

Engagement by Design

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ENVIRONMENTS BY DESIGN

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ENGAGEMENT BY DESIGN: HOW FOUR RESIDENTIAL GARDENS IN THE RANDSTAD (NL) STIMULATE HEALTHY INTERACTIONS BETWEEN INDIVIDUALS, COMMUNITY, AND PLACE

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INTRODUCTION

Gardens feature amongst the oldest enablers of contact with nature in cities and are known to carry restorative qualities, both to humans and non-humans.¹ Indeed, presence and access to urban green have long been acknowledged as contributing to health and well-being². Being exposed to a natural environment speeds recovery from stress³ and even the sound of nature has healing powers.⁴ Moreover, studies have shown the domestic gardens' contribution in providing ecosystem services: beyond their substantial value in augmenting urban biodiversity, gardens can help regulate temperature, reduce flood risks, and store considerable amounts of carbon.⁵ Gardens are also social environments, providing recreational and educational spaces for children and adults. In addition, collective gardens are stages for social connectedness and community building by fostering interpersonal and intercultural negotiation and collaboration.⁶

With ongoing urbanization and densification – accelerated by an increasing housing demand – and with decreasing accessibility of green in urban settings⁷, residential gardens could become key to promoting healthier and more resilient urban neighbourhoods,⁸ especially gardens with a collective character. However, little is known on the role of garden design and governance in facilitating and stimulating healthy interactions – or positive relationship – between individuals, community, and place. Research in this area has mostly focused on community gardens and allotment areas, while only a few address residential gardens.⁹

This contribution focuses on residential gardens with a partially collective character in medium-scale housing complexes in the Dutch Randstad metropolis, considering their design as products (layout, objects, experiential aspects) and processes (conception, construction, modifications). We investigate how garden design as-a-product and as-a-process can act as catalysts for community engagement, and as stages for positive interactions among inhabitants and with the place by identifying success factors and barriers. As such, this study contributes to research in landscape architecture, urban planning, and management in the built environment, and forwards design strategies that promote engagement between individuals and with the garden, thereby giving input to individual and community well-being in residential developments towards more resilient and healthy urban neighbourhoods.

Design principles for commons as framework for garden analysis

As green spaces collectively organized and managed by the residents, (semi-)collective residential gardens resemble Ostrom's concept of common-pool-resources (CPR)¹⁰, or simply “commons”. Commons can be defined as natural or constructed systems in which it is costly to prevent individuals from benefiting from its resources and, in doing so, one individual reduces the resource availability for others.¹¹ Through extensive empirical work, Ostrom challenged Hardin's postulate on the tragedy of the commons¹² by demonstrating that communities could succeed in sustainably and locally self-governing CPRs by following eight design principles.¹² Although these principles relate to natural and complex environments, they have been widely studied, translated, and applied to different kinds of urban spaces and infrastructures – such as allotment areas, community gardens, and urban parks¹³ – as well as to the city as a whole.¹⁴ Although these urban green commons account for many publications about processes of self-governance, empirical works on urban commons are still in short supply,¹⁵ and largely disregard the potential of community governance in housing complexes.¹⁶

In the residential context, shared spaces such as stairways, corridors, and courtyards, have also been treated as commons, categorized as “residual residential spaces”.¹⁷ We argue that, rather than mere residual spaces, gardens can be extremely relevant for community identity and empowerment, by facilitating, stimulating, and even provoking social engagement. As we envisioned that Ostrom's design principles also bring or lead to spatial implications, using them as a framework for garden analysis can orient this research not only from the governance perspective but also from a landscape architectural design perspective.

METHODS AND APPROACH

Our work adopts an exploratory case study approach¹⁸, as it allows us to investigate in-depth and compare multiple gardens within the study area. We discuss four residential gardens in recently constructed housing complexes in the Randstad – selected based on the presence of a collective garden and their variety in terms of location, housing market, use and level of citizen participation. As we aim to explore both garden design as-a-product and as-a-process, we adopted a multimethod approach, combining landscape architectural and governance analysis, from desk and field research, between March and October 2021.

From the landscape architectural design perspective, we analyzed the morphological, compositional, experiential, and functional aspects of the gardens, by means of plan analysis, field observations and unstructured interviews conducted with residents, visitors, and passersby. The construction of a timeline of the design and construction process helped us pinpoint important moments in the design process.

From the governance perspective, we consulted open datasets with current governmental geo-information¹⁹, as well as examined the gardens' regulatory documents to understand the ownership of the land and how communities organize themselves, defining expectations for the use, maintenance, and modification of individual and collective areas. During the field visits, we took notes and records of self-government actions, while conducting informal interviews with residents and green committees.

