Thesis

The Valuation of Green: A Case Study

How different registers of valuing play a role in the way residents perceive green space in Bloemhof

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Table of Contents

Abstract

Green spaces serve as crucial climate adaptive measures and raise concerns regarding environmental injustice issues due to the unequal distribution and accessibility within urban areas. Rotterdam exemplifies this issue, with certain districts, like Bloemhof, experiencing limited access to green spaces. To shed light on how residents perceive and value these limited green spaces, valuation studies are employed. Drawing on qualitative studies, this study gathers data through interviews and observations. By incorporating social justice theories and employing a transformative framework, this research aims to give voice to underprivileged people in Bloemhof, promote positive change, and advocate for the provision of adequate green spaces for all residents. By doing so, different registers of valuing are discovered that represent a lens through which the residents assign significance to green space. The following registers of value are of particular interest in the case of Bloemhof: 1) biographical time, 2) the importance of naturalness, 3) emotional and psychological benefits, and 4) recreational and social value. This study concludes that these registers offer unique information for green, as well as valuation studies, by creating insights to improve the availability of green spaces in underprivileged areas, while also promoting a more sustainable, equal, urban environment.

Keywords

Environmental injustice - Green space – Interviews - Urban greening - Valuation studies

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1. Introduction

Urban green spaces, like parks and forests, are seen as fundamental points on the path to urban sustainability (Palliwoda & Pries, 2021; Groenewegen et al., 2006). Such green spaces are a crucial form of implementation of a nature-based solution, which enhances climate resilience and aligns with several Green Deal goals (Heikoop, 2021; IPCC, 2021; Knuijt, 2020). An example of an important nature-based solution in this matter is the implementation of green infrastructures. These include the strategic use of trees, plants, and other vegetation to enhance urban areas, like urban parks, sedum roofs, and trees (WorldBank, 2021). Working towards a more sustainable environment, climate adaptation measurements aim to minimize the negative impacts of climate change (Kreemers et al., 2020; Van Valkengoed & Steg, 2019). Such actions (e.g., combating precipitation, heat, droughts, and flooding), underscore a city's recognition of the value of green infrastructure in combating climate change and safeguarding its residents and environment (National Adaption Strategy, 2016; Klimaatadaptienederland, n.d).

Within this ideographic case study, the significance of green spaces is emphasized in addressing the challenges posed by climate change in urban areas, particularly in Rotterdam. In this, valuation studies provide a framework for recognizing the importance of green spaces as public spaces and the need for equitable distribution and access. Hence, the fact that green space is an increasingly important form of a climate adaptive measure (Rotterdams Weerwoord, 2020; Klimaatadaptie, n.d.), also raises a social justice issue. The distribution and accessibility of green spaces within urban areas often display inequalities, with certain communities facing limited or no access to such spaces (Maas et al., 2006; Jennings and Bamkole, 2019). This issue is evident in Rotterdam, where several districts appear to be neglected in terms of equitable distribution of green spaces (Stichting Climate Adaption Services, 2021; Cobra Groeninzichten, 2023). Therefore, this case study focuses on one such district, Bloemhof, and employs valuation studies to analyze the residents' perspectives on green spaces. Valuation studies provide insights into the unequal distribution and accessibility of green spaces and involve residents from excluded neighbourhoods (Raymond et al., 2014). It, therefore, serves as a powerful tool for addressing environmental injustice issues in areas where residents lack green access. Given the inadequate provision of green spaces in Bloemhof, this study aims to examine how residents perceive and value the existing green spaces in and around their neighbourhood. As such, the research question: "What multiple and potentially conflicting registers of valuing play a role in the way residents perceive green space in, and around, 'Bloemhof'?", is of particular interest since it contributes to the identification of the different values residents' attribute to green

spaces. In general, valuation studies play a crucial role in advancing ecological and social theories within the realm of urban green space studies (Vatin, 2013; Heuts & Mol, 2013). They offer valuable insights into climate adaptation measures by informing decision-making processes related to urban green infrastructure, providing justifications for the costs associated with climate adaptation, and identifying priority areas for green investments. In essence to this case study, valuation studies will increase the theoretical collection of the promising, multidisciplinary area of valuation studies, by investigating what the values of green spaces could be (Heuts & Mol, 2013). By raising awareness of the value and significance that residents associate with green spaces, valuation studies facilitate a deeper understanding of their societal importance.

As been written, the residents of Bloemhof face unfortunate consequences characterized by a lack of green space. Within urban settings, Swanwick et al. (2003) distinguish between 'green' and 'grey' zones, where green zones refer to open areas with vegetation cover and grey zones encompass built structures like buildings and streets (Jorgensen & Gobster, 2010; Swanwick et al., 2003; Hunter & Luck 2015). When comparing the proportion of green and grey zones, Bloemhof, along with neighbouring regions Hillesluis (70-80%) and Afrikaanderwijk (>80%), predominantly exhibits a 70-80% grey zone (Stichting Climate Adaption Services, 2021; Cobra Groeninzichten, 2023). However, it is important to note that urban greening initiatives have been widely recognized for their positive impacts (Ernstson, 2012; Woo et al., 2009; Fuller et al., 2007). At the same time, issues could arise from efforts to make cities greener. First, due to growing urbanization, an increased amount of people may have to live in residential areas with fewer green resources. In this, people with a lower social economic status (hereafter: SES) cannot afford to relocate to greener locations outside of cities, and would therefore, be impacted (Maas et al., 2006). Second, greening initiatives may be given top priority in regions with high-income neighbourhoods (Liotta et al., 2020; Vleesenbeek, 2022). Herein, a shortage of green spaces and poor quality in low-income neighbourhoods affects residents' health and quality of life (Lager et al., 2023; Liotta et al., 2020; Vleesenbeek, 2022), since communities with a poor SES, tend to be located where groups with vulnerable health live (De Vries et al., 2022). Third, environmental and social pressures, such as restricted time spent outdoors and social isolation, places residents of urbanized areas more at risk of health issues. In this, the opportunity to improve social engagement and cohesion is diminished by the limited accessibility to urban green spaces (Jennings and Bamkole, 2019; Siebring, 2020). Fourth, research done by Hoffimann et al. (2017), shows that green spaces in deprived

neighbourhoods have significantly fewer facilities like seating, restrooms, and cafés, which are crucial attractive factors for green space use. Additionally, Hoffiman et al. (2017) exhibited that those neighbourhoods have significantly higher levels of safety concerns, damage, and more often an absence of equipment for recreational activities.

Regarding the above, it can be assumed that green spaces are distributed unequally within cities and municipalities since people with a low SES often seem to be missed out on the ability to green space access (Byrne et al., 2009; McConnachie & Shackleton, 2010; Groenewegen et al., 2006). As such, a problem statement can be outlined in the case of Bloemhof. Bloemhof can be recognized as an environmental injustice issue, when considering the uneven accessibility of green space, how and if people can access them, and the lack of green space which relates to residents' (mental) health conditions (Maas et al., 2006; Dai, 2011; Jennings & Johnson-Gaither, 2012). Herein, the amount of green is an important factor in the way people can protect themselves from the consequences of climate change. Environmental injustice addresses the equitable distribution of environmental effects (Mitchel & Normann, 2012; Davoudi & Brooks, 2012), considering this, urban areas' lack of access to high-quality green spaces has been categorized as an issue of social justice and the environment (Mullenbach & Baker, 2020).

To answer the research question: "What multiple and potentially conflicting registers of valuing play a role in the way residents perceive green space in, and around, 'Bloemhof'?", the theoretical framework explores and deepens the value of valuation studies related to green space. Next, it examines how registers of valuing comprehend the multidimensional value of urban green spaces. And to examine what kind of registers of valuing play a role in the lives of Bloemhofs' residents, 12 people in Bloemhof were gathered by a purposeful sampling method. As such, age differences were taken into account, since research shows variations in valuing urban green when age is considered. For example, older individuals value urban parks with less thick vegetation structures (Bjerke et al., 2006), attach more value to vegetation than younger people (Mathey et al., 2016), and tend to favour parks over nature-related activities. On the other hand, younger people often value aesthetic landscape aspects (Chiesura 2004, Palliwoda & Pries, 2021). In addition to interviews, observations were conducted to provide an overall view of the neighbourhood's green spaces (see Appendix 3 for the fieldwork notes). The data analysis presents an overview of the research based on the multiple registers that were investigated. This case study ends with a conclusion and discussion section, where the research limitations, and ideas for follow-up research, are reviewed.

