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Dark green steel bars frame the entrance of the narrow alley. High fences and voluminous shrubs soften its usual appearance. Slowly a friendly open green space pops up in sight. No one to be seen. An abandoned playground amidst a few high trees. Absolute quietness.

The enclosure formed by a five storey high building. Small windows. All curtains closed. Balconies of wood as a seemingly attempt to soften the rigour. High fences neutralising this small gesture. A harsh border between private and undefined space. No-man’s-land. Different worlds side by side. Not knowing each other. Not aware of each other. Lost papers flown away. Wrinkled. Rained out. Worlds that not care for each other.

This is collective space. Meant to connect people. To connect lives. A place to meet, to laugh, to enjoy and relax. To build up a social network with your neighbours. And maintain. People who can be very valuable for your everyday life. For interaction. A small and intimate place of collectivity in a big and distant world of individualism.

The necessity of the collective garden as place of connection

In this world were the individual slowly took over the dominant role at the expense of the community, our longing for being part of a greater whole is still present in our blood. Therefore, the re-introduction of the concept of collective gardens became more and more a tool to overcome this problem and to connect all individualistic lives. It aims to establish new and stronger relationships with neighbours as well as to create more awareness of and responsibility towards the outdoor world to stimulate people to take care of the outdoor space, which in turn leads to a space with more social control where interaction can take place (Van den Berg, Blok, Hueber, Köbben & Schöne, 2003, p. 36-37). However, as is pictured above, many of these collective spaces fail in serving this purpose. Especially in the northern district of Rotterdam, a lot of collective gardens or spaces are lacking these qualities. These are not used as much and not well enough connected with the enclosing buildings or the private (outdoor) spaces. The spaces are deserted, no one feels responsible for lost trash and people mark their private space with high fences abandoning the outdoor world and keeping others out, which is not only a visual problem or a shame for our desire to belong to a community, but surprisingly it also has consequences for our mental state.
It is well known, nature in general has a good influence on people’s well-being and health, but the added value of social interaction collective gardens can offer us is something we shouldn’t underestimate. Actually, it appears that the concept of collectivity, of being part of a community and the social relationships it brings, has a positive influence on our mental and physical state. It seems that environmentally enriched conditions with opportunities for physical activity, learning and social interaction have the potential to prevent or reduce cognitive decline and to protect us from the occurrence of mental illnesses like dementia in an early state of our lives. And it’s just these kind of environments you find in nature and the outdoor space like for instance collective gardens (Fratiglioni, Paillard-Borg & Winblad, 2004, p. 350). With this knowledge it’s even more painful people already suffering from dementia are housed in institutions where they don’t have a good physical connection with outdoor space, hardly any connection to the outdoor world and are almost completely socially isolated from the other non-dementia inhabitants of the city. On the other hand it’s a problem that in the ‘normal world’ collective gardens are present but not designed good enough and are therefore missing the opportunity to offer people a breeding ground for a longer healthier life.

Therefore it could be very valuable to investigate the concept of collective gardens to be able to draw conclusions about why one collective space is actually used by the inhabitants, while the other is not, with the aim to get a better understanding how collective gardens can be used to stimulate social interaction between people facing the space to achieve a better, healthier and also a more pleasant life for all people. To eventually gain this knowledge the following question will be inquired, in which a distinction is made between the spatial establishment of the relationship between private and collective and the use of activity-related elements in stimulating people’s participation in the collective:

What influence do design elements have on the level of interaction in collective gardens?

The first part of this paper will be an exploration of the already available knowledge of on the one hand what people expect from a collective space and how collective gardens are used, and on the other hand how interaction is stimulated in these collective spaces. In addition a clear direction for the field research will be chosen to complete and connect the different surveys, where there is at the moment a missing link. In the end the research, its results and the new insights will be showed after which can be concluded how to use these in the design process.
The underlying concepts of spaces of collectivity

For the investigation on how collective gardens can stimulate interaction between people living around the concerned space, the spatial and activity-related elements of these gardens will be the guidelines for the research. To tackle a possible misinterpretation of these introduced words, these will first of all be made more concrete by a self-invented definition and secondly their meaning in the context of collective gardens will be explained.