Finally, semi-structured interviews were conducted with the garden designers to confirm, correct, and supplement the obtained information about the design process – requirements, concept, and participatory actions – and the design product – program, composition, structure, objects, experience. The comparison between desk and field analysis from the landscape architectural and governance perspective, combined through a single framework on design principles for governing the commons, helped us to explore the case studies as dynamic spaces, constantly changing over time.

Selected case studies

Ranging from 33 to 140 homes, mixing houses and apartments, the chosen housing developments are situated in different housing markets and their gardens display different gradients of individual and collective use. (Table 1)

Case study	Year	Location	Housing	Garden layout
A	2019	Utrecht, outskirts	51 owner occupied houses	individual gardens, private collective garden
B	2015	Purmerend, urbanized area	140 social rentals apartments	public collective garden
C	2009	Rotterdam, outskirts	24 social rentals, 36 owner-occupied housing; 28 apartments, 32 houses	individual gardens, public collective garden
D	2019	The Hague, urbanized area	33 owner occupied houses	individual gardens, private collective garden

Table 1. General information on the case studies



Figure 1. From left to right: case studies A, B, C and D. Plan legend (from darkest to lightest color): individual use, transition, and collective use

Although the case studies show unique layouts and are situated in their own contexts, they share a common design principle: the collective garden in the centre of the lot (Figure 1). We hypothesize that these gardens can be interpreted as residential commons and based their comparative analysis on Ostrom’s design principles for governing the commons.²⁰ In light of each principle, two divergent case studies at a time are analyzed and compared. The comparison of contrasting cases supports this exploratory research to understand the success factors and barriers in facilitating engagement by design as-a-product and design as-a-process.

RESULTS

Clearly defined boundaries

Ostrom’s first principle concerns the need for clearly defined boundaries between users and resources, which we translated as the garden space itself. We compare case studies A and C, consisting of individual gardens connected to a collective garden. Here, boundaries refer to the interfaces between individual and collective areas within the gardens.



Figure 2. Boundaries in case studies A (left) and C (right)

In case study C, the boundaries were initially drawn by low walls or expressed by different ground surfaces. Years later, these boundaries have morphed into higher and higher fences in response to security requirements, which inhibits interactions between users and with the collective garden, and expresses reduced engagement over time. In case study A, the boundaries stretch across a green buffer, conceived after participatory meetings during the design process, as the participants were concerned about privacy. By structuring the space without the use of fences, this green buffer helps to create an integrated space. (Figure 2)

Establishing well-defined boundaries alone does not contribute to social engagement. However, the spatial configuration of these boundaries can be achieved without segregation of spaces, stimulating engagement through collaboration and visual approximation.

Congruence between appropriation and provision rules and local conditions

The second principle discusses the coherence between appropriation and provision rules – or that the use of the space needs to be consistent with residents' expectations, respecting the garden's characteristics. Once again, we compare case studies A and C. In both cases, residents maintain the collective garden themselves, although with different levels of engagement.

In case study A, flexible spaces accommodate different uses and answer to a wide range of residents' wishes. In addition, a long playful bench encourages multiple ways of engaging, such as playing and gathering, and the collective greenhouse acts as a collaborative space, where residents grow herbs and vegetables and share the harvest. In case study C, the spatial program of the collective garden encourages community life, such as a communal building and a vegetable garden. However, the use is regulated: playing with a hardball or making noise is not allowed and the vegetable garden, designed as a shared space, is a place for individual planting and harvesting. (Figure 3)

In case study A, the residents' effort spent on gardening is rewarded by the enjoyment of flexible spaces and engaging objects on multiple occasions – making gardening a pleasant and inviting social activity that concerns all residents. In contrast, in case study C, the predominantly contemplative garden only engages a small group of residents, because for some, the expectations of maintaining collective spaces are dissonant with those of their appropriation – or the enjoyment of the garden.

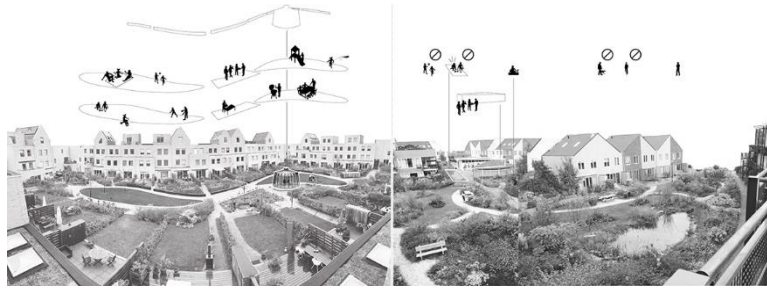


Figure 3. Use of collective gardens in case studies A (left) and C (right)

Collective-choice arrangements

According to the third principle, users should have procedures for making own rules. We translate this principle by relating it to participation in the design and transformation of the gardens, discussing case studies B and D.

