## Park facilities stimulating social interaction in Wilhelminapark and Griftpark in Utrecht



August 2019

## Master program

Human Geography

## Track

Urban Geography

## Specialisation

Daily life \& public spaces

## Author

Olga A. Sowa
Student ID: 6258239

## Universiteit Utrecht

Faculty of Geosciences Princetonlaan 8a, 3584 CB Utrecht

## Supervisor

Hannah E. Roberst


#### Abstract

By bringing diverse people together, urban parks give a possibility for new social interactions to emerge. However, contacts with strangers are fairly rare. Various studies have shown that facilities can influence odds of occurrence of social interactions. What is more, social contacts play a role in creating social cohesion. The research studied capacity of various facilities to stimulate social interactions among parks' users and their relationship with social cohesion. The study was based on quantitative methods such as structured observations and questionnaires. The sample size was 2071 of the former, and 100 of the later. SPSS was used to analyse the data. The research was conducted in two parks in Utrecht, the Netherlands. The parks are various in terms of their design and available facilities. The main findings showed that among all visitors' characteristics age had the greatest impact on a park use. Perception of social cohesion was not related to the frequency of interaction, but it was related to the willingness to interact (including perceived possibility of interaction). Except facilities specific to the studied parks, the greatest odds of occurrence of social interaction were found in using 'recreational facilities' and 'grass'. Further interdisciplinary studies are necessary in order to find the most suitable spatial characteristics and design solutions encouraging social interactions.


I wanted to start this preface with a quote of Seneca that I disagree with. Experiencing moments of doubts and delights followed by lots of overthinking have taught me that, as long as I am open to people and look at life gratefully, I will always find my way.

Two years ago, I graduated from 'Architecture and Urban Planning' at Warsaw University of Technology. What I loved there was a creativity of people aiming to find solution for various challenges. But I understood that architecture is not only about embellishing cities, but also about creating experience and bringing people together. And that is what brought me here to Utrecht University.

The year spent at that university restored my confidence and opened my eyes to a completely new way of looking at cities. I have learnt to be more critical and question my opinions. I have read more valuable books and articles than ever in my life. I became interested in the subject of migration but also experienced it myself. And finally, I realised how much I still need and want to learn.

This master thesis in the field of human geography is an attempt to build a bridge between two disciplines - architecture and social sciences. This is the first proper research I have done in my life. I hope that soon I will find my own way to implement the acquired knowledge and skills to improve life of urban dwellers.

I would like to thank my family and friends for good thoughts and prayers. And I would especially like to thank my parents for being my role models and encouraging me to be interested in the world around. They always supported me in my decisions and were there when I needed them.

I also want to thank my supervisor for accompanying me throughout the entire process of writing this thesis and being helpful in the most critical moments.

## Table of contents

Abstract
Preface

1. Introduction
1.1. Brief introduction of the topic
1.2. Societal relevance
1.3. Scientific relevance
2. Literature review
2.1. Social cohesion
2.2. Park as encounter space
2.3. Facilities
2.4. Aims and objectives of the research
3. Methods
3.1. Study design and setting
3.1.1. Wilhelminapark
3.1.2. Griftpark
3.1.3. Differences and similarities between Griftpark and Wilhelminapark
4. Data collection
4.1. Observations
4.2. Questionnaires
5. Results and analysis
5.1. The first research question
5.1.1. Questionnaire results
5.1.2. Observations results
5.1.3. Differences in park use by user demographics
5.1.3.1. Differences in park use between genders
5.1.3.2. Differences in park use between age groups
5.1.3.3. Differences in park use between employment status
5.1.3.4. Differences between park use between marital status
5.1.3.5. Differences in park use between ethnicities
5.2. The second research question
5.2.1. Questionnaire results

### 5.2.2. Observations results

### 5.2.3. Activity pace and social interaction

### 5.2.4. Facilities and social interaction

5.3. The third research question
5.3.1. Questionnaire results
5.3.2. Social cohesion and well-being
5.3.3. Social cohesion and social interaction
5.3.4. Social cohesion and willingness to interact
6. Discussion
6.1. Summary of findings
6.2. Strengths and limitations
6.3. Future research suggestions
7. References
8. Appendix

## 1. Introduction

### 1.1 Brief introduction of the topic

Urban dwellers are exposed to many stressors. Noise, light and air pollution are just some of the factors that reduce the quality of life (Lyytimäki, 2015, Silva \& Mendes, 2012). Living in a city is also associated with greater anonymity (Forrest \& Kearns, 2001). Increased individual mobility (Kaźmierczak, 2012) and maintaining contacts with people from outside the neighbourhood contribute to the disappearance of social ties (Guest \& Wierzbicki, 1999).