2. Theoretical Framework

In this case study, the theoretical framework revolves around two central themes: the influential ideas of Henri Lefebvre regarding public spaces and the significance of valuation studies in understanding people's perceptions of green spaces.

2.1 Public space

Public space can be defined as follows: the park, a playground, a shopping centre, but also, the street or the pavement. All these kinds of public spaces are characterised as state ownership (Darling, 2017), and are in the Netherlands designed and maintained by the municipality (IVN, 2023). Within the discussion of what a public space is, Henri Lefebvre (1974) is well known. Many of his ideas and views are about public space, and how it is, according to his understanding, socially constructed (Lefebvre, 1974). In this, Lefebvre (1974) emphasises not only how people see and experience a public space, but also the relationship that exists between people and nature. His specific perspective on this relationship means that people's social and cultural environments have an impact on the relationship that people have with nature. Herein, he is concerned that the natural environment cannot be separated from human activities and their history, since these social relations are deeply rooted in the production of public space (Lefebvre, 1974). Therefore, it is important to understand that human activities influence and change the natural world. Even so, Lefebvre's understanding of nature has not only an aesthetic value but also important political and social implications. He claims that beliefs about society and politics directly affect how people live, use, and understand the natural world. Lefebvre (1974) asserts that nature can have a substantial impact on the creation of a just and egalitarian society. As such, a challenge develops in understanding how these relationships work together and how this, in turn, affects our perception of (green) public space.

As public spaces, including green spaces, are socially constructed as such, it is important to investigate what meanings people bring to bear on such spaces. According to Lefebvre (1974), individuals and communities who utilize and reside in these areas hold the ultimate responsibility. Therefore, the values attributed to green spaces by residents will be taken into account to shape the interpretation of these public areas. However, despite Lefebvre's assertion that everyone should have the same right to, and in, the city, this ideal is not realized in the case of green urban facilities.

2.2 The value of green space

Public urban green areas are not homogeneous, they differ in composition between and within nations, cities, and neighbourhoods (Dallimer et al., 2011; Hunter & Luck, 2015). As a result, not all urban green spaces are created equally in terms of their social and ecological attributes. Therefore, green spaces vary in the values they offer to society and how society values them (Hunter & Luck, 2015). Within the contrast of different values, valuation studies shed light on the importance and usefulness of green spaces. Since valuation studies explore "the activity of making things (more) valuable" (Vatin, 2013 in Heuts & Mol, 2013 p. 129), they contribute to the body of eco and social theories in the case of green space studies. In order to comprehend how people place values on many facets of the environment, including green spaces and public places, valuation studies are an important form of research. Because these studies aim to go deeper into the social and cultural meanings that people attribute to various environmental elements than the conventional economic measures of worth (Raymond et al., 2014; Palliwoda & Pries, 2021).

Within valuation studies, different 'registers of valuing' can be distinguished. A register of value is a way of attaching a value to something (Heuts & Mol, 2013). It represents a particular lens through which people assign significance to something, such as green space in this context. In the context of green space studies, registers of value can capture the diversity of perspectives and experiences people have with green spaces. They allow researchers to explore how different groups, like residents of specific neighbourhoods or individuals with varying SES backgrounds, perceive and value green spaces differently. Also, registers of value can shed light on environmental injustice concerns related to the unequal distribution and accessibility of green spaces (Groenewegen et al., 2006). Although registers of value can take many different forms, most often it entails recognizing and classifying the various kinds of values that people associate with environmental characteristics. The interpretation and usage of these registers by Heuts and Mol (2013) offer a valuable foundation for comprehending how people attribute meaning to nature and green spaces.

How nature can be conceptualized is widely discussed in the literature. Traditionally, nature has been perceived as a pristine and untouched entity separated from human influence (Soper, 1995; Schouten, 2019). Nonetheless, existing perspectives acknowledge that nature is not an external, separated entity, but an intertwined system that includes human elements (Cranon, 1996; Beery et al., 2023). This relationship can be explored by green studies, which focus on understanding and addressing environmental challenges. By examining Heuts and

Mol's (2013) registers of valuing, insights are gained into the multifaced dimensions of nature and the significance of green areas in individuals' lives. Through conceptualizing nature as a dynamic and interconnected system, a more comprehensive understanding of the relationship between humans and their environment is recognized.

Schouten's (2019) writings about 'images of nature' show a significant contribution to the study of valuation studies and its registers of value. These images can demonstrate how various perceptions and thoughts about nature affect our valuation system (Schouten, 2019). Each natural image does, in fact, have implications for how we evaluate the worth of nature and what elements we value most highly in this regard. Schouten (2019) defines nature images as the frameworks or mental constructions we employ to comprehend and relate to the natural world. These representations, which can differ greatly between people and cultures, can affect how we perceive nature and how we behave as environmental agents. For example, the nature image 'nature as décor' sees nature as a background for private activities. Here, nature is valued most for its aesthetic qualities and its capacity to contribute to improving the quality of human lives. On the other hand, the 'nature as sanctuary' image, believes that nature is valuable and sacred on its own, regardless of how useful it is to humans (Schouten, 2019). In this context, nature is viewed as a source of spiritual inspiration and significance, and humans have a moral obligation to protect it. However, Schouten (2019) emphasizes that these various nature images might be complementary rather than mutually exclusive. He asserts that it is critical to be aware of the many perspectives we have of nature because they have an impact on the actions and choices we make concerning environmental management and conservation (Schouten, 2019). Therefore, we can learn more about how these nature images emerge and interact with the registers of value by analysing and contrasting various representations of nature.

As the registers, drawn by Heuts and Mol (2013) and the nature images by Schouten (2019) presented, a diversity of what kind of valuations people bring to green space exists (Hunter & Luck, 2015). Studying these diverse, and possibly contrasting, registers, may help to craft policies that are responsive to people's investments in perceptions of green spaces, and hence, be more ecologically just. By using specific registers, one can acquire a deeper knowledge of the many ways in which people value the environment (Raymond et al., 2014). As such, newly gained understandings can be used to inform decision-making and policy development. For example, for urban planners, a multidimensional understanding of green space can inform decision-makers, and knowledge can be used to identify opportunities for green space preservation or expansion (Van Oijstaeijen et al., 2020). But recently gained

understandings can also be used in relation to promote health and well-being strategies and policies, by sponsoring evidence of positive impacts of urban green spaces on physical and mental well-being (Gascon et al., 2015; De Vries et al., 2022).

However, the perceptions of people living in disadvantaged neighbourhoods are often overlooked in municipal decision-making processes, resulting in a lack of consideration for their needs and preferences (Toxopeus et al., 2020; Yang et al., 2021). As such, these neighbourhoods are more often forgotten in realising enough, maintained, green spaces, which indicates as an environmental injustice issue (Byrne et al., 2009; McConnachie & Shackleton, 2010). To address this, it is crucial to consider the full range of social and cultural values that people associate with the environment when making decisions regarding environmental management and conservation (van Staden, 2020). The use of a register of value can help identify and navigate trade-offs and conflicts between different environmental values. By employing these registers, researchers can study ecological goods and green spaces, providing a detailed understanding of residents' perceptions and values regarding green spaces (Raymond et al., 2014).

3. Research Design

This case study seeks to identify the different and possibly conflicting values of green space among residents in Bloemhof. One of the many definitions of a case study is written by Robson (1993): "A case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence" (p. 146). Bloemhof can be understood, according to the definition of a 'disadvantaged neighbourhood', drawn by Price-Robertson (2011), as a neighbourhood where relatively many people live with low levels of education and income. In addition, these neighbourhoods are often seen as unattractive due to various infrastructural and social lacks (Chenyang et al., 2022). Besides the fact that these deprived neighbourhoods are often seen as unattractive, this is regularly topped off by a shortage of green space. And the amount of green space that does exist is frequently described as unsafe and unappealing (Hoffiman et al., 2017). To accommodate residents' values regarding green spaces in Bloemhof, the following research question is considered most suitable: "What multiple and potentially conflicting registers of valuing play a role in the way residents perceive green space in, and around, 'Bloemhof'?". In realising this, social justice theories allow to address social concerns or aim to create social change (Creswell & Poth, 2017). Therefore, a transformative framework is chosen, given the goal to provide a voice to these residents (Creswell & Poth, 2017). In this, understanding how underprivileged people comprehend green space in Bloemhof, and what values they draw upon this, is crucial.