spatial (ˈspeɪʃ(ə))

Relating to space

e·le·ment (ˈɛ lɪ m(ə)nt)

An essential or characteristic part of something, a small but significant amount of a feeling or quality

> spatial element

own definition

A spatial element relates to both tangible and intangible spatial arrangements, like the placements of fences or vegetation (tangible) and transitions or divisions from public to private (intangible)

Relating this to collective gardens the following aspects will be investigated: What are the different aspects of the collective garden? What zones can be distinguished? How are transitions designed? What is the connection between public, private and collective space? How is the space divided? How are different zones connected? And how is the way movement

act·vi·ty (akˈtɪ vɪ ti)

The condition in which things are happening or being done, action, movement, a thing that a person or group does or has done

re·la·ted (rɪˈleɪtɪd)

Associated with the specified item or process

> activity-related element

own definition

An activity-related element relates to tangible objects that already include and carry in themselves stimuli for interaction, like playgrounds, an outside kitchen or a picnic table

As regards the activity-related aspect the collective gardens will be investigated on the following: What function does the collective fulfill? What does it offer for interaction? What are the elements that invite the inhabitants to use the collective space? And who are supposed to use these objects?
I'm convinced in all existing collective gardens translations of these two elements can be discovered, including the one described in the beginning, seen in the image below, but it is the mutual relationship of all elements and the quality which make a collective garden successful and a breeding ground for interaction.

“(…)one to be seen. An abandoned amidst a few high trees. Absolute quietness.

The enclosure formed by a five storey high building. Small windows. All curtains closed. Balconies of wood as a seemingly attempt to soften the rigour. High fences neutralising this small gesture. A harsh border between private and … an undefined space(…)”

People’s motives for sharing gardens

Collective gardens are from all times. Already in the 14th century this concept was applied in the so called ‘hofjes’ where very small houses faced one collective green space which were used as fields for bleaching linens. The spatial arrangement of the u-shaped block and the fact the doors were facing the garden contributed to the sentiment of unity (Van den Berg et al., 2003, p. 24). However, nowadays also other motives can underlie the introduction of these kind of collective spaces. So, before investigating different collective gardens on their spatial and activity-related elements to draw conclusions on when a garden does or doesn’t stimulate interaction and the role these two subjects of inquiry play in that, it’s necessary to do some research on the different motives for the choice of collective gardens in the first place and the variety of gardens that derive from this.

Surveys done on people’s desires how to ‘use’ gardens show one’s attitude towards both the use of the private garden and the collective. Revealing slight differences between these. It appears Dutch people use their private gardens for six different purposes (Van den Berg et al., 2003, p. 31), actually:

- nature-experience
- the presentation of self
- "garden with benefits"
- family place
- privacy
- relaxation
Some of these aspects could even be better emphasised in the collective space, like for instance nature-experience (Van den Berg et al., 2003, p. 31), which also becomes clear in people’s attitude towards the collective garden. Showing that the main motives to choose a dwelling including a collective garden appear to be:

<table>
<thead>
<tr>
<th>nature-experience</th>
<th>Safe environment (for children)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No need to maintain the garden themselves</td>
<td>social contacts</td>
</tr>
</tbody>
</table>

Based on these results five different main types are distinguished. Offering different qualities tuned to the variety of wishes.

- The inner courtyard.
- The backyard.
- The ‘plantsoen’ garden.
- The property garden.
- And the park garden (Olde Loohuis et al., 2002, p. 8-12).

It has to be said, the questioned people are not all considered as future ‘owners’ of collective gardens since it appears that almost all people who choose voluntarily to live around a collective garden want to experience and maintain the garden together with their neighbours for social contact, the sentiment of unity and a safe environment for their children. The others actually prefer a private outdoor space, but are not always able to afford that (Van den Berg et al., 2003, p. 13). The five types of collective gardens, therefore, all have the potential to offer the different qualities for the specific groups of people with the same desires.