Those negative implications of living the urban life can be reduced by good quality public spaces (Nasution \& Zahrah, 2017). Beyond such spaces as streets or squares, which currently change due to trends such as commercialization or increasing surveillance (Carmona, 2010), examples of public spaces that are still highly available to everyone and allow to be used in a relatively free way, are urban parks. Many studies show that proximity to green space has positive outcomes for urban dwellers and it is generally desired to live nearby such space (Rasidi et al., 2012). The quantity of surrounding green spaces also has a good effect on reducing negative outcomes of stressful life events (van den Berg et al., 2010). Using green space is a strategy that helps balancing stress and optimal functioning (Barton, 2017). Generally, people tend to feel happier living in a neighbourhood with more urban green space (White et al. 2013 in Kabisch et al., 2014)

One key mechanism in which parks might offer physical and mental health benefits is via social contacts (Hartig et al., 2014). Green space is where social and physical processes intertwine, so it consists of both natural elements, and social and cultural experiences (Dinnie et al., 2012). Through the use of parks, people not only begin to feel attachment to the physical space, but also to other park users (Peters et al., 2010). And "having interactions can be a way of creating social cohesion because interactions stimulate a feeling of being at home" (p.94, Peters et al., 2010).

### 1.2. Societal relevance

Despite the potential for creating social ties, parks are used in different ways, and interaction with other people cannot be taken for granted. Knowing that some elements of a park, more than others, can contribute to the creation of interaction between their users, in the special interest of the city authorities, should be awareness of what small means can facilitate social contacts and drive an increase in social cohesion, and thus improve the lives of residents. Such guidelines can be helpful when designing new urban green spaces or
developing interventions to promote social interaction in existing spaces. Adaptation of the facilities to the needs of people in the area may be useful for many municipalities that care about the health and quality of life of their citizens because parks are not only good because they help with stress reduction, cognitive development or even lower mortality rate, but also stimulate social interactions and by that support creation of a sense of community (World Health Organisation, 2016).

### 1.3. Scientific relevance

Interest in researching urban greenery and its social outcomes constantly grows (Fig. 1, p. 27 in Kabisch et al., 2014). A lot is known about the positive effects of urban greenery on well-being and mental health (Kabisch et al., 2014) and on social interaction (Kabisch et al., 2014). The influence of physical distance on interactions among people and with objects has also been widely investigated (Gehl, 2013; Hall, 1963). Different studies found a relationship between presence of facilities in urban green spaces and activities performed or perceived attractiveness of parks (Krellenberg et al., 2014; Anquetil, 2009). However, not much is known about how different types of facilities in parks may encourage social interaction and how that influences neighbourhood social cohesion. In the review of research concerning urban greenery and social issues created in 2014, only five papers about relation between green spaces and social cohesion were found (Kabisch et al., 2014). For this reason, this research tried to examine whether and how different features in parks could stimulate social interaction and which social outcomes it may bring to park users. And by that, contribute to the existing knowledge from the frontier of urban design and urban geography.

## 2. Literature review

### 2.1. Social cohesion

Self-reported happiness increases in the situation of good community cohesion and social inclusiveness (Litaman, 2016). In his paper about social cohesion, Wilkinson referred to Buckner's (1986) Neighborhood Cohesion Instrument (NCI) in which social cohesion consists of psychological sense of community (PSOC), attraction, and neighbouring. The former is described as a sense of belonging and feeling important to other people. Attraction, by some researchers also called place attachment, refers to having desire to stay in a neighbourhood. Neighbouring are the actions performed in order to build or maintain social interactions with neighbours (Wilkinson, 2007). Sense of belonging can also be understood as sharing similar values or common identity (Anquetil, 2009). However, social cohesion does not have one universal definition. For instance, some academics understand place attachment as a separate phenomenon leading to social cohesion (Peters et al., 2010), rather than as a one of its components. Therefore, for the sake of this research, Anquetil's paper and Wilkinson's understanding of social cohesion was adopted (Wilkinson, 2007). Nevertheless, interactions between people, even brief ones, can lead to the formation of more meaningful social ties (Gehl, 2013), and having social interactions can promote sense of community which is a component of social cohesion (Kim \& Kaplan, 2004).

However, social ties in the urban areas seem to be weakening. The common spaces and values continue to be replaced by the feeling of anonymity, individualism and competition (Forrest \& Kearns, 2001). Increased mobility resulting in travelling longer distance to work, maintaining contacts via electronic devices (Kaźmierczak, 2012) and having relationship with people outside of the neighbourhood (Guest \& Wierzbicki, 1999) contributes to the decline in the importance of social ties in the area around home. However, it does not mean the neighbourhood ties are not valued. Knowing people in the neighbourhood, even by sight, contributes to the feeling of safety and creates public familiarity (Peters et al., 2010). There are certain groups for which having social networks that require being mobile is difficult. Among those are elderly, families with children and people of low economic status. For them neighbourhood networks may still be important (Guest \& Wierzbicki, 1999; Kaźmierczak, 2012). Even though neighbourhood ties, nowadays make a minority of friendships and acquaintanceships, they should not be underestimated.