3.1 Data Collection

As described, public places, including green spaces, are socially constructed (Lefebvre, 1974), it is, therefore, crucial to investigate the meanings that individuals ascribe to these settings. For this reason, 12 interviews will be conducted to consider the values that residents attach to green places. The sample group consisted of seven female and six male respondents, between the age of 16 and 80 years old. One interview was held with two elderly people, so they formed a duo. During the interviews, I had chosen a semi-structured interview method, since this allowed for extra flexibility during the interview aside from the topic list I created (Boeije, 2010). And because I conducted the interviews in an open format, a variety of topics was thoroughly covered rather than only answers to predetermined questions (Babbie, 2016). Herein, there was enough room for flexibility, which resulted in a wide and complete comprehension of data when considering the participants' actual values, experiences, interpretations, and perceptions of green. Examples of interview questions were: 1) Can you

tell me about your perception of green spaces? 2) Do you visit green public spaces, like parks, forests, or gardens? 3) What do you think of the amount of green in Bloemhof? 4) What kind of feelings evoke when you visit green? 5) How would you describe 'real' nature? To be clear, the interviews happened in person and were possible in both Dutch and English. These both options widened the possibilities to gain as much information as possible since more people were able to speak in their native, or second, language. Despite this, I could not give certain people a chance to speak, because not all people were equally articulated and perceptive or did not speak the Dutch or English language. In the discussion, I reflect on my shortcoming as a researcher and how this could be prevented in follow-up research.

Before I reached out to residents, I got in contact with 'Huis van de Wijk Irene' (Neighbourhood Home Irene). This community centre is located in Bloemhof and serves as the social hub for the whole neighbourhood (Wijkgids, n.d.). I chose to contact them first because I found it essential to consider the impact of my presence as a researcher. Therefore, during the entire data analysis period, I stayed in contact with this community centre to build trust. By recognising and addressing the potential power dynamics, this study aimed to foster a collaborative environment between the researcher and the community centre. Afterwards, I will report back my results and achieved knowledge to them so that they can gain from my research. Moreover, the community centre supported me in finding respondents. For instance, I interviewed the owners about their perceptions of green space. Besides that, they were able to refer me to other residents in the neighbourhood and offered me valuable information about Bloemhof itself. Also, I gathered respondents through my social network. However, most respondents were assembled by addressing residents on the streets of Bloemhof. And to provide an extra wide range of residents' perceptions, I chose people that differ in age and gender. By collecting participants through purposeful sampling, I created enough diversity within my sample and increased the external validity (Creswell & Creswell, 2018). Yet, due to purposeful sampling, bias might be introduced because of my judgement that determined the participant selection.

Besides the conducted interviews, I was in the field regularly to observe the neighbourhood. In doing so, I wanted to notice how and by whom the public spaces were used amongst the residents and what activities took place. I have done this by spending approximately eight hours in Bloemhof, and by walking and cycling around, I got an overall idea of the neighbourhood, its residents, and its green spaces (see Appendix 3 for fieldnotes). Also, I have spent time in 'Huis van de Wijk Irene' to attend their coffee hours (every Tuesday and Thursday). This provided a better understanding of what topics were currently active within

the neighbourhood. All of this was important to capture a complete image of the neighbourhood, which was crucial for establishing validity since it allowed me to gain a thorough understanding of the phenomenon and, as a result, accurately described the location and the locals (Creswell & Creswell, 2018).

3.2 Data analysis method

Eventually, interviews were recorded and transcribed. All material that could reveal the identity of the interviewee has been omitted from the transcript because confidentiality and anonymity were crucial principles when conducting this research. In the transcripts, each participant has been given a pseudonym, and the recordings were deleted after the thesis process. The checklist regarding ethics and privacy can be found in Appendix 1, which consists of additional information regarding discretion and anonymity. Moreover, all the participants signed a consent form that contained information about the researcher, the EU's data protection officer, the study's goal, and their right to withdraw participation at any moment (see Appendix 2). The participants had, additionally, given consent to take part in this study and allowed me to keep their data until the completion of the thesis procedure. Also, the transcripts were coded utilizing ATLAS.TI, a coding tool created specifically for qualitative research (Boeije, 2010). Open coding was used for participant perceptions regarding green since the objective was to explore the various and perhaps conflicting values that people of Bloemhof have for green space. For example, codes regarding the valuation of trees emerged as follows: the way trees smell, the maintenance of trees, and how trees are an important form of cooling effect. Also, the following codes occurred when residents expressed their opinions about the amount of green in, and around, Bloemhof: too little for sports activities, no places for picnics, and children that cannot play in Bloemhof due to a lack of grass. The codes were eventually categorized and divided into smaller categories. By doing this, a code tree was created that contained multiple registers of value. While coding, I tried to prevent possible limitations by being alert enough to notice errors. As such, I was most aware during the coding process by trying to be precise in assigning codes to complicated chunks. Also, I tried not to be judgemental, otherwise, the validity of the results was threatened (Boeije, 2010).

Throughout the research process, I remained aware of the potential influence of my biases and viewpoint on coding and analysing. To enhance the reliability and validity, I acknowledged how my interpretation of the results was shaped by my privileged, white, and high socioeconomic position.

4. Data Analyse

The interviews[1] presented that for many people in Bloemhof, the significance of green spaces is not a primary concern. For those people, immediate concerns may revolve around access to basic amenities like, safety, affordable housing, work, and education, which overshadows the desire for urban green in their neighbourhood. This is experienced by Eveline (43) herself: “When you have so many existential problems like a roof over your head, whether you have enough money for your school, for your children... to buy food, clothes... you don't care about green”. This is in line with what Dorine (49), a homeowner of ‘Huis van de Wijk Irene’, notices in the neighbourhood. She indicates that greening the neighbourhood is not a priority among most residents, which is, according to her, due to cultural differences and low educational backgrounds.

Even though green spaces offer many benefits, residents who are not aware of this environmental issue may not fully recognise or prioritize these benefits, which will only place these residents more in a disadvantaged position. While this shows an important discourse among the residents of Bloemhof, it is also a way of not taking the people who do have ideas and wishes very seriously. As such, providing an open space where residents can express their concerns and values regarding their perceptions of green in their neighbourhood, results in the following emerged values.

4.1 Register 1: Biographical time

This register values the past and points to the interpretation of green space in Bloemhof, which may depend on residents’ previous experiences and memories of general green spaces (Hartig & Staats, 2006; De Vries, 2009). Herein, nostalgia and tradition may play a role in visiting, appreciating, and valuing green spaces in, and around, Bloemhof. Studies have shown that positive childhood experiences and memories of nature play a significant role in shaping individuals’ attitudes and behaviours towards green spaces in adulthood. These memories can create an emotional bond and a sense of attachment to natural environments, leading to a greater likelihood of engaging with and valuing green spaces later in life (Kahn, 2018; Chawla, 1998; Chawla & Cushing, 2007). During the interviews, Benny (25) explained how memories of his

[1] All the interviews were conducted in the Dutch language and exactly transcribed. In the best interest of this English thesis, I have done my best to make clear what has been said, by staying as close to the terms that were used by the respondents while translating.

home country (Suriname), influence how he apricates and values green in, and around, Bloemhof, where he lives for the past twelve years. “When I sit in the garden, memories always come flooding back. Although Suriname is nothing like my little garden here haha… but still”. For Benny, it is normal to seek peace and quietness in the yard. Shades are then sought together with friends and family over drinks. Now in Bloemhof, Benny follows this habit by sitting in the garden when he has friends over. Benny’s moment of relaxation by going outside, he says, traces back to his childhood. For Aisha (16), past green valuations, which are based on memories of her home country Morocco, contribute to the development of how she values green in the Netherlands, and in particular, Bloemhof. Aisha grew up with a strong connection to a specific green space, and therefore her memories and experiences shape her sense of her connection to green spaces.

> Look, we often go back to Morocco, because many relatives still live there. And yes, there are a lot of natural areas there. I like to visit those, just like I used to do when I lived there. In the Netherlands it's different though, nature... but I do feel comfortable in that nature. After all, it is a nice way to think back to good memories in Morocco.