Case study D is a product of a collective-private commissioning. The entire housing development, including the garden, was conceived, designed, and partially built by the residents themselves. Respecting the basic requirement of having as little paved surface as possible, households have autonomy to design the pathway to their private gardens. This created a multitude of solutions, which made the garden more dynamic, reflecting individuality within the community (Figure 4).



Figure 4. Pathways to private gardens in case study D

Case study B is a residential-care complex, composed entirely of social rentals. However, considering the inner garden would be open to the public, the design office built the garden prototype outside the construction site. By enjoying this temporary garden, the neighborhood provided input to feed the design process. For instance, a continuous wooden bench has been turned into several seating sets in the semi-private areas.

Both cases illustrate involvement during the design phase in two different contexts. In each case, to a greater or lesser degree, actions were taken to generate engagement between users and the garden – either through direct participation in the creation or transformation of these spaces, or indirectly, by engaging with the garden’s prototype.

Regular monitoring of users and resource conditions

The fourth principle is about regular monitoring of users and resource conditions – which we applied to the space itself and to the usage of those spaces. In case studies, we observed that residents generally organized one “garden day” a month for gardening together.

In addition to regular gardening, in case study D, the residents built their permaculture-based garden together and in case study A, inhabitants worked on two heavy jobs themselves: installing green roofs and re-planting the entire garden, as the soil was poor in organic material. (Figure 5)

In both cases, regular monitoring of the garden is organized by means of collective gardening days. The collective actions go further: while strengthening residents' ties with the gardens and with each other, stimulate engagement and build up a sense of community.



Figure 5. Garden modifications on case studies A (top) and D (bottom)

Graduated sanctions

The fifth principle addresses the need of graduated sanctions to come into force when regulations are violated. In all case studies, there are documents that regulate the use, maintenance, and transformation of individual and collective gardens. When a conflict situation is not formally covered by these regulations, informal arrangements come up in common agreement between residents.

For instance, in case study D, the neighbors must agree on the appearance of the boundaries between their two individual gardens. In case of a conflict, an impartial fellow resident is put in charge to help find a mid-ground. In case study C, there is pressure from the community to keep the individual gardens in good shape. When that doesn't happen, neighbors volunteer to help with the gardening.

Both examples concern private spaces that negatively impact the experience of the collective space, leading to proportional reactions from the community. The "sanctions" – or solutions taken by the two communities – end up provoking engagement among residents and with individual gardens.

Conflict-resolution mechanisms

For the sixth principle, which focuses on resolution mechanisms, we discuss case studies D and C. When one of the entrances was paved, cyclists started to enter the collective garden by bicycle, damaging the vegetation. Currently, the residents are transforming this access: they removed the pavement, narrowed the entrance by adding a piece of trunk, and are building a green arch to convey the idea of intimate space. This trial-and-error design is a tool to achieve the desired effect and contrasts with what happens in case study B. There, the gardening is done by the housing company, which led to loss of texture and simplification of garden's composition. (Figure 6)

In case study D, bottom-up decisions involve residents and generate engagement with the collective space, while in case study C, top-down decisions indicate low resident engagement with the garden over time.



Figure 6. Changing entrance in case study D (left); loss of texture in case study B (right)

Minimal recognition of rights to organize

Principle 7 argues for minimal recognition of rights, which in our study translates into a certain degree of freedom to use and transform collective gardens.

In case study A, the decision not to build a traditional playground was followed by the initiative of buying toys to be shared by all children. The entire garden became a play area, and toys are now a permanent and itinerant garden decoration. In case study B, there are no individual gardens bordering the collective one. Households were given the opportunity to appropriate part of this collective garden, by placing their own furniture and decor in the open corridor (Figure 7). In both cases, users were granted minimal rights to occupy and transform collective spaces. These actions encourage engagement with the garden and facilitate encounters.



Figure 7. Shared toys in case study A (left); informal gardens in case study B (right)

Nested enterprises

Finally, the last principle addresses the possibility of organizing into several layers of nested enterprises to facilitate successful self-government. We understand that the very garden layout and the act of gardening can be organized in this way. For instance, in case study D, there is a belt formed by a system of wadis and “hills” that embrace and structure the collective space while acting as a boundary for the private realm. This spatial nesting in turn also guides the gardening process.

The gardening of individual spaces is done by the households themselves. But when it comes to hedges between private gardens and the “hills”, decisions are made by residents of adjacent houses. The maintenance of wadis is the responsibility of the group of residents who live nearby, while the lawn and green roofs are generally taken care of by larger groups during the garden day. This structuring of the gardening process, facilitated by the garden layout, encourages constant engagement in different levels.