### 2.2. Park as encounter space

Public spaces give an opportunity for citizens to get together in common space (Kaźmierczak, 2012) and participate in a social life on a non-engaging level, e.g. by sitting on a bench and looking at others (Gehl, 2013). Spending time in one space enables to look at other people's activities and learn about different lifestyles (Kaźmierczak, 2012). Urban green spaces are important because they are the places of encounter for people of various social backgrounds (Krellenberg, 2014). Experiencing social diversity can lead to a greater tolerance (Kaźmierczak, 2012) and positive attitude towards others (Krellenberg, 2014). Some claim that even co-presence with little active contact has a positive impact on reducing distance between people in the same residential area (Krellenberg, 2014).
'Presence and use of public green areas facilitate face-to-face contacts and enhance social ties within a community or a neighbourhood' (Gezondheidsraad, 2004). Places of urban greenery are characterised by openness and flexibility. They are accessible and create space for different forms of usage and social interactions (Kaźmierczak, 2012). Although in one Dutch study respondents declared to value social interactions both with known and unknown people in parks (Peters, 2010), the same one and the other Dutch research showed that people prefer to spend time with the ones they already know, than with strangers met in a park (Kaźmierczak, 2012). And if the interactions between strangers occur, they are rather cursory like greeting or having a chat about the weather (Peters, 2010). Nevertheless, even those weak ties, that might form out of meeting the same strangers multiple times, have a significant impact on psychological well-being (Sandstrom \& Dunn, 2014), so it is worth to support places which give an opportunity to create that sort of bonds between people. Parks help not only making new acquaintances but also maintaining contacts with people who are already familiar (Rasidi et al., 2012).

### 2.3. Facilities

Various research found that good quality of public space can promote social interactions (Gehl, 2013; Anquetil, 2009). Although it is impossible to give one guideline about size of place or number of facilities that would work for every park, there are some observations that can help in making parks more successful in attracting people and encouraging them to interact with each other. A review of studies concerning characteristics of parks and their potential for enhancing park use and physical activity, showed that "maintained parks, containing amenities suited to use across the life-span, and facilities that are clean, aesthetically appealing, and safe have the potential to encourage use." (p.725, McCormack et al., 2010).

Physical features of green spaces may have positive influence on attracting people to them and can determine types of activities performed (Krellenberg, 2014). Some point out to recreational facilities as inducers of interaction (Anquetil, 2009). In McCormack's paper concerning park use and physical activity, two types of facilities were distinguished - structured and unstructured ones. The former are e.g. sport fields or skate parks, the latter paths or trails. In this study, parks with walking paths and trails were visited more often than parks containing sports-related facilities (McCormack et al., 2010). Playgrounds were also found to be an important amenity encouraging people to a park (Kaźmierczak, 2012).

One key physical feature in public space is seating. Seating is one of the most important activities that keeps people in public spaces (Mehta, 2009). A study in Hong Kong confirmed the importance of sitting for stimulating contacts and pointed to circle or flexible movable seating arrangement as more suitable for social interaction than the fixed seats in a line, because they allow all groups members to have an opportunity to talk to each other, and not only with those sitting next by (Luximon, 2015). However, that research focused on groups of friends who wanted to interact, and not on strangers. Mehta (2009) found that places for sitting were those most efficient in supporting social interaction on streets, but they were not always used for sitting. On the other hand, objects that are not dedicated for sitting, such as various types of flat surfaces, can be used for that purpose. These findings suggest that objects do not always have to be used as intended, and yet they can have a positive impact on the social environment (Mehta, 2009).

Motivations for using facilities in parks differ according to individual needs. Type of activities performed, and facilities used in green spaces vary among segments of population (McCormack et al., 2010), thus parks containing a variety of features and amenities may support a wider range of users. While adult and seniors prefer to walk, observe the nature or go out with children, the younger people see green spaces as places for meeting others or doing sports (Krellenberg, 2014). For elderly benches serve as a mobility aid. Due to their generally reduced health and mobility places to sit help them with 'enhancing their use and enjoyment of green and blue spaces' (Ottoni, 2016). People who come to park in a group look for larger places that are able to contain all the group members (Luximon, 2015). Some park objects are dedicated to very specific groups of users and appreciated mostly by them, e.g. dog signage was found important for dog owners (McCormack et al., 2010). Nevertheless, some facilities such as bathrooms, seating or water fountains are valued regardless of age (McCormack et al., 2010).