Siem (27), on the other hand, expresses that his upbringing has given him a conscious view of nature and the importance of a clean natural environment. He indicates that the little bit of greenery that Bloemhof has, is often dirty due to litter (noticed during observations, see Appendix 3). In this, he does his best by cleaning up the litter, which he owes to his parents' upbringing.

> I think my parents played an important role in this yes… We were always hiking, engaging with nature. So, I think I got it from that. I think if you walk less in nature in the past, you have less appreciation for it now... Yes, because you are less used to it, I guess.

Memories and experiences shape Benny, Aisha, and Siem's impressions of and ties to Bloemhof's green spaces, increasing their value for these regions. Jake (24), born and raised in Bloemhof, is a different story in this regard. The interview revealed that Jake appreciates greenery but does not necessarily seek it out for recreational or relaxing purposes. When we discussed his memories of his childhood in Bloemhof, he indicated that there were too few places for him to play freely: “When I went outside to play, then I went to the path at the back of our house. It was mostly petrified… There was no better place for playing”. For Jake, this resulted in the fact that as a child, he mostly played indoors. And now, the lack of memories of

greenery results in how Jake views greenery in Bloemhof: “But I don't know any better either I guess, because the opportunity wasn't there. Guess that's also why I never really got interested in the outdoor life, like football or hiking… or anything like that”.

The theoretical analysis of this register, specifically regarding the influence of positive memories towards Bloemhof’s green spaces on visitation and valuation, reveals an interesting dynamic overlap between respondents’ personal experiences and the broader literature on this topic. However, a conflict may arise due to the diversity of experiences and perceptions among respondents. While some respondents with positive green memories prioritize and actively seek out green spaces, others who may not have had such experiences might still value and appreciate the benefits of green spaces based on other factors, like knowledge of environmental benefits or personal preferences unrelated to memories (Kabisch et al., 2016).

4.2 Register 2: The importance of naturalness

Lefebvre’s (1974) notion that natural spaces are socially constructed, emphasizes that people’s understanding and perceptions of real nature are influenced by social and cultural factors. When applying this view, people’s interpretation of what constitutes as ‘real’ nature, is shaped by their personal experiences, societal influences, and cultural backgrounds. As such, according to Lefebvre (1974), respondents’ ideas about ‘real’ nature are not fixed or universal, but rather constructed through social interactions and cultural context. Schouten (2019) elaborates on this, highlighting that people’s views on what constitutes as ‘real’ nature might differ. Capturing people’s opinions and definitions of real nature can help to better understand their subjective experiences and preferences, ensuring that the concept of nature is inclusive and representative of diverse viewpoints. Siem (27) argues what real nature is for him: “While… actually just what isn’t human made. For me, real nature is nature that grows and blooms without humans influencing it”. For this reason, real nature is, according to Siem, not to be found in Bloemhof. Likewise, Benny (25) reasons that real nature for him can be found in Suriname. In which he refers to mountains, hills, and large forests. “You know, in itself there is nature in the Netherlands too, but only here it is all human-made and all self-built”, said Benny. Both perspectives are rooted in the belief that naturalness is synonymous with untouched landscapes, which are free from human modification (Schouten, 2019). Besides, the argument put forth by Heuts and Mol (2013) regarding the idea that ‘things are good when there hasn’t been any interference’, resonates with these perspectives, because it reflects a desire for

authenticity and the preservation of unspoiled environments. Also, it suggests a longing for the intrinsic qualities of nature, untainted by human intervention.

On the other hand, this raises questions about the diversity of values and perceptions of nature. For example, people like Siem and Benny consider real nature only as pristine, untouched wildernesses, while others include urban parks, gardens, and street trees as real nature. This aligns with Voorsluis (2002) and Schouten (2019), as they both argue that some people believe that this constitutes as real nature, because 'the Netherlands made it this way'. For instance, Jan and Astrid (80, 76) count real nature as the presence of bushes, trees, and overall, enough space. Herein they cite 'het Kralingse bos' as an example. Kay (28) as well highlights human-made environments as real nature. For him, nature consists of, simply said, green. When Kay wants to visit real nature, he goes to 'het Zuiderpark'[2], because of the amount of green. Besides considering parks as real nature, he also names the presence of animals, trees, and ditches. Although residents like Jan, Astrid and Kay embrace urban nature, and recognize this as real nature, they acknowledge the need for nature to be accessible to city dwellers (Keniger et al., 2013). What directs to an extra, deepened, value within this register.

Although it's crucial to note that the above perspectives do not conflict with one another, the literature suggests that both urban nature and untouched wilderness have unique values that should be taken into consideration when discussing sustainable urban development (Bowler et al., 2010; Keniger et al., 2013). It is therefore important to recognise that perspectives on naturalness can vary among individuals. Herein, the literature highlights that the perception of naturalness is subjective and influenced by personal experiences, (physical) feelings, cultural backgrounds, and environmental values (Porteous, 1990; Hartig et al., 2003).

[2] In Dutch: Het Zuiderpark. This park consists of 215 hectares of green space, with many recreational and play facilities. This park is close to Bloemhof, but not directly next to the neighbourhood.

4.3 Register 3: Emotional and psychological benefits

This register narrates what kind of benefits people experience about green space, and what type of value individuals draw with their senses (Heuts & Mol, 2013). A so-called, attractive green space, like a well-kept park, may result in pleasant feelings because of its silent surroundings, or because of the way flowers smell. The interviews point out that mostly all respondents (10 of 12), enjoy the visit of green spaces and that they purposefully visit them. Yasmine (31) argues that she calls herself a real 'nature person', and that the availability of green spaces cheers her up when she feels down. For Yasmine, the reason she seeks out green is to discharge from stress. When Yasmine feels stressed or depressed, she consciously chooses to go outside, take a walk, and sit on a bench overlooking the greenery. For her, this results in a lowered stress level, and it makes her feel better than sitting inside, at home. Likewise, Kees (50), argues the following: "A green visit gives me a pleasant feeling. It makes me feel… 'lekker'. Then I'm like, yeah, I have built up some energy again. So, I often say then, "we just recharged the battery", haha!". Equally, Benny (25) expressed that he feels a sort of freedom and oxygen: "I'll sit down for a bit, and then I feel free or so. Just breathing and nothing else. I love to smell the flowers if they are there, yes… that's what I like". For Yasmine, Kees and Benny, green facilities in Bloemhof have the potential to elicit a range of feelings and emotions, which can significantly impact their well-being and overall satisfaction with their environment. Given that there is widespread consensus regarding the beneficial effects of green spaces on well-being, this can be traced back to the literature done by Okinedo (2022) and Dobson (2019). As such, respondents who visit green spaces for (mental) health reasons, are expressing their personal valuation of these experiences. In this, their perspectives and preferences contribute to the understanding of the emotional and psychological dimensions of green spaces.

Besides the fact that greenery results in pleasant feelings and discharges stress levels, people as well tend to underline the necessity of trees. Literature shows that trees in parks and on the streets improve people's lives by reducing air temperature, stress, and noise (Lohr et al., 2003; Palliwoda & Pries, 2021), as well as enhancing visual values and scenery (Nowak et al., 2006). Jan and Astrid (80, 76) both argue that they adore the presence of trees in Bloemhof: "Those trees… o yes, they are outstandingly beautiful. For people living here, it creates a beautiful living area". In contrast, Eveline (43) places importance on the presence of trees and argues herein that trees are essential for people's health. In line with studies by Wolch et al. (2014), Eveline is aware that trees play a crucial part in enhancing the quality of the air and

how they have a cooling effect. In the interview, Eveline's opinion concerning the amount of green in Bloemhof was discussed:

> There are really very few trees here. Along the canal, of course, there are several wonderful, beautiful trees, very old. Yes, because the canal dates from 1918. So, then those trees will be that old too. But at the same time, Bloemhof is also one of the hottest neighbourhoods in summer. Bloemhof is really dark red on the heat map of Rotterdam. And yes, that could be remedied with, as everyone knows, beautiful trees.