DISCUSSION AND CONCLUSION

This research aimed to identify success factors of the residential garden design as-a-product and as-a-process in stimulating engagement between people and with the gardens, and thereby contribute to increasing health and well-being of communities. By exploring four case studies situated in the Dutch Randstad metropolis, the results show gardens themselves, especially collective ones, facilitate engagement, as they presuppose interaction, both resident-garden and resident-residents, in terms of

use, experience, and maintenance. In addition, garden design can stimulate and even provoke engagement.

Considering garden design as-a-product, we observed some spaces, such as vegetable gardens – and objects – like a playful bench – encourage collaboration. Similarly, the garden layout itself, along with its structuring elements, can motivate engagement; for instance, a central space easily accessed by all residents appears to be more effective than intimate semi-private areas. We also found flexibility is a catalyst for engagement, as it allows multiple uses to accommodate individual expectations within the community.

Considering garden design as-a-process, the results show engagement can be encouraged at different times, whether during or after the design and construction phases. By being involved in any of these moments, residents have the opportunity to engage with the garden and with each other. The design as an ongoing process also seems to successfully stimulate engagement throughout time. And yet, when it comes to long term healthy relationships, the way the community self-governs the garden has a major influence; for instance, bottom-up approaches involving the entire community in decision-making, maintenance, use, and transformation of spaces are more effective than top-down decisions taken by closed committees or housing companies. Furthermore, we understand that a joint analysis of the garden design as-a-product and as-a-process becomes essential as actions to stimulate engagement that happens in one realm reverberate in the other.

Finally, our research confirms collective gardens have great potential to stimulate engagement, which can influence the promotion of healthier and more resilient neighbourhoods in urban areas. However, more studies are needed to truly assess the effects of community engagement in residential gardens at neighborhood and city scale. Similarly, future studies may help to further conceptualize design as-a-process and as-a-product and better understand the relationship between community engagement, health, and well-being. Although the exploratory and comparative case studies approach helped us to identify similarities to point out facilitators of engagement, these ideas are limited to the four studied garden. Thus, expanding the research with more case studies could not only help to identify more success factors and barriers but also to understand and guide the design of residential commons.

NOTES

- ¹ Ulrika A. Stigsdotter & Patrik Grahn, "A Garden at Your Doorstep May Reduce Stress-Private Gardens as Restorative Environments in the City," Conference Proceedings: *Open Space: People Space International Conference on Inclusive Outdoor Environments* (2004).
- ² Konstantinos Tzoulas et al., "Promoting ecosystem and human health in urban areas using Green Infrastructure: A literature review," *Landscape and Urban Planning* 81, no. 3 (2007): 167–178.
- ³ Roger S. Ulrich et al., "Stress recovery during exposure to natural and urban environments," *Journal of Environmental Psychology* 11, no. 3 (1991): 201–230.
- ⁴ Eleanor Ratcliffe, "Sound and Soundscape in Restorative Natural Environments: A Narrative Literature Review," *Frontiers in Psychology* 12 (2021).
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- ⁸ Bieke Cattoor & Valerie Dewaelheyns, "Designing with hybridity, scalar paradoxes, and complex dynamics: How two domestic gardens challenge the contemporary landscape imagination," *Spool* 7, no. 1 (2020): 53–74.
- ⁹ Ross Cameron et al., "The domestic garden – Its contribution to urban green infrastructure," *Urban Forestry & Urban Greening* 11, no. 2 (2012): 129–137.
- ¹⁰ Elinor Ostrom, "Similarities among enduring. Self-governing CPR institutions," in *Governing the commons: the evolution of institutions for collective action* (Cambridge: Cambridge University Press, 1990): 88–102.
- ¹¹ Elinor Ostrom et al., "Revisiting the Commons: Local Lessons, Global Challenges," *Science* 284, no. 5412 (1999): 278–282.
- ¹² Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (1968): 1243–1248.
- ¹³ Erling Berge, "Governing the Commons for two decades: A complex story," *International Journal of the Commons* 5, no. 2 (2011): 160–187.
- ¹⁴ Sheila R. Foster & Christian Iaione, "The City as a Commons," *Yale Law & Policy Review* 34, no. 281 (2016): 281–349.
- ¹⁵ Heidy Correa et al., "Self-organizing processes in urban green commons. The case of the Angachilla wetland, Valdivia-Chile," *International Journal of the Commons* 12, no. 1 (2018): 573–595.
- ¹⁶ Francesco Minora et al., "Governing for Habitability: Self-organised communities in England and Italy," *The International Journal of Co-Operative Management* 6, no. 2 (2012): 33–45.
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- ¹⁹ "Kadastrale kaart" open government datasets, accessed October 2021, www.pdok.nl/viewer.

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