The different garden typologies

The five types of gardens creating space ‘excluding’ the public and offering collective use to the people who are able to access these collective gardens are in principle blank papers on which anything can happen. The ‘Stalenboek’ (Olde Loohuis et al., 2002) elaborates on this by describing how the different types of gardens respond to different desires of different target groups who have the same wishes as regards the use of collective space, and by showing how this is achieved spatially and, using my terms, with activity-related elements.
As can be seen in the images above, in case of the inner courtyard the collective garden is created by the enclosure of collective space by private space in the shape of a building. As regards the backyard only one side is occupied. Both types facilitating a direct connection from private to collective in which the gardens are accessible from the living. This differs from the collective ‘plantsoen’ garden which is not directly attached to the private spaces it belongs to. In case of the property and the park garden the arrangement of the collective garden and the private spaces is even reversed in which the collective garden surrounds the private buildings instead of the other way around.

What is striking in this investigation of the different types and the different ways in which you could fulfill the wishes of different groups by giving the garden a suitable function is that it only elaborates on tangible spatial elements, like the placement of vegetation in space and the used activity-related elements, like a playground, without mentioning how these relate to the building, how and if the use is spatially stimulated and why these design proposals could actually make the collective gardens successful. It seems, it sticks to a random placement of spatial and activity-related elements of which you could only hope these have the desired effect.

*Spatial and activity-related aspects in relation to the intensity of interaction*

The knowledge of the exact aspects, either visible, tangible, invisible or intangible, that make a collective garden really to a success as regards the participation of all ‘owners’ leading to a place of interaction, is still a missing link in the available literature. Never mentioned or analysed in detail. From the other surveys one can conclude not all collective gardens are created to stimulate in the first place social contact, which can force one to investigate only the gardens which are focussed on social interaction, but in the end it appears that the level of social contact is above average when a collective space, irrespective of its function, functions well (Van
So considering this, all collective gardens can be interesting as a field of investigation, focussing in case of interaction-stimulating gardens why one is working well while the other is not, and in case of gardens with functions different from that why one in the end leads to a place where people are more tempted to interact, while in the other people stick to using the garden just as a space to look at.
The physical garden as field of investigation

To investigate how collective gardens work and how interaction is stimulated, four collective gardens in the northern district of Rotterdam will be investigated on their spatial and activity-related elements. These collective spaces are selected based on their typology and accessibility to show the function and usage of collective gardens in different situations.

The chosen gardens are 'Het Wilgenplantsoen' which is a publicly accessible square amidst three building blocks and a playground with soccer cage, 'De Tuin van Tante Stien' which is partly enclosed and is publicly accessible, the collective garden in 'Het Rottekwartier' which is completely surrounded but still fully accessible to the public and last but not least, 'Het
Rembrandt Kinderhof, which is also situated inside a closed building block but is not accessible for people other than the inhabitants of the dwellings facing the garden.

To record the findings of the research in a way that is both specific enough and neutral in its approach to draw conclusions from, drawings of the real and literal situation will be used to note down different aspects. On the one hand these drawings are based on my own observations in which the visible tangible and intangible aspects are reflected. This applies to the tangible and intangible spatial elements like, among others fences, shrubs, zones and transitions, and the (always) tangible activity-related elements which are already visible in the garden itself. On the other hand, ‘interviews’ will be held with the main organisers living around the concerned space leading to drawings in which the activities that are organised apart from the elements present in the garden are to be seen. Besides, these stories told by the people themselves will serve to understand the collective spaces better and to gain an understanding of who participates and how the space is used.
The design and use of collective gardens

In the free space between three building blocks and a playground with soccer cage a square unfolds itself. Appears entirely public at first glance. Serving as a buffer. As a common space meant for the entire neighbourhood. Urban. Surrounded by low rise apartment blocks and family houses. All in brick. Pavements of grey tiles and streets of red bricks separate private from public. The green steel bars of the enclosing low fence define the space. Suggest a different zone than the surrounding publicness. Still freely accessible. For everyone. No gates. Many openings allow people to enter the open wide space from all sides.