The statements provided by Jan, Astrid and Eveline create a combined new register, namely, the register of aesthetics and sensory experience. While Jan and Astrid express their appreciation for the aesthetic beauty of trees, they highlight that the presence of trees enhances the overall attractiveness of a living area. In contrast, Eveline emphasizes the functional aspects of trees in relation to sensory experience. She recognizes the importance of trees for people's health, specifically their role in improving air quality and creating a cooling effect. By combining these two registers, the respondents highlight the multifaceted value of trees in Bloemhof. As the literature shows, trees do not only contribute to the aesthetic appeal of the neighbourhood, but they also provide tangible benefits related to heat reduction and improved air quality (Nowak et al., 2006; Lohr et al., 2003; Palliwoda & Pries, 2021). This demonstrates that the valuation of green spaces is not solely based on visual beauty, but also incorporates considerations of functional benefits.

Similarly, Kees (50), as well as Eveline (43), worry about the shortages of trees in Bloemhof. He has concerns about the shortage of trees and thereby the lack of fresh, filtered, oxygen. According to Kees, Bloemhof residents may draw more attention to the importance of trees. In this, Kees is aware that he is an 'environmentally conscious person', indicating that he feels that many fellow neighbourhood residents are not.

> But in particular trees yes... they fill an important element in green. They really need to be there. For everyone. Yes, life is already diminishing... but please let's all try to take care of the trees and to keep enough trees.

Kees' observation that he considers himself an environmentally conscious person while perceiving a lack of environmental consciousness among fellow neighbourhood residents, aligns with research highlighting the influence of SES on individuals' environmental awareness and engagement (Eom et al., 2018; Lohr et al., 2003).

4.4 Register 4: Recreational and social value

The fourth register 'recreational and social value' explores residents' experiences and activities relating to urban green spaces, and how these are associated with social interaction within these spaces. This includes the values residents draw upon recreational activities, community engagement, and social gatherings. However, for Heuts and Mol (2013), multiple registers of value may participate or may conflict with each other. According to research conducted by Palliwoda and Pries (2021), residents of densely crowded inhabited areas believe that green spaces are ideal for socializing with other families, entertaining children, and engaging in various types of cultural and social exchanges. For those residents, parks are locations for regular social interaction. In relation, parks, or green spaces in general, provide opportunities for active playtime for children. Besides the fact that parents herein value the physical health of their children, they also value their connectivity with nature and environmental awareness (McCormick, 2017). The interviews reveal that mainly young people (between the age of 16 and 25) seek out green spaces with a socially related purpose. Aisha (16), states that parks (particularly 'het Zuiderpark') are an important role in her social life. She often visits parks to gather with her friends, to have a picnic, and to relax together. This relates to Benny (25) since he argues that he sometimes visits parks as well for social purposes, like, relaxing, barbecuing, and having a good time with friends. However, for socially related purposes, Benny prefers to sit in his small garden when he has people over. Convenience, he said, is the main reason for this. Both valuations of green align with the findings of Palliwoda and Pries (2021), who emphasize the social value of green spaces for young individuals in fostering social connections and recreational activities. However, a conflict in values arises when considering individual preferences and access to green spaces. While Aisha values the social interactions of public parks, Benny expresses a preference for his garden. Therefore, personal preferences and choices might be influenced by individual factors such as access to private spaces, cultural backgrounds, and personal experiences (Eom et al., 2018; Lohr et al., 2003).

Besides the social aspect of visiting green spaces, other values emerged from the interviews as well. The interviews with parents of young children, there were three interviewees in total, implied that greenery is often visited in relation to their children. Herein, the perception of green facilities for children to play is an important aspect to consider in valuation studies, because it directly relates to the well-being and development of children. As such, for these parents, visiting green spaces is central to raising their children and enabling them to have

enough playtime. In this, according to them, greenery is important because it allows their children to run freely, play, and do everything else that involves in the experience of children playing. It can therefore be said that those parents value green space in relation to their children, which supports existing literature regarding the importance of accessible and well-designed green spaces for children's development and play (McCormick, 2017). Anne-Marie (42), a mother of two children (three and five years old), visits 'het Zuiderpark' relatively often. Besides the fact that she appreciates het Zuiderpark for its greenery, the main reason she visits it is because there are not enough play facilities for her children in Bloemhof. Further, Anne-Marie highlights the issue of excessive garbage in Bloemhof, which prevents her from allowing their children to play in the greenery. "I often take them to the Zuiderpark. Yes, there they can move around more freely. Here you can't really let them run around or anything", says Anne-Marie. Likewise, Yasmine (31) argues that Bloemhof is not a child-friendly neighbourhood, given the lack of good, well-maintained, playground facilities. Herein, Yasmine places importance on the availability of play equipment, age-appropriate amenities, and opportunities for active play within green spaces.

This demonstrates a clear conflict between valuations in green. On the one hand, parents recognize the benefits of outdoor play and nature engagement for the health and development of their children. While on the other hand, these parents cannot easily seek this beneficial outcome, given that Bloemhof has too few green play areas. This lack of sufficient green areas and the coming challenges related to garbage accumulation reflect the broader environmental inequalities experienced by residents in disadvantaged neighbourhoods (Chenyang et al., 2022; Dai, 2011). These challenges faced by parents in Bloemhof highlight the implications of inequitable distribution of green spaces, as discussed in the literature on environmental justice and urban planning (Wolch et al., 2014).

4.5 Conflicting values

Several conflicting values emerged within the analyses above. However, some particular conflicts need extra attention. Research done by Mullenbach and Baker (2020) emphasizes that an urban area's lack of green access is categorized as an environmental injustice issue. This lack of green in Bloemhof is recognized by several respondents as well and enhanced within the following registers. The register that emphasises emotional and psychological benefits becomes highly relevant in Bloemhof since this green absence. During the interviews, various residents

advocated for green spaces that can help mitigate the negative impacts on mental health and well-being caused by environmental problems like climate change.

Jake (24), amongst others, herein argues that more green facilities are an important measure for environmental issues. He often feels like Rotterdam is very active in making the city more environmentally conscious, however, he argues that the municipality forgets to involve Bloemhof:

> The municipality could focus more on things that make more sense here, in Bloemhof, like greening up...a tree here, a lawn there, and so on... And besides that, it also brings other benefits, like the atmosphere that improves the neighbourhood. And cooling and things like that. But well... they don't do that, which I find... a bit crazy. Well, sometimes, I do have the feeling that we are not being listened to in that area. The municipality… never asks what the residents think about it. My parents and I... they never ask if we have any ideas or plans, or what we think of the greenery in the neighbourhood.

Moreover, in a neighbourhood lacking urban green, the need for recreational and social spaces (the fourth register) may be particularly evident. Throughout the interviews, several residents emphasized the importance of creating green spaces that offer opportunities for recreation, physical activity, and social interactions. However, this conflicts because there is an enormous wish for a more green neighbourhood, but on the other hand, according to the residents, there is not enough space for more greenery. In this, they do point out several places in Bloemhof that can be converted to parks, nevertheless, parking places or shopping areas are built instead. Herein a challenge lies in finding ways to create or enhance green spaces in the face of limited resources or urban constraints.

5. Conclusion

This research has found that the following registers: 1) biographical time, 2) the importance of naturalness, 3) emotional and psychological benefits, and 4) recreational and social value, play a role in the way residents perceive green space in, and around, Bloemhof. These registers offer unique information for green, as well as valuation studies since this study draws attention to the neighbourhood's characteristics, problems, and potential solutions. Some of these insights are as follows: valuation studies can investigate environmental injustice concerns as presented in Bloemhof because findings herein can help advocate for environmental justice and guide efforts to mitigate environmental risks in a community. Also, given the lack of green spaces in Bloemhof, valuation studies might learn how to focus on and understand the impact of this deficiency on residents.

The first register of value 'biographical time' plays a significant role in shaping residents' perceptions and behaviours towards green spaces. Based on studies drawn by Kahn (2018), Chawla (1998), and Chawla and Cushing (2007), the findings of this case study found that residents with positive memories associated with green spaces tend to visit and value them more frequently than those who lack active green memories, which are supported by Lefebvre's (1974) notion as well. According to Lefebvre (1974), the existence of tender and nostalgic experiences fosters a strong emotional bond with green places, which results in a higher awareness of the inherent value of the environment. On the other hand, residents who lack active green memories may visit green spaces less frequently due to the absence of such emotional attachments or experiences. Understanding the impact of this register allows for the recognition of the deep-rooted significance of past experiences in shaping individuals' present-day perceptions and behaviours. Therefore, theoretical conclusions can be drawn from this analysis that highlights the importance of fostering positive experiences and memories related to green spaces, as they have the potential to promote ongoing engagement, support for conservation efforts, and a sense of belonging within the neighbourhood. However, as Lefebvre (1974) pointed out, conflicts may occur due to people's social and cultural environments impacting their relationship with nature. And because of the variety of Bloemhofs' residents regarding SES, cultural background, and overall, well-being, enormous differences are noticed in how these residents maintain, appreciate, and value green spaces (see Appendix 3).