There are naturally more factors influencing a likelihood of use of parks and possibility of interactions. Right proportions of vertical elements such as trees or bushes, may create a sense of enclosure (Mehta, 2009). Accurate distance between park users, helps to balance the need for being among others and inconvenience resulting from their behaviour (Rasidi et al., 2012). Feeling of safety, park maintenance, aesthetics and accessibility of a park are also influential (McCormack et al., 2010). These characteristics were not a subject of this research, but they will be mentioned again in the discussion.

### 2.4. Aims and Objectives

Parks provide various health benefits, both physical and mental, but they also give an opportunity to interact with other visitors. When people to talk to others social cohesion may occur. Parks are designed in different ways and offer different facilities. With some predictions about the fact that certain facilities can stimulate interactions more than others, it is worth checking whether such assumption might be true.

The conceptual model presented below, shows the possible relations between studied phenomenon. Park facilities may encourage people to use parks (Krellenberg, 2014) and additionally, they can induce interactions between them (Anquetil, 2009). However, it can also work the other way, visitors might come to the park without intention to use any specific facility but can get attracted by some when already being there. Along with Lofland's concept of triangulation, 'the presence of an event or amenity can draw strangers together' (p.94, Peters et al., 2010) and foster interaction. Using the same facility may be an inducer of social interaction, but that can also happen just thanks to being present in one space (Gehl, 2013, Kaźmierczak, 2012, Rasidi et al., 2012), in this case, green space. According to a Dutch study, parks give opportunity for informal and cursory interactions, which eventually can lead to creation of social cohesion (Peters et al., 2010) or positive perception and sense of social cohesion (Jennings, 2019). Through the use of parks people start to feel attached to both parks and their users (Peters et al., 2010), and attachment is a part of social cohesion (Wilkinson, 2007). And vice versa, areas with 'social cohesion can encourage positive interactions that facilitate participation in clubs and organizations' (Jennings, 2019), and various events or activities, such as birthday parties or bootcamps (sport), do take place in parks. Furthermore, in the study of Seaman et al., authors aimed to 'draw attention to the emergence of a particular theme: level of perceived integration as a key issue between cases in shaping greenspace use and access' (p.4, Seaman et al., 2010).

The aim of this research was to learn about forms of social interactions that take place around different facilities in parks and their impact on as social cohesion. Additionally, the study provided an extended description of two parks, Griftpark and Wilhelminapark in Utrecht, as well as their visitors and the way they use the parks. These considerations led to the formulation of the following research questions.


## Main research question

How do different facilities in Griftpark and Wilhelminapark in Utrecht stimulate social interaction among different parks visitors and how does that influence their perception of social cohesion in the neighbourhood and their individual well-being?

## Research questions

What are the demographics of those who use Wilhelminapark and Griftpark? How do they use the park?

Who uses the parks for social interaction, and which facilities are associated with social interaction? Is this different between parks?

What are the levels of social cohesion in both parks? What is the relationship between social cohesion and social interaction? Is social interaction and social cohesion related to well-being?

## 3. Methods

### 3.1. Study design and setting

In this study, two complementary quantitative methods were used. Observations gave a large amount of data on parks' visitors and the way they use parks but were less precise than questionnaires. Questionnaires examined demographic characteristics of park users that were impossible to be observed such as ethnicity or education level. They also allowed to understand their motivations and opinions on social cohesion.

Two parks in Utrecht were chosen for this study. The parks were chosen because of the differences in their design in order to investigate how different facilities may stimulate social interaction.

### 3.1.1. Wilhelminapark

Wilhelminapark is located in the Oost neighbourhood and was opened in 1898. It was designed in the English landscape garden style and since 2001 it has been a national monument. A pond, large statue of Queen Wilhelmina, a pavilion locating a restaurant, a children's playground and meandering paths create the impression of an elegant classical park. The park is used throughout the year, as a place to stroll, have a picnic or do sport. There is also a busy bike path going through the middle of the park, but it does not disturb the calmness of this place.

Observations in Wilhelminapark were conducted in three different places presented in the map below (see map/ Figure 7.). The grass field saves mainly for groups of people having picnics or doing sports. The lake and surrounding it grass are mostly used by small groups of 2-4 people for rather sedentary activities such - having a picnic, talking, lying on grass, looking at the water, sitting on a bench. Dog park is according to its name, used mainly by people walking their dogs and sometimes playing with their dogs or watching their dogs playing with other dogs. Facilities in the two mentioned areas are: paths, benches, trees, a pond and an area around a pond. The area with trees near the other side of the pond is used in various ways - occasionally for sitting on a bench, but mostly for walking.

Facilities available in Wilhelminapark (see map/ Figure 1.1.):

- Grass field (1): seats, paths, grass, water, tress, picnic table, statue of Queen Wilhelmina.
- Pond (2): seats, paths, grass, water, trees.
- Trees (3): seats, paths, grass, water, trees, information board about birds.