Red bricks cover the ground contrasting the grass fields. Green but city like.
The design of the Wilgenplantsoen with all its events.
The square divided in 8 islands. Different sizes. Comparable characters. Hold together by the low green fence and middle-high shrubs wrapped around the space. High trees along the borders as a shelter against influences from outside. Small trees alongside the central pathway. Public zones.

the upper islands

Low shrubs on concrete bases divide in different areas. Public. Collective. And private. Vegetation used to decorate the place. To offer a playful Experience sorts of several nature. To wander through. To hide behind. And to perceive.
7 openings to enter. 6 paths to take. To perceive the space differently. With other purposes. The main pathway marked by the continuation of the fences wrapped around corners the

Into the space. Straightforward. From where all islands can be reached. Attracting quick passers-by. Connecting all 6 routes. The shortcuts offer several entries. Meant to offer quick access. Stimulating use. Along which all activities are situated.
Homogeneity. 2 empty islands of grass on both left sides of the main pathway bring spatial air to the place. Contribute to a clear overview. Benches along both sides offer moments to rest. Places to meet. Playgrounds on carpets of artificial grass dominate the 3 islands on the southern side.

2 islands consisting of a collective area with private vegetable gardens. Meant for whoever wants to have a piece of ground. A man busy harvesting his fully-grown crops. Preparing his ground for the new season. For the spring.
Through silver steel bars a peaceful green oasis **CALLS** for attention. The open gate pulling one closer. A narrow and long drawn-out space appears in sight. Old, new and future enclosures in the shape of five storey high blocks and an empty plot where once buildings have been. **Colourful** galleries soften their closed image. Windows hardly perceived from beneath.

High fences block the visual connection between private and ... public? collective? Feeling anonymous in a place which closes after seven pm. A place that withdraws itself from the street, clearly belonging to the buildings surrounding it. And supports. A man watching me. Safely from behind his fence. Asking me what I'm doing. Collective space ... apparently. A space where people know each other. And have small talks. A controlled place where intruders are distinguished from neighbours.
The design of the Tuin van Tante Stien with all its events.
Minimal diversity. Four islands stretched out from east to west. Empty mowed fields. Carpets of artificial grass cover the playgrounds scattered across space.

High vegetation as a seemingly completion of enclosure. Protecting the garden from something that is not physically there. A shelter wrapped around events that can take place. Harsh borders between private and collective in the shape of stone sheds.

Walls inbetween. Glass doors.

**Voluminous shrubs** facing the other side. As high as human beings they block sight from building to garden and back. No entrances to the collective. No connection. On the crosscut side low shrubs form the transition from private gardens to the shared area. A soft border allowing both visual and physical interaction.
Along the borders a straightforward walkway connecting private and the outdoor world. Purposeful. Quick. Not well connected to the islands and the events they offer. Not meant to take when using the space. A path takes it over. Meandering crossing the route at certain points Circling through the garden. Connecting all islands. All activities.
Playgrounds dominate the appearance of the green collective space. In the centre of attention a playhouse with slide.

An island of its own. 3 seats with pedals attached to a post on a small carpet of artificial grass. A playcar. A safe enclosed area for children to play. Used by the ones living around and by childcare after school hours. Playing and learning. Vegetable gardens in boxes not far from the gate. Meant to teach children about nature. About food. About harvesting the fully-grown crops.

In the back of the garden a wooden chalet takes unremarkably its place. Equipped with kitchen and table it offers a space to meet and cook. To prepare the vegetables. The fruits picked from the trees. And eat. In the centre of the garden 3 picnic tables in a row.

Behind 2 benches and a concrete set of furniture. Covered by a roof. Wooden sheds equipped with gardening tools enable the people to maintain the garden themselves. Together. As a community.
The empty fields of grass presenting blank papers on which the identity of the community can be expressed. Offering space for own infill. For non-prescribed activities.

The stretched out lawn perfectly suitable for big events. Gathering people to watch European and World Championships in party tents. Shrubs sheltering the small swimming pools in summer. The pathway meandering offering mysterious routes during Halloween.

Image 13. The design of the Rottekwartier with all its events.
The quiet peaceful and isolated inner world characterised and formed by natural stratification

**GIANT trees**

Small trees, mounts, and high shrubs

Flowers and low plants

Grass fields

Asphalt, stone tiles, and red bricks

Randomly spread over the different islands. Mounts and high shrubs cover the outline of the green space. As seemingly shelters. Borders. Only leaving out the eastside.
Along the wall of shrubs and mounts transitions formed by high wooden fences distinguishing private from collective. Harsh borders secluding the individual lives from the communal spirit. On the eastside high transparent fences and low shrubs shape the point where these two worlds meet. Where private turns into collective. Where the two atmospheres bear more resemblances than on the opposite side. Both flat surfaces. Grass fields and low vegetation. Open.