Regarding this, policy conclusions can be drawn from the analysis as well. If positive memories act as a motivating factor for residents to seek out and engage with green spaces, it is useful to recognize the importance of green areas and, thereby, maintain and preserve these

areas. The municipality of Rotterdam should consider the fact that positive memories associated with green often contribute to a heightened appreciation for clean and well-maintained natural environments. If policy-wise measurements herein take place, residents are more likely, and encouraged, to actively engage in behaviours that promote cleanliness, such as picking up litter and keeping green spaces tidy. In this, several policies show the importance hereof. For example, a clean and well-maintained natural environment creates a positive image of public space, which contributes to an overall perception of the quality of life in Rotterdam. Also, cleanliness in public spaces is essential for health and safety (De Vries et al., 2022). By prioritizing this, Bloemhof can ensure a safer and healthier environment for residents and visitors. All of this will result in a developed sense of attachment and ownership towards these areas, which leads to a desire to protect and preserve their cleanliness.

This case study reveals conflicting perspectives on what constitutes as real nature among residents for the second register 'the importance of naturalness'. The theoretical analysis indicates that residents hold diverse views regarding the existence of real nature, particularly in the context of the Netherlands, where human-made environments dominate the landscape (Schouten, 2019). For some residents, the perception of real nature is tied to the absence of human influence. They argue that real nature does not exist in the Netherlands due to the prevalence of human-made structures and interventions. According to this viewpoint, the presence of urbanization and human development diminishes the authenticity and naturalness of the environment. In contrast, some residents consider urban green parks as representations of real nature. They recognize the value of green spaces within urbanized areas and consider them to be important manifestations of nature in their own right. These residents value having parks and other green places because they may commune with nature and find solace there. The above conflicting values can be traced back to Lefebvre's work, discussing how people assert different meanings towards public spaces. For Lefebvre (1974), people attribute symbolic value to nature, and in this, symbolic representations shape people's understanding of what is interpreted as 'real' nature. By representing these conflicting values regarding the importance of naturalness, the subjective nature of this register is highlighted. Additionally, it demonstrates Bloemhof's relationship to the broader theoretical discussion on this issue in light of the prior research cited by Voorsluis (2002) and Schouten (2019).

The results regarding the third register 'emotional and psychological benefits' indicates that the majority of respondents derive enjoyment from their visits to green spaces and engage with them for various emotional and psychological reasons. This corresponds with the general

theoretical consensus that green spaces promote well-being (Dobson, 2019; Okinedo, 2022; Maas et al., 2006; Dai, 2011; Jennings & Johnson-Gaither, 2012). Residents expressed a desire to visit green spaces for relaxation, stress relief, and escape the pressures of daily life. Herein, they highlighted the importance of these environments for finding relief, enjoying the sun, feeling connected to nature, and recharging their energy. Furthermore, during this research, the significance of trees within these green spaces was emphasized. Multiple residents acknowledged that trees' production of oxygen and their ability to provide shade are essential components that enhance residents' general well-being. That the presence of trees not only enhances the aesthetic appeal of the environment but also offers evident benefits that positively influence the emotional and psychological experiences of individuals, creates a combined new register, namely, the register of aesthetics and sensory experience. This theoretical finding illustrates that the value of green spaces depends on more than an aesthetic appeal, namely, it takes into account functional benefits. This new perspective can improve the body of valuation studies and should take form in policies regarding urban green and the emotional well-being of residents.

Nonetheless, residents expressed their concerns about the maintenance of green spaces. They perceive a lack of consciousness and responsibility among fellow residents, with littering being a particular issue. This finding emphasizes the need for greater awareness and group initiatives to promote a feeling of ownership and maintenance for the green spaces within Bloemhof. As such, understanding the importance of the emotional and psychological benefits derived from green spaces underscores the importance of preserving and promoting these environments. By providing accessible and well-maintained green spaces, the municipality of Rotterdam can offer residents opportunities for relaxation and connectivity with nature. Also, fostering a sense of shared responsibility among residents for the care and cleanliness of these areas can contribute to a more positive and fulfilling experience for all.

The last register ‘recreational and social value’ demonstrates that different age groups have distinct motivations for visiting green areas. Young residents, primarily between the ages of 16 and 25, view green spaces as social gathering spots. In this, recreational activities in green spaces foster a sense of community and provide opportunities for socializing and bonding among young residents. On the other hand, parents of young children prioritize green spaces as places for their children’s playtime. Literature drawn by McCormick (2017), shows that parents herein value the physical health of their children and their children’s connectivity with nature. This case study shows that parents indeed value their children’s health, however, children’s

interest in nature did not emerge. The value of safe and enjoyable outdoors had more to do with a forced reliance on parks due to a lack of personal gardens. As such, three policy conclusions can be drawn. First, the above highlights the importance of accessible green spaces in densely populated neighbourhoods like Bloemhof, where outdoor play areas are limited. Herein, a recurring concern is expressed by residents due to the insufficient availability of these play facilities for children. Second, while there are a few places like football and basketball fields, most of these places are grey, petrified, areas instead of grass fields. This absence of grass poses challenges for children's recreational activities. This limitation underscores the need for well-maintained, diverse, and child-friendly play areas within the neighbourhood to accommodate the needs of families and ensure equitable access to recreational opportunities. Third, residents emphasize that children who are disadvantaged by a lack of play areas start to feel bored, which may lead to unfavourable behaviour. The municipality of Rotterdam needs to treat this seriously to avoid it from getting worse. This could, for example, be preventively resolved through the deployment of social work and community support.

To end, I would like to take the possibility to create awareness regarding some important conflicting values. Most residents of Bloemhof are deeply aware of the shortage of green spaces within their neighbourhood. The majority understands the importance of green for boosting physical and mental well-being, community cohesion, and recreational opportunities. However, their disadvantaged position limits their ability to address this issue effectively. Since a low SES often correlates with limited resources, restricted access to decision-making processes, and reduced influence on local planning and initiatives (Hoffiman et al., 2017; Toxopeus et al., 2020; Yang et al., 2021). Besides this, the absence of green spaces also places them at a further disadvantage when it comes to climate change impacts. Green spaces can help mitigate the effects of climate change by providing natural cooling, reducing heat, and improving air quality (Escobedo et al., 2011; Groenewegen et al., 2006; Heikoop, 2021). Without these green buffers, residents of Bloemhof may be more vulnerable to extreme heat, air pollution, and other climate-related risks, intensifying the existing inequalities they face. This environmental injustice perspective emphasizes the disproportionate burden that marginalized communities bear in terms of environmental exposure and the unequal distribution of environmental benefits. A particular view on, again, the production of space, drawn by Lefebvre (1974), herein shows that spaces are produced through social practices and power relations. In the case of Bloemhof, the lack of green spaces and its associated consequences align with this concept. The neighbourhood's disadvantaged position compounds the challenges faced by residents, limiting

their resilience and adaptive capacity in the face of climate change, and further extending environmental inequities. Therefore, policymakers, stakeholders, and urban planners have an important role in shaping and defining fairly distributed green spaces. In this, we must be aware that power dynamics and social processes influence the production and representation of green spaces.