Figure 1. and Figure 2. Left - a grass field (1) in Wilhelminapark, right - a pond (2) in Wilhelminapark; source: author


Figure 3. and Figure 4. Left - trees (3) in Wilhelminapark, right - people having a picnic in Wilhelminapark; source: author


Figure 5. and Figure 6. Left - dog walking in Wilhelminapark, right - sitting and doing sports Wilhelminapark; source: author


Figure 7. A map of Wilhelminapark. Observed areas are marked with red dashed lines, and positions of the researcher are marked with red dots.


Source: OpenStreetMap, 2019, modified by the author

### 3.1.2. Griftpark

Contrary to Wilhelminapark, Griftpark situated in the Noordoost neighbourhood, presents a completely opposite nature. At the time when Wilhelminapark was opened, the area of Griftpark was still used by the Municipal Gas Factory. In 1960 factory was closed down, but the ground remained heavily polluted. Between 1993 and 2002 the area was cleaned, and the park was designed. Griftpark has a very modern character. A playground, a restaurant, children's animal farm, basketball field and a skating track lure many young people and visitors with children to Griftpark. Due to variety of facilities in Griftpark, observations were conducted in 6 different places (see map/ Figure 18.), which for the purpose of this research were called:
a dog park (1), a cascade (2), an animal farm (3), benches (4), a playground (5), a skatepark (6).

Facilities available in Griftpark (see map/ Figure 1.8.):

- Dog park (1): seats, paths, grass, trees, football field.
- Cascade (2): seats, paths, grass, trees, water (cascade), animals.
- Animal farm (3): seats, paths, grass, trees, animals, slope.
- Benches (4): seats, paths, grass, trees, water (cascade), animals.
- Playground (5): seats, paths, grass, trees, various swings, sandpit, picnic tables.
- Skatepark (6): seats, paths, grass, slope, roof, skatepark amenities.

Figure 8. and Figure 9. Left - dog park (1) in Griftpark, right - a cascade (2) in Griftpark; source: author


Figure 10. and Figure 11. Left - animal farm (3) in Griftpark, right - a skatepark (6) in Griftpark; source: author


Figure 12. and Figure 13. Left - a sport amenity in a skatepark (6) in Griftpark, right - a roof in a skatepark (2) in Griftpark; source: author


Figure 14. and Figure 15. Left - doing sport in Griftpark, right - a water reservoir in Griftpark, view from a slope; source: author


Figure 16. and Figure 17. Left - people sitting on the grass next to a water reservoir in Griftpark, right young people skateboarding in Griftpark; source: author


Figure 18. Map of Griftpark. Observed areas are marked with red dashed lines, and positions of the researcher are marked with red dots.


Source: OpenStreetMap, 2019, modified by the author

### 3.1.3. Differences and similarities between Griftpark and Wilhelminapark

Table 3.1. Question about social cohesion from a resident survey 2018 with answers of inhabitants of of Noordoost (with Griftpark) and Oost (with Wilhelminapark) neighbourhoods.

|  | Oost | Noordoost |
| :--- | ---: | ---: |
| (strongly) agree, in general people can be trusted | $83 \%$ | $79 \%$ |
| social cohesion report mark [report mark] | 6,3 | 6,6 |
| (strongly) agree, the people in this neighbourhood don't know each other that <br> well | $45 \%$ | $32 \%$ |


| (strongly) disagree, the people in this neighbourhood don't know each other so <br> well | $35 \%$ | $45 \%$ |
| :--- | ---: | ---: |
| (strongly) agree, the people in this neighbourhood treat each other in a <br> pleasant way | $81 \%$ | $83 \%$ |
| (strongly) agree, I live in a nice neighbourhood | $72 \%$ | $74 \%$ |
| (strongly) disagree, the people in this neighbourhood interact with each other in <br> a pleasant way | $3 \%$ | $3 \%$ |
| (strongly) agree, the people in this neighbourhood interact a lot | $29 \%$ | $35 \%$ |
| (strongly) disagree, I live in a nice neighbourhood | $81 \%$ | $5 \%$ |
| (strongly) disagree, the people in this neighbourhood interact a lot with each <br> other | $25 \%$ |  |
| (strongly) agree, I feel comfortable with the people who live in this <br> neighbourhood | $2 \%$ | $75 \%$ |
| (strongly) disagree, I feel comfortable with the people who live in this <br> neighbourhood | 8,4 | 8,4 |
| social welfare report rating [report rating] | 3 |  |

