TRACK 2: CULTURE

PUBLIC SPACE: A NEVER-ENDING PROJECT

ACTOR-NETWORK OF PUBLIC SPACE PRODUCTION

AN APPROACH TO A DEMOCRATIC, PARTICIPATORY URBAN TOOL

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The Necessity of resilient public space

In April 2021, a Polish colleague told us the story of a neighbour who lost her husband and her son in two weeks' time. She was mourning her losses when she woke up and looked through her window and screamed her lungs out one morning. All the trees in the square were gone. She was devastated. The trees had been there since she was married and were a reminder and symbol of her love for her family. It just happened. Nothing could be done about it. Her story touched us deeply while raising the question that, in reality, where is the place of us as citizens in the formation of our very own public spaces? Is it true that only policymakers and spatial designers can decide how we use the space? Can they remove our memories without taking into account our lived experiences? As Henri Lefebvre explained in his book "space production", for having a democratic way of living, the three actors of space production: policymakers, designers and users, should work closely together. Is a democratic way of living not a will for all of us in the end?

Public spaces have always been essential parts of cities, having much to do with basic routines in a city's life (Cybriwsky, 1999). Throughout history, the city has shaped a unique social space as a public space that meets society's intertwined requirements for socio-economic production (Lefebvre, 1991). In pre-modern urban settings, public spaces played the role of arenas for communication. Also, they performed the principal function of facilitating social interaction, with open spaces being used by large numbers of people (Madanipour, 1992). One measure of any city's greatness is its ability to provide signature public spaces for its citizens. Successful public spaces share a significant role in socialising and contributing to the quality of life (Rogers, 2003). As many other urban theorists note, public spaces are also significant elements that define a city's unique attraction points and have higher usage rates than other leisure facilities (Pasaogullari & Doratli, 2004).
Thus, the importance of public space design to our quality of life is now being increasingly recognised in research and policy (De Groot, 1992; Naveh, 1997; Ward Thompson, 2002; Chiesura, 2004). Recent interest in urban design has focused on creating and managing qualitative public spaces in cities (Madanipour, 1999). One of the essential planning tools for enhancing the quality of urban life is thus to design adaptable public spaces that act as vital oases, attracting people to all kinds of daily life activities (Wang, 2020).
The creation of spaces is slow, and the depreciation of the investment costs takes place over a longer time. Nevertheless, the world is evolving quickly. The conditions of cities' public spaces constantly change based on the impact of, for instance, users' expectations, climate change, massive immigration or epidemic health crises. Therefore, public spaces must be resilient and flexible, constantly adaptable to these transformations

as an ally of society. For instance, the Covid-19 pandemic emergency has interested the whole world and, although in different manner and measures, changed the habits and use of people in places and cities (Abusaada & Elshater, 2020; Babalis, 2019; Carmichael et al., 2012; Carmona et al., 2010; Gehl 2010, 2016, 2020; Mehaffy et al. 2019[1]). This is only one of the feasible changes that we have faced recently regarding the use of public spaces. Ongoing research on the necessity of reconnection of cities with nature and new urban typologies such as urban-forest or the emphasis on developing a connected green-blue network within cities are proof of the importance of having flexible and yet qualitative public spaces. The NUA (New Urban Agenda) in 2016 also emphasised and published its agenda over a shared vision for a better and more sustainable future for public spaces. As mentioned several times in this agenda, the flexibility of the public spaces is the key to future proof cities. Accordingly, the flexibility of public spaces is rooted in the presence of diverse, healthy and green areas, safety, inclusivity, accessibility, social interaction, inclusion, dialogue between all people, and constant participation of users (Sepe, 2021).
For instance, the article 37 of this agenda says:
"We commit ourselves to promote safe, inclusive, accessible, green and qualitative 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 (UN Habitat, 2016)."
Thus far, a transparent, practical methodology for making a flexible public space resistant to environmental, social and structural changes is missing. There are not many accessible measurement systems to help us understand how flexible the existing public spaces are. In contrast, there is so much uncertainty about the result of new designed public spaces. Are they sufficient for their users? Are they corresponding to the environmental crises? Are they providing more social inclusion for the cities? How many percentages of a city, neighbourhood and urban block is allocated to the public open space? How can public spaces best be designed for various activities and serve their users' needs well?