6. Discussion

This case study research applied a social justice theory and transformative framework to provide a platform for residents who often feel disadvantaged and unheard. However, several limitations were encountered during the research process, which affected the extent to which their voices could be adequately represented. One limitation was the difficulty in obtaining articulate responses from certain residents in Bloemhof. Despite attempts to include a diverse range of participants, some residents struggled to effectively communicate their values and views during the interview process. This limitation was attributed to diverse factors, like language barriers and participants' communication skills. As the researcher, I recognize and take responsibility for this limitation. It was due to my inability to capture the insights of certain residents. And therefore, I could not represent their value in this study, which I had hoped to do so. This relates to some a shortcoming related to the methods I choose as well. This research relies on a purposive sampling method (Creswell & Creswell, 2018), when efforts were made to include residents from different age groups and genders, the sample might not fully capture the wide range of perspectives and experiences in Bloemhof. This limitation reduces the generalizability of the findings and may limit the understanding of conflicting registers of valuing. Another limitation came forward while conducting the interviews on the street where I approached residents. It became evident that many residents were eager to share their life stories with me. However, these stories often had to do with challenges related to inadequate healthcare, addiction problems, and financial difficulties. This finding aligns with previous observations and interview responses, indicating that the residents in Bloemhof face multiple mental health issues that overtake concerns about green spaces in their area and their associated values. As such, this limitation suggests that this case study may not fully capture the breadth of residents' experiences and priorities regarding green space availability. The limitations that I identified, provide opportunities for further research to address these challenges, for example approaching such type of research in a mixed-method design. Where statistical methods can be used to analyse survey data to identify patterns and relationships between residents' values, perceptions and behaviours towards green spaces, and interviews can be employed to gather deepened insights (Creswell & Creswell, 2018).

Despite these limitations, I found it worth noting that several respondents expressed gratitude towards my presence in the field and my recognition of their values of green spaces. These residents appreciated being considered and included in this case study. Nonetheless, while respondents' views were valuable, it is essential to acknowledge that the findings may be

influenced by a potential bias. To increase reliability upon this, I wanted to create attention to the following. The residents who were more interested in green spaces, or felt a connection with this research topic, might have been more inclined to participate and share their experiences, which potentially leads to a skewed representation of the overall population of Bloemhof. Further research should consider addressing these limitations to ensure a more comprehensive understanding of the perspectives and priorities of residents in neighbourhoods like Bloemhof. If doing so, researchers can contribute to transformative initiatives that empower disadvantaged communities and facilitate decision-making processes. Another suggestion for further research lies in the valuation of green spaces in the opposite of urban areas, namely the countryside. For example, how do residents perceive and value an abundance of green spaces? And how does this affect resident's perceptions regarding biodiversity and landscape planning.

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Appendix

Appendix 1: Checklist of Ethical and Privacy aspects of research

CHECKLIST ETHICAL AND PRIVACY ASPECTS OF RESEARCH

ERASMUS UNIVERSITEIT ROTTERDAM

INSTRUCTION

This checklist should be completed for every research study that is conducted at the Department of Public Administration and Sociology (DPAS). This checklist should be completed *before* commencing with data collection or approaching participants. Students can complete this checklist with help of their supervisor.

This checklist is a mandatory part of the empirical master's thesis and has to be uploaded along with the research proposal.

The guideline for ethical aspects of research of the Dutch Sociological Association (NSV) can be found on their website (http://www.nsv-sociologie.nl/?page_id=17). If you have doubts about ethical or privacy aspects of your research study, discuss and resolve the matter with your EUR supervisor. If needed and if advised to do so by your supervisor, you can also consult Dr. Bonnie French, coordinator of the Sociology Master's Thesis program.

PART I: GENERAL INFORMATION

Project title:	Urban greening at Bloemhof, Rotterdam
Name, email of student:	Marieke van der Heijde 580916@student.eur.nl
Name, email of supervisor:	Irene van Oorschot vanoorschot@essb.eur.nl
Start date and duration:	January – June 2023

Is the research study conducted within DPAS **YES** ~~NO~~

If 'NO': at or for what institute or organization will the study be conducted?

(e.g. internship organization)

PART II: HUMAN SUBJECTS

1. Does your research involve human participants. **YES** - ~~NO~~

If 'NO': skip to part V.

If 'YES': does the study involve medical or physical research? ~~YES~~ -**NO**

Research that falls under the Medical Research Involving Human Subjects Act (WMO) must first be submitted to an accredited medical research ethics committee or the Central Committee on Research Involving Human Subjects (CCMO).

2. Does your research involve field observations without manipulations that will not involve identification of participants. ~~YES~~ -**NO**

If 'YES': skip to part IV.

3. Research involving completely anonymous data files (secondary data that has been anonymized by someone else). ~~YES~~ - **NO**

If 'YES': skip to part IV.

PART III: PARTICIPANTS

1. Will information about the nature of the study and about what participants can expect during the study be withheld from them? ~~YES~~ -**NO**

2. Will any of the participants not be asked for verbal or written 'informed consent,' whereby they agree to participate in the study? ~~YES~~ -**NO**

3. Will information about the possibility to discontinue the participation at any time be withheld from participants? ~~YES~~ -**NO**

4. Will the study involve actively deceiving the participants? ~~YES~~ -**NO**
   Note: almost all research studies involve some kind of deception of participants. Try to think about what types of deception are ethical or non-ethical (e.g. purpose of the study is not told, coercion is exerted on participants, giving participants the feeling that they harm other people by making certain decisions, etc.).

5. Does the study involve the risk of causing psychological stress or negative emotions beyond those normally encountered by participants? ~~YES~~ -**NO**

6. Will information be collected about special categories of data, as defined by the GDPR (e.g. racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, genetic data, biometric data for the purpose of uniquely identifying a person, data concerning mental or physical health, data concerning a person's sex life or sexual orientation)? ~~YES~~ -**NO**

7. Will the study involve the participation of minors (<18 years old) or other groups that cannot give consent? ~~YES~~ -**NO**

8. Is the health and/or safety of participants at risk during the study? ~~YES~~ -**NO**

9. Can participants be identified by the study results or can the confidentiality of the participants' identity not be ensured? ~~YES~~ -**NO**

10. Are there any other possible ethical issues with regard to this study? ~~YES~~ -**NO**

What safeguards are taken to relieve possible adverse consequences of these issues (e.g., informing participants about the study afterwards, extra safety regulations, etc.).

_Participants may contact me after and during the study with their questions and concerns. Also, they may view the final thesis at any moment if they wish too. Moreover, I will use pseudonyms for all the participants and recordings will be removed at the end of the study, all since anonymity and confidentiality of the identity of the participant are important values in conducting my research.

Are there any unintended circumstances in the study that can cause harm or have negative (emotional) consequences to the participants? Indicate what possible circumstances this could be.

_No.

PART IV: SAMPLE

Where will you collect or obtain your data?

_in district Bloemhof, Rotterdam South

_____

_____

Note: indicate for separate data sources.

What is the (anticipated) size of your sample?

_____12 respondents will be interviewed

_____

_____

Note: indicate for separate data sources.

What is the size of the population from which you will sample?

_____14.090 residents live in area Bloemhof

_____

_____

Note: indicate for separate data sources.

Part V: Data storage and backup

Where and when will you store your data in the short term, after acquisition?

_____*digital files will be saved on my computer and mobile phone after the interviews are conducted. They will be removed afterwards.*

Note: indicate for separate data sources, for instance for paper-and pencil test data, and for digital data files.

Who is responsible for the immediate day-to-day management, storage and backup of the data arising from your research?

_____*I am.*

How (frequently) will you back-up your research data for short-term data security?

_____*After every new conducted interview.*

In case of collecting personal data how will you anonymize the data?

_____ *I will use pseudonyms for all the participants*.

Note: It is advisable to keep directly identifying personal details separated from the rest of the data. Personal details are then replaced by a key/ code. Only the code is part of the database with data and the list of respondents/research subjects is kept separate.

PART VI: SIGNATURE

Please note that it is your responsibility to follow the ethical guidelines in the conduct of your study. This includes providing information to participants about the study and ensuring confidentiality in storage and use of personal data. Treat participants respectfully, be on time at appointments, call participants when they have signed up for your study and fulfil promises made to participants.

Furthermore, it is your responsibility that data are authentic, of high quality and properly stored. The principle is always that the supervisor (or strictly speaking the Erasmus University Rotterdam) remains owner of the data, and that the student should therefore hand over all data to the supervisor.

Hereby I declare that the study will be conducted in accordance with the ethical guidelines of the Department of Public Administration and Sociology at Erasmus University Rotterdam. I have answered the questions truthfully.

Name student:

Marieke van der Heijde

Date: 16-04-2023

Name (EUR) supervisor:

Irene van Oorschot

Date:

Appendix 2: Informed Consent Form

Informed Consent Document voor onderzoek:
'Urban Greening in Bloemhof, Rotterdam: A case Study'

Onder begeleiding van Irene van Oorschot onderzoek ik (Marieke van der Heijde) studente Sociologie van de Erasmus Universiteit Rotterdam (EUR) hoe bewoners in de wijk 'Bloemhof' groen waarnemen en ervaren. Dit onderzoek wordt gebruikt voor het afronden van de Master Sociology – Social Inequalities. Met behulp van uw deelname kan dit onderzoek worden gerealiseerd. Dank daarvoor!