Source: WistUdata, Resident Survey 2018, translated by the author

The neighbourhoods in which Griftpark and Wilhelminapark are located (Noordoost and Oost respectively) are quite similar in a few aspects. Table 3.1. shows results of a resident survey conducted in 2018 (WistUdata, 2019) and other data mentioned here come from a Municipality of Utrecht (WistUdata, 2019). In terms of social cohesion inhabitants of Noordoost graded their neighbourhood with 6,6 and inhabitants of Oost graded theirs with 6,3 (WistUdata, 2019). When looking at a general opinion about the neighbourhood $74 \%$ inhabitants of Noordoost and $72 \%$ of inhabitants of Oost considered their neighbourhood nice (see Table 3.1.). What is more, $72 \%$ of inhabitants of Noordoost and $74 \%$ of Oost are positive about the future of the neighbourhood (see Table 3.1.). Noordoost and Oost also have similar ethnic background composition - 77,3\% and 73,7\% Dutch, 12,8\% and 16,2\% Western, followed by $9,9 \%$ and 10,1\% non-Western (WistUdata, 2019). However, Oost neighbourhood (Wilhelminapark) has slightly more young people at the age of $18-24$ years ( $25,5 \%$ to $14,4 \%$ in Noordoost), but less of those under 18 years ( $12,7 \%$ to $18,4 \%$ in Noordoost) and between $35-54$ years old ( $19,7 \%$ to $25,5 \%$ in Noordoost)(WistUdata, 2019). What was interesting for this study, $45 \%$ of Oost inhabitants claimed that in their neighbourhood people do not know each other that well, which is more than in Noordoost, where $32 \%$ had the same opinion (see Table 3.1.). Finally, $29 \%$ of people living in Oost declared that people in the neighbourhood interact a lot, while this belief was shared by $35 \%$ of citizens from Noordoost (see Table 3.1.).

Generally, dissimilarities between parks in terms of social cohesion, ethnic composition and age are minor.

Visible differences in the nature and design of parks attract various users. Because of their dissimilarity, these two parks were good for a comparison. The variety of facilities allowed to consider more features overall. Such diversity in a design and similarity in other characteristics helped to focus on the main subject of the research - use of facilities and their impact on social cohesion.

## 4. Data collection

### 4.1. Observations

Observation is a method used by Gehl Institute (Using Public Life Tools: The Complete Guide) and generally it is widely used to do research in public spaces. In this research, an observation sheet with 6 sections composed by the author, was used to observe which facilities were used and which activities were performed, as well as if the social interaction occurred, and whether it was brief or sustained. Additionally, SOPARC - System for Observing Play and Recreation in Communities (Evenson et al., 2006). It is a "validated direct observation tool for assessing physical activity and associated people and environmental characteristics in park and recreation settings" (Rand Health Care, 2019). It was applied to examine a pace of activities (sedentary, moderate, active). In order to answer research questions observations were conducted in six locations in Griftpark and in three locations in Wilhelminapark. During data collection, the researcher was sitting and observing everything that was in sight. The observed area is marked on the parks' maps (see maps / Figure 7. and Figure 18.).

Observations were conducted in each park during in one weekend day and one working day excluding Fridays and days such as national holidays or other special days. Observations in each place in Wilhelminapark lasted 15 minutes and in Griftpark 10 minutes. They were conducted in strict times in four time slots - morning, lunch, afternoon and evening. Observation in a playground in Griftpark were conducted only in the lunch and afternoon time slot due to its opening hours. Sometimes observations in different time slots were conducted in different days due to weather conditions. The weather varied from 4 Celsius degrees in the morning up to 17 Celsius degrees in the day time. Observations took place in April 2019 and were conducted by the researcher.

## Time slots

7:30-8:25 - morning
12:30-13:25 - lunch
15:30-16:25 - afternoon
18:30-19:25 - evening

## Features observed during observations

The following features of observed parks' visitors were noted (ticked) during the observations: age group, type of activity, occurrence of social interaction, used facilities,
undertaken activities. Beyond the list with options to tick, there was blank space to note down other important observations or other options (e.g. facilities) that were not listed.

## Age group:

- Baby/toddler
- Teenager
- Adult
- Child
- Young adult
- Elderly


## Type of activity:

- Sedentary - activity in one place, e.g. sitting and having a picnic, standing and talking.
- Moderate - combination of sedentary and vigorous activities, e.g. walking a dog and stopping to let the dog sniff, walking with a pram and stopping to let a child look at ducks.
- Vigorous - uninterrupted activities, e.g. walking, jogging, playing soccer.


## Social interaction:

- No
- Brief
- Sustained

Facility:

- Seat
- Grass
- Path
- Lake
- Statue
- Animal
- Tree
- Other


### 4.2. Questionnaires

Questionnaire (survey), just like the observation, is also a method used by Gehl Institute (Gehl Institute, 2019) to do research in public space. Questionnaires provided data about respondents' demographic characteristics such as age, gender, work status etc., as well as their perception of social cohesion in the neighbourhoods of the parks and examined the exact ways study participants use the parks. The form of a questionnaire was suitable due to its shortness allowing to have more respondents.

