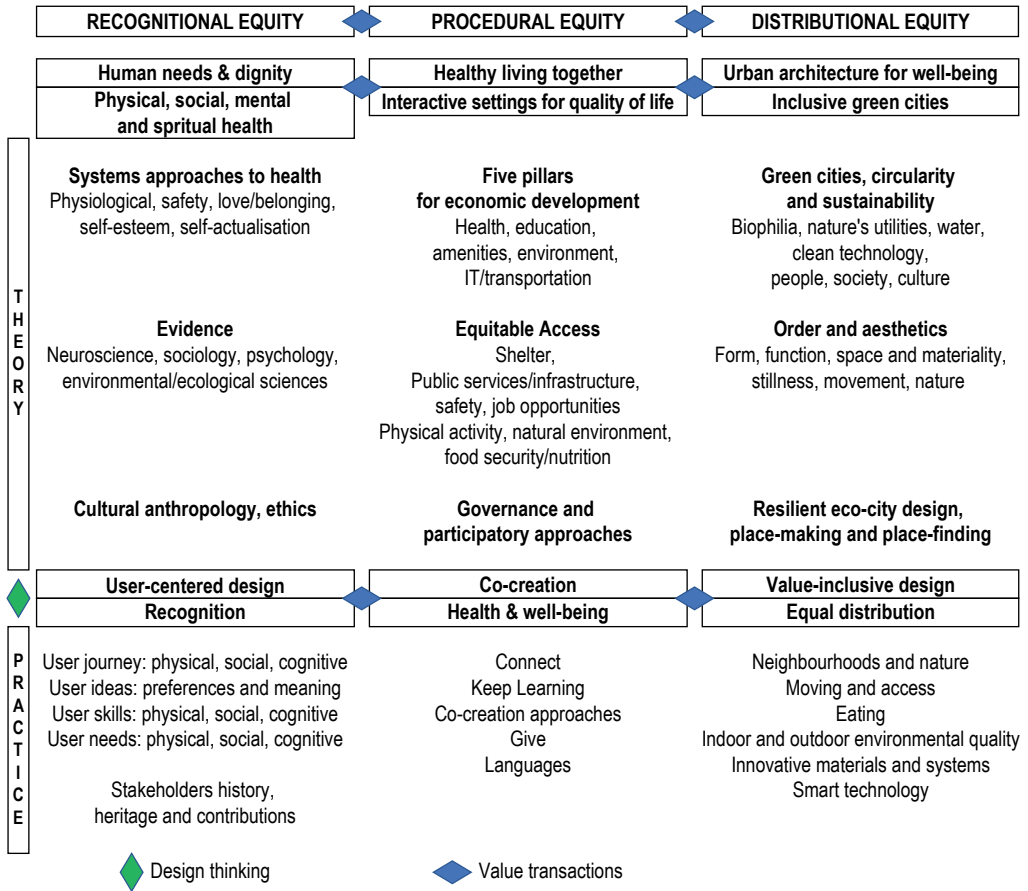


Figure 12.4. Design canvas for inclusion.

and spaces that make use of innovative materials and systems. Ultimately, connecting social capital with green cities in urban design promotes physical, social, mental, and spiritual health for individuals, society, and communities.

12.4.2 Recognitional equity: recognising human needs and dignity to promote physical, social, mental, and spiritual health

Research has uncovered an extensive body of knowledge for promoting physical, social, mental, and spiritual health which contributes to human health and well-being. Psychology, neuroscience, sociology, and the environmental and ecological sciences have all revealed parameters that enhance human health, perception, and experience of architecture and landscapes. Depicted in the design canvas is a collection of evidence for design and well-being as summarised in the five ways to well-being (Aked *et al.*, 2008) and research on systems approaches to health, urban design and well-being (Anderson, 2014). Identity is an important value of recognitional equity

https://www.wageningenacademic.com/doi/pdf/10.3920/978-90-8686-935-0_12 - Wednesday, August 24, 2022 6:56:23 AM - Utrecht University IP Address: 131.211.105.12

(Figure 12.2). Cultural anthropology, the study of human culture, reveals that while humans are very different, they also share the same values for recognition and dignity. Research on ethics shows the importance of social equity in the advancement of human civilization. Recognition equity develops an understanding of human needs and dignity through user-centred design. Translating this into practice requires a thoughtful user-centred assessment of user needs, ideas, and views. Ideas and views are shaped by culture, heritage, and history. Design is best when it responds to human and community culture and promotes inclusion for all participants and users. This occurs by understanding the historical, cultural and communal backgrounds of different groups, the identities they have and the problems that they face in the accessibility (Figure 12.2) of the design to their needs and wishes.