A straightforward walkway between the green shared area and the private gardens connects the inner world with public life. Shows diverse atmospheres. From intimate and narrow to open and wide. A pathway leads one’s way to the centre of the space. Offers a free route meandering through the garden. Connecting all routes. All islands. All activities.
The green space reflecting gathering. On a circular square of red bricks a wooden structure representing benches and tables. In the back a fireplace. 3 tree trunks serving as seats. Along the meandering benches and wastepaper baskets. Places to sit. Together. To talk. To eat. To enjoy and spend time. Nights of storytelling at the fire. Not allowed anymore. At the side vegetable gardens divided into 24 pieces of ground. To be rented out to people living in the enclosing blocks. To adults. A space of exchange. Words. Stories. And Tomatoes. The lower garden meant for children. To teach them how to plant. To feed. And harvest food. Water pumps to water the vegetables are located next to the spots. Not functioning anymore due to contaminated groundwater. A space to play. In a wooden shed outdoor toys and sleighs. Soccer goals made of bamboo wood. Wooden arches to walk through. A playhouse with slide. And mounts used for tunnels to crawl through.
The absence of empty space hindering own input. Enable primarily small interventions. The carpet of grass field covering the fireplace used for camping in summer and during autumn holidays. Tents and caravans scattered across the entire space. Flea markets alongside the meandering pathway attract people from outside. And stimulate interaction. An event where people sell their personal abandoned stuff and self-made food. Free pancakes and wiki drinks for the children invites everyone to come and participate. The biggest events at Whitsun and during Halloween transform the entire place. Creating a completely different world. An own world. Which is only possible in private and collective space.
Closed gates. Black steel bars frame the image of an intimate small square. Enclosures in the shape of sheds block any sight on the space behind. Old two and three storey town houses and a new four storey high building form the surrounding building block. Leave every piece of the inner space to one’s imagination. A woman living on the third floor unlocks the gate. Slowly the inner garden makes its appearance. Tiny. Peaceful. And quiet. Not aware of the world outside its borders. Non-regulated nature dominates the place. Leaves everywhere. Tree branches on a pile. Pathways made of natural materials found in the garden itself. A garden as it is supposed to be. Returned to its original state. Given back to nature itself.
The design of the Rembrandt Kinderhof with all its events.
High trees cover the south side of the small garden. As a natural shelter they almost bend over the entire space. Behind high wooden fences form the border between private and collective. On the opposite side low transparent dark green steel fences face the flowing grass field filling two thirds of the green space. Small trees divide the space in two. Strengthened by a green steel fence distinguishing one zone from the other. Low vegetation and green waste naturally create different zones. Zones in which nature dominates.
The pathway circles straightforward between the private gardens and the green shared area. Two different faces. Along the high wooden fences a path of grit covers the earth shifting into grey tiles when touching the low transparent green steel fences. An urban look in contrast to the overwhelming force of nature. A small unfinished path made of found material penetrates the garden. Connecting the route and the activities it offers.
No unused spots. The flowing grass field forms one big playground. Climbing frames. A playhouse with slide and swing. Tree stumps to play on. All naturally materialised. Merged into the green. Benches along the urban pathway offer moments to rest. To meet. To read a book. And enjoy the sun. Vegetable gardens meant for inhabitants are distinguished from school gardens. Meant for children. To learn about the process. To experience and taste. Berries. And herbs. Not used anymore. On the intimate and small square a blackboard and benches. To play school. To trigger the children’s fantasy.
The small size and absence of empty space hinder non-prescribed activities. Suiting the wildness of the green best. Beside barbecues, decorating the garden the only activity held. Painting the wooden fence with nature scenes. Green graffiti on the stone sheds. Children and parents working together with an artist to make mosaic tables and seats. And the HUGE amount of green material used to build shanties finished with a roof of carpet pieces. A space to discover nature by playing. By seeing diversity in plants and birds.
Main findings