The questionnaire was composed of four sections named: park usage, social cohesion, well-being and general. The first part - 'park usage', intended to examine the way people use the parks. It included 5 questions about what time, how often, with whom, for what reason respondents use the park and whether they interact with strangers. Except two questions about frequency of interacting with others and frequency of using the park, multiple answers could be ticked. The second part about social cohesion, used the Sampson social cohesion scale, which included questions related to 'social cohesion and trust' in the neighbourhood (Sampson et al., 1997). Respondents were asked how strongly they agreed with five statements, and they could choose one answer from a Likert scale. Third part, called 'well-being' was composed by the author. After doing a short review research of existing questionnaires about personal well-being and social well-being from different studies, questions were prepared by mainly using variation of some questions from 'Validation of a new social well-being questionnaire' (Radzyk, 2014). In the end, this part consisted of three questions about social interactions, and two general questions - one about influence of a park on respondent's well-being and on the social cohesion in the neighbourhood (explained as 'a sense of community'). Just like in social cohesion part, this section included Likert scale and a question about how strongly respondents agreed with the presented statements. The last part was about respondent's socioeconomic status and demographics - age, gender, ethnicity, education, marital status, employment status and whether the respondent lives in a neighbourhood and for how long.

The questionnaires were conducted in three areas in Wilhelminapark (see map/ Figure 1.1.) and six areas in Griftpark (see map/ Figure 1.8.) during both weekend day and working day in both parks, excluding Fridays and days such as national holidays or other special days. The questionnaires were being collected in April, May and June, not is as strict time slot as the observations, but also throughout a day.

Questionnaires were conducted face-to-face. Respondents were chosen randomly from the park visitors, but with an intention to get responses from various park users - varying in terms of age, type of performed activity, being in a group or alone, using different facilities etc. They were filling the questionnaire themselves, with the assistance of the researcher and
help if needed. Respondents also received an information sheet with study information and contact details of the researcher and supervisor.

## 5. Results and analysis

2071 people were observed across both parks - 1236 in Griftpark and 835 in Wilhelminapark Missing data was limited - 44 cases were missing gender and 16 missing age group. This was due to ambiguity of gender (a baby, for example), or the number of observations made it too difficult to note all features.

110 people were approached to complete the questionnaire across both parks. 10 people refused meaning there were 100 respondents. In Wilhelmina park, 48 people completed the survey, while in Griftpark, 52 completed the survey. SPSS software was to analyse data in this study. Data was checked for missing data and some variables (categories) were combined in order to create more reliable sample sizes. Crosstabs with Chi-square test, logistic regression, multiple regression and frequencies were applied analyse the data.

### 5.1. The first research question

What are the demographics of those who use Wilhelminapark and Griftpark? How do they use the park? How is it different between parks?

### 5.1.1. Questionnaire results

Table 5.1. shows the descriptive characteristics of the questionnaire respondents ( $n=100$ ): gender, age, ethnicity, education, marital status, employment status, living in a neighbourhood and the length of living a neighbourhood.

Table 5.1. Characteristics of visitors of Grittpark and Wilhelminapark.

|  |  | Wilhelminapark |  | Griftpark |  | Chi-square <br> Asymptotic sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% |  |
| Gender | Male \% <br> Female \% | $\begin{aligned} & 19 \\ & 29 \end{aligned}$ | $\begin{aligned} & \hline 39,58 \\ & 60,42 \end{aligned}$ | $\begin{aligned} & 25 \\ & 27 \end{aligned}$ | $\begin{aligned} & \hline 48,08 \\ & 51,92 \end{aligned}$ | 0,393 |
| Age | 16-25 years\% <br> 26-35 years\% <br> 36-45 years\% <br> 46-55 years \% <br> 56-65 years \% <br> $66+$ years \% | $\begin{array}{r} 21 \\ 9 \\ 4 \\ 7 \\ 1 \\ 6 \end{array}$ | $\begin{array}{r} 43,75 \\ 18,75 \\ 8,33 \\ 14,58 \\ 2,08 \\ 12,50 \end{array}$ | 15 20 5 4 3 2 | $\begin{array}{r} \hline 30,61 \\ 40,82 \\ 10,20 \\ 8,16 \\ 6,12 \\ 4,08 \end{array}$ | 0,105 |