However, this all begins through an empathetic framework. Empathy is described as a phased process that gives insight into a designer's experience and its impact on design when there is empathy with the user (Kouprie and Sleeswijk Visser, 2009). Understanding human needs and dignity through user-centred design fosters collaboration to explore user ideas and preferences, which initiates a storytelling process for describing the user's journey, skills, and needs from a physical, social, and cognitive perspective. And as a result, it acknowledges personal biases and constraints by listening to others. Empathetic understanding goes beyond knowledge: when empathising you do not judge, you 'relate to [the user] and understand the situations and why certain experiences are meaningful to these people' (Battarbee, 2004), a relationship that involves an emotional connection (Battarbee and Koskinen, 2005). Empathy informs and inspires designers to create products that fit user needs (Kouprie and Sleeswijk Visser, 2009).

12.4.3 Procedural equity – creating healthy living and interactive settings for the quality of life

Research also has uncovered an extensive body of knowledge for enhancing healthy living through developing interactive settings (or places; see Figure 12.2) for the quality of life. The Five Pillars for Economic Development (O'Hara, 2020; O'Hara and Vazquez, 2006) recognises the human need for and importance of health, education, amenities, environment, and technology/transportation for promoting quality life. This translates into a body of knowledge relating to equitable access for shelter, public services and infrastructure, safety, job opportunities and includes spaces that contribute to experiencing nature and the natural environment, and landscapes that can be used to promote food security and nutrition. Research from health and well-being reveals how human behaviour and feelings of well-being are influenced by context. Translating this into active participation and interaction of people that together explore design thinking is essential as it leads to solutions that can connect people and their activities, enhance continuous learning, and promote collaboration. It also offers opportunities to give back to the communities that were involved, and through the lens of different human languages and different views, new ideas can emerge for living and interaction.

Promoting healthy living through design thinking is a systematic process via an empathetic lens. Empathetic techniques cover direct contact, communication, and stimulating ideation by enhancing imagination (Kouprie and Sleeswijk Visser, 2009). By drawing on user experiences as well as

historical and cultural context, it is a way to bridge the impact gaps of communities that will connect them with local municipalities, stakeholders, community leaders, and designers. This includes collaborating with these users to analyse and develop options to satisfy their needs. Acknowledging different types of knowledge present in the stakeholder community and learning from it focuses attention on pro-social solutions to foster a positive impact on happiness and well-being within these communities.

12.4.4 Distributional equity – designing the urban architecture for well-being and inclusive green cities

Designing user-centred spaces cultivates empathic experiences that honour and dignify historical and cultural context. These elements provide a sense of ‘place’ to all inhabitants of these spaces by integrating their human activities and their needs for access to resources within the built environment. When observing the user in the user’s environment, the designer stays beside the user. One reason is that the designer is aware of his intervention in the user’s context and has a researcher’s role to play (Kouprie and Sleeswijk Visser, 2009).

Being empathic includes a range of activities where designers must imagine what it would be like to be in the position of the user of the end-design. What does the design provide for all people in terms of distributive power and access to resources in that location? It provides a fundamental understanding of the mental process of achieving empathy and using that understanding in designing (Kouprie and Sleeswijk Visser, 2009). For example, in the schematic phase of designing, architects meet with various stakeholders and present conceptual solutions through vignettes, which consist of the research and data collected during a survey. These vignettes engage the community of stakeholders to ensure that their voices are heard and that their human needs are met. Data represented in stories, storyboards, or personas serve very well in allowing designers to step into and walk around in the end-user’s world, and connect with the end-user (Pruitt and Adlin, 2006).

Roman architect Vitruvius Pollio identified three elements necessary for a well-designed building: *firmitas*, *utilitas*, and *venustas*. Firmness or physical strength secured the building’s structural integrity (University of Chicago Library News, 2011). It should stand up robustly and remain in good condition (Shackell, 2018). The utility provided an efficient arrangement of spaces and mechanical systems to meet the functional needs of its occupants. It should be useful and function well for the people using it. And *venustas*, the aesthetic quality associated with goddess Venus, imparted style, proportion, and visual beauty. It should delight people and raise their spirits. Rendered memorably into English by Henry Wotton, a seventeenth-century translator, ‘firmness, commodity, and delight’ remain essential components of all successful architectural design (University of Chicago Library News, 2011). This creates sustainable, resilient, and inclusive architecture, addressing a multitude of issues and supporting a multitude of user groups (Shackell, 2018; University of Chicago News, 2011).