Four collective gardens. All located in the northern part of Rotterdam. Different typologies. In enclosure. And accessibility. Small and big. Different uses. And atmospheres. Still similarities can be found. All gardens characterised by the presence of different zones. Private and collective separated. Side by side. Fences as an appropriation of one’s private outdoor space. Preventing a fluent transition from one zone into the other. From individual space to the communal. At the borders high vegetation or trees form shelters protecting the green area. A straightforward path along the wall of green forming an extra buffer. Split into several paths to penetrate the garden till the center of the collective space can be touched.
Creating islands. **Big** and **small**. **S t r e t c h e d  o u t** and short. **Narrow** and **wide**. Empty grass fields or housed by elements. Child-friendly. The image dominated by playgrounds in all four gardens. Playhouses with slides. Swings. Wooden arches to walk through. Different in material and looks. But present and used the same. Vegetable gardens forming an integral part of the collective space. To stimulate interaction between neighbours. To establish relationships. Used to learn children how to plant. To feed. And to harvest the fully-grown crops. To experience the process. Experience nature. And to have fun. To cook the vegetables. And to taste. Together.

But why are all these elements similar in these different gardens .. ? All collective but still so different in atmosphere. Location. And **s i z E**. How can privacy be guaranteed without hindering interaction. With the collective space. And with neighbours. What can be discovered in the way people deal with the spatial and activity-related elements present in the gardens described ... and how does it affect exchange between 'individual and private' and 'communal and collective'.
The interplay between the collective garden design and the level of interaction

The design of transitions from private to collective one of the most important factors in creating connections. Connections between individual lives and the communal spirit. The power to stimulate or obstruct interaction. The placement of high fences used to distance oneself from the collective space. Block both visual and physical relations. Low fences used to embrace the presence of collectivity. Revealing the ambition to use the space. To participate. And interact.

Collective space. Meant to connect people's lives. To create visual and physical relations. No high fences wanted. Still often seen. In all four collective gardens inquired ... variety in fences can be discovered. High closed fences. High and low transparent fences. Low shrubs. High and middle-high voluminous shrubs. And closed stone sheds. Differences of its use between the gardens. Differences of its use in the gardens themselves. Indicating issues ...? Issues in small or big parts of the garden? Or is it just personal taste?

The zoning in the use of fences reveals issues. Too clustered to be shifted on personal taste. Divided too uniformly. People forced to protect their privacy. Their private space. To block any connection due to the design of the shared area. What are these elements ..? What are their motives? In the Wilgenplantsoen middle-high transparent fences and voluminous shrubs enclose the entire space. The shrubs covering the long sides. The fences both ...
Low shrubs in the space mark the presence of a zone different than the surrounding. The Tuin van Tante Stien characterised by high stone sheds. Facing **voluminous** high shrubs on the opposite side.

Low shrubs at the short side. In the Rottekwartier high wooden fences dominate the space. Enclosing almost the entire garden. High transparent fences and low shrubs counterbalance this harsh rigour. While in the Rembrandt Kinderhof high wooden fences and middle-high transparent fences are almost equal in their presence. Maybe even more openness. **HUGE** differences between the different gardens. To be due to the differences in the accessibility of the spaces? The positioning of different zones side by side?

The Wilgenplantsoen primarily public space. Offering a collective zone at in which private pieces of ground are given away. Still middle-high fences and shrubs are used to define the space. Dividing two public zones. For the safety of playing children most probably. To show it's different from the street. **Transparent**. The private zone distinguished from public by low shrubs. The Tuin van Tante Stien consisting of private gardens and collective space. Accessible for the public during the day. Both high fences and low shrubs are used to mark the private spaces. The same in the Rottekwartier. Different from these last two the collective
garden Rembrandt Kinderhof. Not accessible for people other than the inhabitants of the enclosing block. Actual collective. Dominated by transparent middle-high fences. Still high wooden fences are used on the opposite side.
Indicating the combination of different zones in a collective garden is of little influence on the decision-making for the type of fence. Sounding strange. Only expecting high fences where private faces public. Where strangers can walk by. Or is it in the design of the route the people take. Strangers. And neighbours. In its distance to private space. In its s i z E.