In order to have a resilient yet flexible public space: (1) the inter-relation between actors of public space should be optimised; (2) the impact of social, environmental and structural changes in public spaces should be measured in both scientific factual and experienced-based manner.
Public space as part of the 'space production' stands on three main pillars: conceived space (produced by policymakers), perceived space (produced by spatial creators) and lived space (experienced by citizens). Broadly Lefebvre defined 'conceived space' as the space which is theorised by scientists and planners, known as 'representations of space'. Representations that are intangible and entrenched in the principles, imperatives, beliefs and visions of experts, decision-makers and those in a position to impose their notion of 'order' onto concrete reality. The second is 'perceived space', the space of 'spatial practice' defined as where movement and interactions occur, where networks develop and materialise. Consequently, it includes daily routines at an individual level and urban realities such as the networks that link places designated for work, leisure and private life. (Lefebvre, 1991). The third is 'lived space', which is explained as the unconscious, non-verbal direct relation between people and space. The space is occupied through associated images and symbols (Lefebvre,1991).
The actors of the'e three spa'es are the three agents of public space. The democratic inter-relation between these three actors provides an equal role for all citizens and, therefore, constant participation of users and a qualitative place to live.
Nevertheless, the ways people use public spaces are affected by a wide range of environmental factors (such as an open space's location and accessibility), demographic factors (including a citizen's age, gender, race, ethnicity and socio-economic background), and management factors (including the cleaning, maintenance and policing of a space) (Vitale, 2009; Carmona et al. 2010).
Knowledge about which spatial characteristics influence public space use and how and why they can help spatial creators and policymakers to provide a better qualitative space for people. There has been increasing attention paid to the value of public spaces in urban contexts in terms of recreation, social interaction, and residents' health, therefore designing suitable open spaces conducive to a high quality of public life (Wang,

2020). As urban populations continue to grow around the globe, there will be tremendous pressure on the remaining open space in cities (Wang, 2020). To ensure that urban public spaces are valued and that the best value is derived from these amenities, it will be critical that these spaces are well designed.
With increasing recognition of social and mental well-being benefits of public space (Giles-Corti & Donovan, 2002; Lee & Maheswaran, 2011; Francis et al., 2012; Schipperijin et al., 2010), researchers, designers and managers of public spaces are increasingly searching for the design factors that provide these qualities.
Based on several studies (Whyte, 1980; Madanipour, 1999; Franck & Stevens, 2007), researchers conclude that the design factors related to social aspects of public space are:

- inclusivity: people's engagement in activities; open to all sorts of people; encouraging human contacts and interactions.
- comfort: accessibility for all physical minorities; availability during day/night, week/weekend and seasons.
- safety: being a safe place for all genders and ages.

The other essential aspect of public space design is related to environmental factors. Ecosystem services and aesthetic values depend on the spatial pattern and arrangement of public spaces (Turner, 1987; Geoghegan et al., 1997). For example, public spaces containing higher levels of biodiversity are less vulnerable to exotic species, pollution, and other exogenous shocks (Geoghegan et al., 1997; Schindler, 1990), and therefore can be more resilient against environmental changes and more productive in terms of providing environmental benefits. Likewise, as the theory of island biogeography (MacArthur and Wilson, 1967) suggests, forests contained in fragmented and isolated patches may contribute little to ecosystem functioning (Hunsaker et al., 1990), and recreational potential (Poudyal et al., 2008a) compared to those in contiguous blocks.
From a recreational and aesthetic perspective, a given amount of public space might be better in a single chunk than several small and disconnected patches. This is because larger plots possess greater social carrying capacities, and contain more potential for parks, gardens, or other uses. Based on several studies (Turner, 1987; Geoghegan et al., 1997; Geoghegan et al., 1997; Schindler, 1990; Poudyal et al., 2008a), researchers conclude that the design factors related to environmental aspects of public space are:

- spatial continuation: continuity of green-blue network; balance between mineral and non-mineral materials in public spaces.
- biodiversity: using different plants (summer/winter type) in order to absorb different types of insects, birds and flora and fauna.
- air quality: public spaces are the lungs of the cities, therefore have a significant role in producing high air quality.
- unity: the network of public spaces can be an asset to adaptability towards environmental changes.

The third aspect of public space design, physical environment, provides varied cues and opportunities for physical activity (Giles-Corti and Donovan 2002). From the user's point of view, the characteristics of the physical environment can encourage people to communicate and interact with each other. Thus, the characteristics of public space not only influence the vitality of that physical space itself, but also can be a powerful impetus for the maintenance and development of vibrant, inclusive community life (Shaftoe 2008; Gehl 2010). The main design factors that can be mentioned for physical aspects of public space are:

- welcoming edges and entrances
- accessibility (by foot, wheelchair, bike, public transport)
- congestion level
- flexible use of space
- security
- diverse activities
- public art
- interesting architecture

- protection from the weather
- surrounded with amenities
- maintenance
- materiality
- sense of place

Therefore as discussed above, to have a resilient yet flexible public space: one should consider (1) the inter-relation between actors and (2) the impact of the social, environmental and structural changes in public spaces.

The reality of public space production

However, the reality shows that public space is a never-ending story, an ongoing project reacting over time to specific circumstances for this and future generations. This phenomenon raises a question of management regarding awareness, way of using, maintenance and follow-up. The key to this is an ongoing participatory process between the three main actors of public space: the users, the policymakers and the creators, representing respectively the lived, conceived and perceived space.
The overall known, classical production of public space is based on policymakers' decisions and realization based on the available knowledge of the creators with the exclusive participation of a select group of (potential) users. Unfortunately, reality witnesses more than often, public spaces face a gap between the initial idea, the effective realization and the daily consumption of this open space during the time.
Although the initial design resulted from a 'participation' process, a structured follow-up procedure to examine how these public spaces function and are perceived in reality rarely exists. In practice, policymakers receive scattered, often emotional reactions of a limited group of users, lacking a holistic overview.

Imagine that we go to the doctor once in our life. Only at the beginning and that is it. Body nor mind evolutions are followed up. What would our life be like then? Well, that is what often happens in the public space now. As an engaged urbanist, we thought of a sort of democratic, intelligent monitoring tool that continuously collects users' feedback regarding the public space. The tool aims to evaluate the use of the space by its public, register and learn from mistakes, share experiences and adjust the design well-thought-out. Like a doctor makes a diagnosis and tries to make the patient healthy again.
The tool supports local governments and private investors to collect objectively the opinions of the users of the public space they invested in. A resilient public space is (1) able to respond flexibly to inevitable changes in demands and conditions during the time, (2) enlarges not only the well-being of citizens, but (3) also economises costs for a local government. Our monitoring tool can be seen as the advanced version of the well-known 'trip-advisor'. Every user will evaluate the public space, guided by several criteria. The platform includes experience and factual data, as basis for the evaluation by experts.

The urgency of a more objective, intelligent monitoring system

Therefore, a clear observing and evaluating methodology is needed to keep up the flexible yet active adaptation of public spaces aligned with the requirements of that moment. We introduce a centralized knowledge platform that continuously gathers data related to each open space's social, environmental and structural aspects, including user feedback and factual data related to the specific case. This input allows the creation of a database of information, making it possible to analyse in-depth and interpret the use and appreciation of user groups of public space by decision-makers and creators in many ways. The mutual

exchange of information and insights defines the basis of an action plan for the public space, indicating quick wins and short or long term actions within an overall vision.