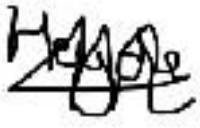
Waarom dit onderzoek?	Dit onderzoek wordt uitgevoerd omdat studente (Marieke van der Heijde) wil onderzoeken hoe bewoners van de wijk 'Bloemhof' groen waarnemen en ervaren. Dit wordt onderzocht in het kader van klimaat adaptieve maatregelen in Rotterdam. Er is gekozen voor de wijk Bloemhof omdat deze wijk een hoog versteend percentage heeft in contrast met groen.
Verloop	U neemt deel aan een onderzoek waarbij ik informatie zal vergaren door: - U te interviewen en het gesprek op te nemen via audio-opname. Er wordt een transcript uitgewerkt van het interview.
Vertrouwelijkheid	Ik doe er alles aan uw privacy zo goed mogelijk te beschermen. Naast de student zal alleen de professor (Irene van Oorschot) toegang krijgen tot alle door u verstrekte gegevens. Er wordt op geen enkele wijze vertrouwelijke informatie of persoonsgegevens van of over u naar buiten gebracht, waardoor niemand u zal kunnen herkennen. In het onderzoek wordt u aangeduid met een verzonnen naam (pseudoniem).
Vrijwilligheid	U hoeft geen vragen te beantwoorden die u niet wilt beantwoorden. Uw deelname is vrijwillig en u kunt stoppen wanneer u wilt. Als u tijdens het onderzoek besluit om uw medewerking te staken, zullen de gegevens die u reeds hebt verstrekt tot het moment van intrekking van de toestemming in het onderzoek gebruikt worden. Wilt u stoppen met dit onderzoek? Neem dan contact op met Marieke van der Heijde, via het volgende e-mailadres: 580916mh@eur.nl
Dataopslag	In het onderzoek zullen anonieme gegevens of pseudoniemen worden gebruikt. De verzamelde data worden beveiligd opgeslagen. Indien u wenst, mag u de data inzien. Bij ontevredenheid zullen de gegevens verwijderd worden. De onderzoeksgegevens worden bewaard voor een periode van maximaal 2 jaar. Uiterlijk na het verstrijken van deze termijn zullen de gegevens worden verwijderd.
Indienen van een vraag of klacht	Indien u specifieke vragen heeft over hoe er met uw persoonsgegevens wordt omgegaan, kunt u deze stellen aan de EUR-data protection officer, te bereiken op: privacy@eur.nl. U kunt daarnaast een klacht indienen bij de Autoriteit Persoonsgegevens indien u vermoedt dat uw gegevens verkeerd zijn verwerkt.

Door dit toestemmingsformulier te ondertekenen erken ik het volgende [includeer alleen de categorieen die van toepassing zijn]

		JA	NEE
1	Ik ben voldoende geïnformeerd over het onderzoek. Ik heb het document gelezen en heb daarna de mogelijkheid gehad vragen te kunnen stellen. Deze vragen zijn voldoende beantwoord en ik heb voldoende tijd gehad om over mijn deelname te beslissen.	☐	☐
2	Ik neem vrijwillig deel aan dit onderzoek. Het is mij duidelijk dat ik deelname aan het onderzoek op elk moment, zonder opgaaf van reden, kan beëindigen. Ik hoef een vraag niet te beantwoorden als ik dat niet wil.	☐	☐

Voor deelname aan het onderzoek is het bovendien nodig dat u voor verschillende onderdelen specifiek toestemming geeft.

3	Ik geef toestemming om de gegevens die tijdens dit onderzoek over mij worden verzameld te verwerken zoals is uitgelegd in dit informatieblad.	☐	☐
4	Ik geef toestemming om tijdens het gesprek geluid-opnames te maken en mijn antwoorden uit te werken in een transcript.	☐	☐
5	Ik geef toestemming om mijn antwoorden te gebruiken voor gepseudonimiseerde quotes in de verslaglegging van het onderzoek.	☐	☐

Naam deelnemer:	**Naam student:**
	Marieke van der Heijde
Handtekening:	**Handtekening:**
	
Datum:	**Datum:**

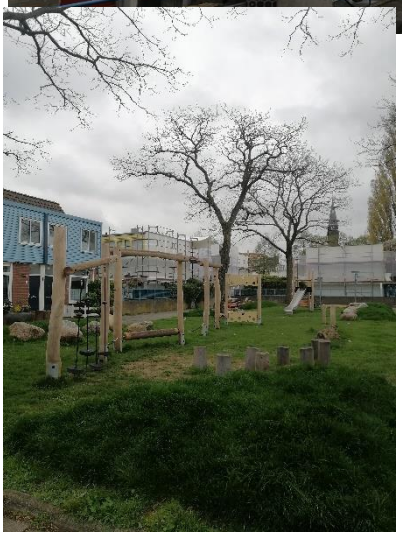
Appendix 3: Fieldwork Notes

20-04-2023

Walked around the neighbourhood and noticed the following:

- Started in WijkHuis Irene. This place feels like a comfy living room. Lots of plants and flowers inside. There is a possibility to get yourself a coffee or tea. There are no visitors, maybe because I was there in the morning (10.00 – 12.00 AM). There were only employees.
- At 12 AM I started walking around in the neighbourhood (see pictures)
- Totally I counted 3 small playgrounds for children. 2 made of grass and 1 made of artificial grass and beton (concrete?)
- The gardens in front of inhabits homes were small and less-non green. Some had small bushes or plants and flowers. But relatively a low amount.
- The singel (water area) looked clean and nice. Some wooden benches near the water made it look nice and invited for a walk.
- Alongside the singel are big trees. They were blooming! It looked very nice.
- Some streets had no trees at all
- Very many hardened areas
- Around the basketball field was a small place for people to let their dog ran. Really small and surfaces with a fence.

Made the following pictures:



28-04-2023

I again took some time to observe the neighbourhood.

- Cycled through the neighbourhood. It was a rainy, cloudy, day. There weren't many people on the streets. Only some people waiting at the bus stop and someone walking his dog.
- Spend time in Wijkhuis Irene (12.30-14.30 PM)
    - Employees complain about the lots of garbage in the neighbourhood. And in their gardens. There are very upset about people who feed the birds, ducks, and therefore al the extra garbage it follows. They complain about older children as well, as they throw their empty cans and candy packages into their gardens and on the streets.
    - They also talk about how they love plants inside their homes. However, they die a lot, and they don't know it if is due to water or a lack of feeding.
    - Moreover, it is quite in Wijkhuis. This has to do with the fact that it is Friday, since Fridays used to be a very non busy day.

02-05-2023

Cycled around in the neighbourhood after conducting an interview. There were constructions on the streets and near the primary school. It was busy around the shops. Some people were walking with their children.

04-05-2023

A sunny day! I cycled around in Bloemhof and parked my bike at the Lidl shop. I enjoyed the view of the 'singel' on a bench. Many people passed by (elderly, young adults). Two men were laughing and chatting on a bench. They sure had a good time. One bench further a homeless (?) men slept on a bench. There was some garbisch in the singel, unfortunately. The bus drove in the direction of Zuidplein. Near the busstop, there was a bench with a view near the singel. A young girl used this bench to wait for the bus. Other women was making pictures of the singel and, afterwards, videochatted with someone. A man and a women (elderly couple) were walking their round, she used a stick for her feed. A street further, near the basketball field, children were playing with footballs. Probably due to the fact that is holiday (May vacation). As such, the sun provided a nice, cosy, day in Bloemhof!

12-05-2023

Interesting day at Bloemhof. Spoke to 2 residents when I wanted to interview them. They both started conversations about their lives to me. Felt like a social worker all over again! This is an important note because it shows what currently lives in Bloemhof. Moreover, the sun was shining so it was a good day. Not many people on the streets, it felt quit and calm.

17-05-2023

Cycled through the streets of Bloemhof. Another route this time to see the neighbourhood from another view. Saw this graffiti (see picture) which for sure creates a good image of what lives under the residents. It says: Bloemen voor Bloemhof (Flowers for Bloemhof).