Especially eventual differences between the last three gardens are interesting. Since these have actual private gardens. Clashes between private and public. Or collective. Small pathways close to the individual outdoor spaces in the Tuin van Tante stien. Coming to close. High fences. Stone sheds and voluminous high shrubs as an attempt to block the outdoor world. The wider path along the short side more appreciated. Low shrubs only for clarifying borders. The same goes for the Rottekwartier. Still ... transparent high fences appear where low shrubs should dominate. Indicating other issues? The pathway in the Rembrandt Kinderhof one s i z E. E v w h e e r y r e. Still facing different borders. Depending on different atmospheres. Spatial elements. Vegetation.
High vegetation covers the outline of the green spaces. Shrubs. And Trees. As a frame. Creating diversity. As a contrast to the grass fields stretched out from east to west. North to south. Covering a few sides. Leaving the rest empty. Something striking to be noticed. The trees along the long borders of the Wilgenplantsoen hide behind the shrubs. The empty sides enclosed by the steel fences. The trees along the private gardens in the Tuin van Tante Stien accompanied by the closed stone sheds. The flat surfaces bounded by low shrubs. The high wooden fences used in the Rottekwartier along the wall of trees and mounts. Transparant high fences take it over when the vegetation becomes lower. Low shrubs form the border between private and the flat collective space. Along the small pathway next to the high wooden fences in the Rembrandt Kinderhof high trees. And mounts. Grass fields face the middle-high steel fences. Trees and mounts. High closed fences. High vegetation. Transparant fences. Grass fields and flat surfaces. Low shrubs or fences.
Almost without exceptions. Exceptions always interesting. The high shrubs in the Tuin van Tante Stien. And the high fence facing the private spaces in the collective in the Rembrandt Kinderhof.

In two gardens more interaction than in the others. The Tuin van Tante Stien. The collective garden in the Rottekwartier. Organising non-facilitated events. Due to the people living around the concerned space ...? Or to the design of the garden? Activities held in the flat and open spaces. On the grass fields spread out from one side to the other. Blank places. Enabling own infill. The other gardens no unused spots. Obstructing any collective expression of the inhabitants.

All these findings. These aspects. Leading to a clear conclusion on what stimulates interaction and participation. And what elements obstruct this. Visualising this in two sections. One showing all aspects causing high fences. Hindering strong connections between private and collective. Hindering interaction. One showing all aspects causing low fences or shrubs. Stimulating strong connections. Participation. And interaction.
Trees. Mounts. And high vegetation.
Small and narrow pathways close to private space. Accessible for the public.
Forcing people to protect their private space. Their privacy. Causing high fences. Hindering any form of participation. Or interaction.

Flat surfaces. Long drawn out grass fields.
**Big** and wide pathways along the private gardens. Accessible for people living around the space. Enables privacy. Causing low shrubs or other low fences. Creating visual and physical relationships. Stimulating interaction.
Activities as vegetable gardens and playgrounds in front of the private. Stimulating participation.
Conclusion

Four collective gardens inquired. To investigate how they are designed. How they work. How people use them. And what is offered. How people deal with transitions from public to private. To find out how collective gardens could stimulate interaction between people facing the space, by investigating and answering the research question stated in the introduction:

*What influence do design elements have on the level of interaction in collective gardens?*

Observations and interviews used to frame the research. The spatial and activity-related elements to organise the drawings. To be able to eventually gain knowledge about how the relationship between private and collective can be established spatially and how activity-related elements can stimulate people’s participation in the collective gardens.

*The similarities between the different gardens*

Even though all four investigated collective gardens are different from each other as regards typology, accessibility, size and atmosphere, similarities could already be found after completing the research. First of all, striking similar aspects could be found in the spatial arrangement of the gardens. It appeared all collective gardens consisted of both private and collective zones which are separated by fences and connected by an outer pathway which circles
around the collective zone and along the private outdoor spaces. Besides, in all cases this route splits up in more paths penetrating the collective until the centre is reached, leading to a division of the space in several islands. Another striking spatial aspect that can be seen in all gardens is the presence of high vegetation along the borders of the collective space, in the shape of trees, high shrubs, mounts or even a combination of all this.