Figure 12.5. Torti Gallas + partners design charrette – co-design and value-inclusive design (illustrations courtesy of Torti Gallas + Partners, 2021).

12.5 Design principles for identity, placation, accessibility and empathy

Recognitional, Procedural, and Distributional equity are integral to the holistic approach for the inclusive green design of cities. The next sections discuss the design principles for the four values as depicted in the model of Figure 12.2. The design principles for identity, placation, accessibility and empathy are explained and translated into possible design objectives.

12.5.1 Design principles for identity

Identity is the place where recognitional and procedural equity meet (Figure 12.2). Identity in the context of the design canvas means recognising the diversity of different stakeholders, hearing their voices, and including them in the design and development process. Figure 12.5 shows Torti Gallas + Partners conducting a design charrette – everyone comes together, everyone shares ideas, and everyone is heard in the decision-making process. Design solutions represent the collective community where all are welcome. Identity equates to human needs and dignity and the celebration of different lifestyles and identities. Identity is connected to the *scale of the individual* and captures the understanding of the diversity in human histories, skills, and needs as related to physical, social, mental, and spiritual health, and how these diverse identities can be expressed without any hesitation.

Design principles for identity include designing for safety, providing activity settings, and creating complete streets accommodating all users. Citizens should see their identities and preferences represented in the design process so they will be motivated to play an active role in shaping the urban environment and benefiting from it. Figure 12.6 provides an illustration of design principles for identity.

Design principles for identity

Providing safety, fostering activity and taking notice, and enhancing complete streets

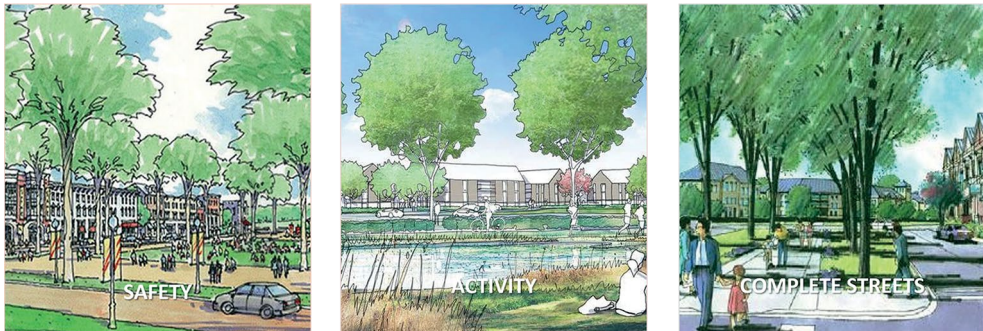


Figure 12.6. Inclusive green cities, identity (illustrations courtesy of Torti Gallas + Partners, 2021).

Safety is the first design principle for identity. It does not matter where you are in the city, but there is a sense of community and safety, people can have their ways of doing things, they are safe day and night, there is an absence of violence. Different perceptions of safety need to be recognised in the design process. Safety can have different meanings for different groups, and a mission of the inclusive design process is to find the synergy among these different perceptions to provide a safe environment where people can express themselves in their social activities.

Social activity is a design element in green cities that contributes to wellness and enhances the quality of life of the people that inhabit them. Urban residents have different needs and preferences regarding the form of the space they want to be active in. These different preferences should be considered in the design process to provide urban environments where residents of all ages and backgrounds share their time, passion knowledge, and efforts. People's skills and abilities matter in how the city looks and fostering co-design and co-creation of urban spaces is necessary for equitable design for communal activities. Social activities integrated into the urban fabric contribute to the development of a concept called complete streets.

A complete street is a street designed to provide a safe and more efficient transportation network for all users. A complete street is designed considering the needs, preferences, and vulnerabilities of different users in mind. In addition to reducing sedentary lifestyles and calming traffic, complete streets provide significant opportunities for the creation of social capital by placing more eyes on the street (particularly pedestrians and cyclists), therefore creating a 'lively' street (Jones, 2012). According to the US Department of Transportation (2015), some of the health benefits of complete streets include:

- reduced chronic disease (e.g. asthma, diabetes, heart disease);
- increased physical activity and improved safety;
- reduced human exposure to transportation-related emissions;
- reduced motor vehicle-related injuries and fatalities; and,
- reduced contribution of transportation to air pollution.