This databased knowledge platform gains its input from an intelligent application, including the questions/statements organized by the social, environmental and structural aspects of public space related to UN's Sustainable Development Goals. To achieve an objective and analysable outcome over a longer time, the formulation of the questionnaire should be stable over the years. It should be well thought out, avoid presumptuousness, and detect interrelations between themes.
We are convinced that the complexity of this process requires a multidisciplinary team working together, such as urbanists, landscape architects, psychologists, data-analyst, communication-participation experts and IT experts. The local knowledge is essential for this R&D team to detail and implements the monitoring tool.

The benefits for the actors

But what are the benefits of this intelligent monitoring tool for the three groups of (1) users, (2) policymakers and (3) creators?

1) Benefits of the tool for users (citizens, residents, workers and visitors)

The term 'users' refers to the general public who uses the space and is not involved in the design or management of that space. Hence, in this democratic approach the users:

- become the leading actor in public space production.
- grow into the ones who care most for the place they live.
- have a better overview of what is going on in their very own neighbourhood for 24 hours.
- turn into a primary source of information by truly measuring the qualities of public space: such as comfort, diversity and vitality, inclusiveness, and image and likeability of the public space. The patterns of individual and collective behaviours and social interactions, needs and ambitions of communities, and rights to space periodically change, highlighting the necessity of extending our knowledge and renewing our understanding of the evaluation of public places (Zamanifard, 2019).
- become active participants in the public space decision-making process.
- increase their participatory actions in future urban development, and consequently, enforce bottom-up renovation and changes, using citizens' daily reports about their experience of public space.
- have a better place to live based on their own active participation and will.

2) Benefits of the tool for policymakers

Through this comprehensive bottom-up approach the policymakers and their administration

- are better equipped to listen to and collect objectively, rapidly and perpetually information of users.
- restore data objectively over decades.
- obtain an overview of the broader network of public spaces.
- interchange data and experiences with the other actors and other cities.
- capture eventual problems and their urgency.
- formulate a valid future project definition.
- define an accurate action plan,
- provide an optimal living environment to achieve satisfied citizens.
- create an exemplary city.

We strongly believe that such a holistic working method for participative public space production will guide decision makers, to reflect and act with impact on the urban quality of life.

3) Benefits of the tool for creators

This bottom-up democratic, intelligent platform also serves the creators of public spaces. Through this platform spatial creators:

- have access to an active and archival learning box, which gives insight in space and time evolution while comparing public space typologies within different cities.
- work with the actual users as the most persistent reality check.
- can derive clear, innovative public space models and design parameters for master planning.
- are able to formulate a more accurate project definition for a specific public space.
- design better future public spaces or renovate existing public spaces.
  To give a practical example: studies have shown that the more inclusive a public space is, the more people can use it, increasing the chances of casual encounters. Inclusive public spaces can also strengthen the sense of place and community attachment (Hajer and Reijndorp 2001; Mitchell 2003; Francis et al. 2012). Therefore, for the renovation of the public space based on users' experience, designers can learn how to increase the inclusivity of the public spaces for the users in the new design. In this way, they create an imperative to conduct analyses and establish suitable models for improving users' experience.
- increase the quality of the public spaces, as an essential part of the urban fabric with its green-blue network.

Conclusion

Within this intelligent monitoring application, (1) the socio-environmental changes will be observed faster, (2) the three actors of the public space will be more involved in the development of their neighborhoods and cities, (3) participation will increase, and (4) the sense of belonging of the users will be stronger as well. This is realized by getting the users' opinions and ideas about their own public spaces, analyzing and monitoring those opinions through the lenses of experts (creators and policymakers), and factual data, providing action plans and informing users about future changes in their own local public space projects. In this way, creating flexible yet resistant public spaces will be possible.

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