Beside the similar spatial arrangements and elements, resemblances could also be seen in the use of activity-related elements, since all four gardens are provided with playgrounds and vegetable gardens. From the notion of these visible elements and the stories told by the people living around the spaces can be concluded that the four gardens all focus primarily on children to achieve a child-friendly area to play. It must be said, this division in spatial elements on the one hand and activity-related elements on the other is made to get a clear overview in the research and to sort the drawings, but the line between these two aspects is not as harsh as it seems. More than that, they are actually inseparably linked, since activity-related elements cannot exist without spatial elements. The presence of for instance a playground is always facilitated by spatial aspects and even the placement of the activity-related elements is a spatial intervention.

However, these conclusions on similar aspects don’t reveal anything yet about the collective gardens’ level of success in creating a place where the actual feeling of connection dominates, which is a fundamental aspect of this concept. Therefore, it was important to investigate if the collective gardens actually felt collective by looking at the design of transitions which is the most determinative factor when realising that people mostly block the ‘unknown’ outdoor world full of strangers, but ‘welcome’ the outdoor world which is partly theirs.
The influence of the garden design on the design of transitions

When comparing the four different gardens on the types of fences used, it stands out that in all gardens different fences are used next to each other. Not randomly, but in actual zones, indicating design issues in certain parts of the garden. From the analysis of the possible relationships between the different investigated aspects and the types of fences one can strongly conclude that there are certain elements that cause high fences as (privacy) protection, which is also immediately the answer on the main question of the research:

What influence do design elements have on the level of interaction in collective gardens?

It appeared that small and public pathways close to one’s private space and high vegetation and mounts in front of one’s garden result in the use of high fences, hindering both visual and physical interaction between private and collective. In contrast to that, wide pathways along the private spaces, flat surfaces like grass fields and the presence of activities in front of the private gardens result in low fences, stimulating both visual and physical interaction between the different zones of the garden.

Design

As already demonstrated in the introduction, the concept of collective gardens is quite important in maintaining and improving people’s physical and mental health since it has, more than anything else, the potential to offer environmentally enriched conditions in which physical
activity, learning and social interaction can take place which prevent or reduce cognitive decline and protect one from the occurrence of mental illnesses like dementia. For this reason, this research is very valuable in both the rethinking of living environments for people that already suffer to a greater or lesser extent from these mental illnesses to offer them a stimulating environment that certainly doesn’t worsen their state, but also in the rethinking of living environments for non-dementia people to offer a breeding ground for a longer healthier life.

However, it is therefore necessary that collective gardens actually offer such environments which is nowadays not always the case. Therefore, this investigation on the influence of design elements on the level of interaction in gardens and its outcome can be used to create well-functioning collective outdoor spaces which are at the same time also well connected to the living environments of the people with dementia and to that of the mentally healthy inhabitants of the city. Thus, in the design of these collective gardens attention will be given to the right conditions that are needed as regards for instance the accessibility, but also to the use of the right spatial and activity-related elements, its sizes and placements to achieve an interaction stimulating environment that attract all the people facing the concerned spaces to use the garden, to join and participate.

**Literature**


Throughout time the concept of collective gardens played an important role in creating the sentiment of unity between people living around the garden, connecting individual lives with each other and the outdoor world. However, in the northern part of Rotterdam many collective gardens fail in serving this purpose, resulting in deserted places where no one feels responsible for, shown by lost trash and the high fences dominating the image. Therefore, this paper elaborates on the design of collective gardens in Rotterdam to investigate what influence design elements have on the level of interaction in these spaces. To acquire this knowledge the relationship between the different types of fences and the garden design and use is investigated by observing the spatial and activity-related elements of four collective gardens and interviewing the inhabitants facing the outdoor spaces. This revealed the accessibility of the spaces, the routing through the gardens and the presence of vegetation and activities as the determinative factors in people’s choice for either high or low fences, or in other words, in people’s choice for abandoning or embracing the collective.

*Keywords: spaces, activities, gardens, collective garden*