Approaches to design vary based on community context and address a wide range of provisions for elements such as sidewalks, bicycle lanes, bus lanes, public transportation stops, crossing opportunities, median islands, accessible pedestrian signals, curb extensions, modified vehicle travel lanes, streetscape, and landscape treatments (US Department of Transportation, 2015). Jones (2012) found that mid-block crosswalks increased safety and Reynolds *et al.* (2009) noted that complete streets reduce motor vehicle-related crashes and pedestrian risk, as well as cyclist risk when well-designed bicycle-specific infrastructure is included. Careful design of the urban fabric's transportation infrastructure promotes walking and cycling by providing safer places in which to achieve physical activity through transportation. One study found that 43% of people who have a place to walk reported that they were significantly more likely to meet current recommendations for regular physical activity than were those reporting no place to walk (Powell *et al.*, 2003).

12.5.2 Design principles for placation

Placation is where procedural and distributional equity meet (Figure 12.2). It is defined as the art of overcoming anonymity and make a visible space and place for all people in the urban design. Placation is connected to the *scale of the location* to provide spaces in the urban fabric that facilitate full representation of all people and nature. Placation deals with space for interactions between nature and people as the creator and/or beneficiaries of that space.

Design principles for placation include harmonisation of the urban and natural environment, providing universal access, and creating communal spaces. Placation implies that citizens should be provided with equitable access to the green city and contribute to shaping it. Figure 12.7 provides an illustration of design principles for placation.



Figure 12.7. Inclusive green cities, placation (illustrations courtesy of Torti Gallas + Partners, 2021).

Streets are very essential elements of green cities. They are multifunctional spaces used as the means to commute, as the place for activity and leisure, but also where different challenges exist. The benefit that people get from nature usually depends on the proximity of people with green elements, and green streets can provide the benefits of greenery to a large population considering the daily presence of citizens in the streets of a city. In addition, natural elements can greatly contribute to addressing different biophysical challenges present in urban streets like heat islands effect, air pollution, noise pollution, and social challenges like violence. Considering the impact that green streets can have on the daily life of citizens, it is also more motivating for different groups to actively engage in the design process.

Communal spaces that provide a welcoming place for gathering and social interaction have a significant impact on quality of life. It goes beyond barrier-free design. Communal spaces tie us together and enhance the common experience in the built environment. The design fosters relationships and conversations, creating a sense of place and purpose. Reimagining the urban landscape and the communal spaces using co-creation establishes a partnership between designers and the community. This is envisioned within the natural urban environment by creating accessible and communal spaces for all human and non-human inhabitants.

12.5.3 Design principles for accessibility

Accessibility is the place where distributional and recognitional equity meet (Figure 12.2). It is closely connected to the *scale of urban resources*, such as locations, knowledge and technologies, allowing equitable distribution of resources in architecture, landscape, and interior design. Accessibility is concerned with providing equitable opportunities for all the people from different backgrounds to benefits from the green city. Design principles for accessibility include accessible food and farming, accessibility and accessible design, and access to economic opportunities. Figure 12.8 provides an illustration of design principles for accessibility.



Figure 12.8. Inclusive green cities, accessibility (illustrations courtesy of Torti Gallas + Partners, 2021).

Food production and urban farming are some of the most tangible benefits that can be provided by green cities. Cities can become places where people have access to food and can have farming activities closer to their own homes. The city provides places where people can get income, education, and opportunities for food production and farming irrespective of their background. Demand for locally grown food and seasonal produce becomes a significant revenue source and creates spaces where direct marketing and consumption of the urban food is visible in the streets.

Accessibility and accessible design are both important aspects of inclusive design and have the same aim: to accommodate a diverse range of people (Levanier, 2021). Accessibility, however, involves the word ‘access’ and this provides an extra important dimension to inclusive design. Accessibility describes whether there are any literal barriers that prevent someone from experiencing something and having access to something. Accessibility focuses not only on social, political, spatial, and environmental dimensions but also on economic accessibility. This includes food production, the use of green spaces, co-located activities, job creation, new businesses, and sustainable transportation, to name just a few. Therefore, accessibility can add to the success of the urban economy by recognising the problems of the community and devising solutions that will enhance the quality of life of all citizens and in this way add to the resources of the city.

12.5.4 Design principles for empathy

Empathy is the basis for all three types of equity (Figure 12.2) and is connected to the *scale of relationships*. It explores how people can meet, get to know each other and their environments in such a way that there is space for both humans and non-humans in the urban fabric. Figure 12.9 depicts design principles for empathy – providing views, designing points of interest, and walkable public space.



Figure 12.9. Inclusive green cities, empathy (illustrations courtesy of Torti Gallas + Partners, 2021).

Buildings can bridge the exterior nature with the interior environments of humans through providing views, such as places with windows and balconies. These can create a point of interest that gives meaning and purpose to a building structure by displaying views of the natural and building environment interchangeably. This includes entry, circulation, programming, form, as well as function which all contribute to the urban vernacular of inclusivity in building design. Defining special moments in the landscape, interior, and exterior of the urban environment promotes activity, play, and cultural exchanges. Integrating sustainable and resilient design solutions into the community has long-term positive effects. And it provides a welcoming destination for all to inhabit and experience.

Public space like parks, plazas, and trails are no different (Oberliesen *et al.*, 2021). Beyond safety and basic usability, the look, feel, and function of these spaces can significantly affect whether a person wants or is even able to spend time and engage there. Planners, designers and architects need to understand the inherent challenges of creating this kind of space that wins the hearts of their communities. COVID-19 restrictions and social distancing requirements have increased the need for public space and re-emphasised the importance of inclusive, multi-generational design. There is no specific design checklist to follow because each community is vastly different. As urban designers continue to assess how public spaces serve communities and how to make them inclusive for everyone, it's important to understand how designs can influence who feels supported and welcome, and who doesn't (Oberliesen *et al.*, 2021).

Interest starts when spaces begin creating a 'welcome feeling' for all users (Oberliesen *et al.*, 2021). There's more to it than investing in lighting, security, and for instance the Americans with Disabilities Act requirements, though those are all vital. Creating a welcoming feeling is about giving people a space where they feel comfortable and where their needs for engagement and expression are met. So, empathy is very closely connected to placation. A key purpose of public space is to create room for people to take part in civic, physical, and social activities so that they can start to communicate and understand each other. Designs should include as many members of the community as possible (Oberliesen *et al.*, 2021).

Below are a few examples of inclusive design and how it impacts a community:

- design for differing abilities;
- consider gender dynamics;
- provide amenities for cultural activities;
- recognise public spaces as storytellers; and,
- make room for retail and restaurants.

Figure 12.10 also provides additional design principles for empathy – integrating urban fabric, finding urban play space, taking time to share with people. Spaces that integrate activities, provide for play, and enhance human activity, embrace the human culture, foster heritage and promote physical, social, mental, and spiritual health. It is important to note that the design of the urban fabric enhances social interaction and human activity when spaces for activities, such as play are integrated into the design. Designing urban spaces that are receptive to human interactions and

Design principles for empathy

Integrating urban fabric, finding urban play space and taking time to share



Figure 12.10. Inclusive green cities, empathy (illustrations courtesy of Torti Gallas + Partners, 2021).

enhance human experience and spaces for art, music, festivals, and farmer's markets contribute to the richness of urban living and enjoyment. Play is a critical instrument for the physical, social, and emotional development of children. Designing an inclusive and safe play space for kids with different backgrounds, abilities, and skills is essential for enhancing equity in society especially considering the higher vulnerability of kids and their limited access to resources.

12.6 Conclusions

Inclusive design is the ongoing process of designing solutions to accommodate the viewpoints, experiences, and situations of people that were not accommodated before (Levanier, 2021). In the cities of today, inclusion shares an intense relationship with its opposite term: exclusion (De Haas *et al.*, 2021). Therefore, anyone working on inclusive green design will encounter obstacles of old designs that were based on exclusion from dated philosophies and ideologies. Inclusive design is largely about eliminating these points of exclusion. These can be physical or emotional, permanent, temporary, situational, or non-situational. Factors that are physical, permanent, and non-situational might be along the lines of race, gender, mobility, and age. Inclusive design, therefore, also can and needs to adjust the present urban built environment beyond its exclusion mechanisms.

The value-inclusive design canvas presented in this chapter is very much an appeal to people's empathic skills, assumptions and viewpoints. It challenges the designer's untested assumptions about the 'ideal' and 'universal' person s/he is designing for. Designing inclusively doesn't mean you're making one thing for all people. You're designing a diversity of ways for everyone to participate in an experience with a sense of belonging (Levanier, 2021) as depicted in Figure 12.11. Developing a deep understanding of equity can be done through learning about the distinctive four values of identity, placation, accessibility, and empathy.



Figure 12.11. Urban architecture for well-being (illustrations courtesy of Torti Gallas + Partners, 2021).

Finally, we want to stress that developing cities through a value-inclusive design is urgent and necessary for creating green urban architecture for the well-being of humans as well as non-humans. In the Foreword to *Revisiting 'Social Factors': Advancing Research into People and Place* (Lindsay and Morhayim, 2015: xv), the author asks, 'How do we measure the relationship between humans and their environment? How do we measure the hyphen in person-environment relations?' (Sinha, 2018). Deeply looking into human needs and the importance of empathetic relationships between humans as well as nature can shape healthy urban environments for the people that inhabit them and set a new vision for the future development of vibrant symbiotic cities.

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