| Ethnicity | Dutch \% | 39 | 81,25 | 37 | 72,55 | 0,590 |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
|  | Western \% | 5 | 10,42 | 8 | 15,69 |  |
|  | Non-Western \% | 4 | 8,33 | 6 | 12,76 |  |
| Education | Lower than high school \% | 1 | 2,08 | 1 | 1,92 | 0,904 |
| accomplished | High school \% | 15 | 31,25 | 17 | 32,69 |  |
|  | Bachelor's \% | 12 | 25,00 | 11 | 21,15 |  |
|  | Master's \% | 19 | 39,58 | 20 | 38,46 |  |
|  | PhD or above \% | 1 | 2,08 | 3 | 5,77 |  |
| Marital status | Single \% | 28 | 58,33 | 28 | 53,85 | 0,745 |
|  | Married/with a partner \% | 18 | 37,50 | 20 | 38,46 |  |
|  | Divorced \% | 0 | 2,08 | 2 | 3,85 |  |
|  | Widowed \% | 1 | 2,08 | 1 | 1,92 |  |
|  | Prefer not to answer \% | 1 | 0,00 | 1 | 1,92 |  |
| Employment | Full-time worker \% | 16 | 33,33 | 20 | 38,46 | 0,505 |
| status | Part-time worker \% | 10 | 20,83 | 14 | 26,92 |  |
|  | Student \% | 14 | 29,17 | 11 | 21,15 |  |
|  | Unemployed \% | 2 | 4,17 | 2 | 3,85 |  |
|  | Retired \% | 6 | 12,50 | 3 | 5,77 |  |
|  | Prefer not to answer \% | 0 | 0 | 2 | 3,85 |  |
| Living in a | Yes \% | 33 | 68,75 | 36 | 69,23 | 0,959 |
| neighbourhood | No \% | 15 | 31,25 | 16 | 30,77 |  |
| of a park |  |  |  |  |  |  |
| The length of | NA (not living in a | 15 | 31,25 | 16 | 30,77 | 0,153 |
| residence in a | neighbourhood) \% |  |  |  |  |  |
| neighbourhood | Up to 1 year \% | 10 | 20,83 | 9 | 17,31 |  |
| of a park | 1 to 5 years \% | 4 | 8,33 | 14 | 26,92 |  |
|  | 5 to 10 years \% | 5 | 10,42 | 4 | 7,69 |  |
|  | Over 10 years \% | 29,17 | 9 | 17,31 |  |  |

In terms of gender there were more women in both parks, however, in Wilhelminapark ( $40 \%$ males, $60 \%$ females) that disproportion was more apparent than in Griftpark ( $48 \%$ males, $52 \%$ females). Looking at age of visitors, in Wilhelminapark the biggest group were young adults between $16-25$ years ( $44 \%$ ), thus at a student age. In Griftpark that number was also high $-31 \%$, but the biggest age group were visitors at the age of $26-35(41 \%)$, which is the age when people usually have children in the Netherlands ("Population - Figures - Society", 2019). While in Griftpark number of people decreases with age, in Wilhelminapark there were $13 \%$ of seniors 65+ (comparing to $4 \%$ in Griftpark), and notably low number of people at the age of

56-65 (2\% comparing to 6\% in Griftpark). Although score of $4 \%$ in a sample of 100 questionnaires should not be over interpreted.

In terms of ethnicity there were slightly more non-Dutch visitors in Griftpark than in Wilhelminapark ( $19 \%$ to $27 \%$ ). In both parks there was an advantage of people with a higher education degree ( $67 \%$ in Wilhelminapark and $65 \%$ in Griftpark). However, in the two parks altogether, $38 \%$ of respondents with a high school degree were also current students, and that is $12 \%$ of the all the respondents in the parks altogether.

Over half of the visitor in both parks were single ( $58 \%$ in Wilhelminapark and $54 \%$ in Griftpark) and around $38 \%$ married or in a relationship._54\% (21\% part-time) of visitors of Wilhelminapark $65 \%$ ( $27 \%$ part-time) in Griftpark were employed, $29 \%$ and $21 \%$ respectively were students. A large proportion of respondents were retired (13\%) in Wilhelminapark (compared to 6\% in Griftpark).
$69 \%$ of visitors of both parks considered themselves living in the neighbourhood of a park. Apart from the group that does not live in the neighbourhood, which in both parks makes slightly over $30 \%$ of the visitors, results were quite different. In Wilhelminapark, percentage of visitors living in the neighbourhood for over 10 years was almost equal to the percentage of non-habitants, and nearly $20 \%$ of visitors declared to live in the neighbourhood of the park for less than one year. In Griftpark the second biggest group were visitors living in the neighbourhood between 1 to 5 years, followed by $17 \%$ living up to 1 year and $17 \%$ for over 10 years.

Chi-square tests were conducted to investigate differences in demographics between Wilhelminapark and Griftpark. None were significant.

Table 5.2. shows how questionnaire respondents use Griftpark and Wilhelminapark ( $n=100$ ).
Table 5.2. Park use of visitors of Griftpark and Wilhelminapark.

|  |  | Wilhelminapark |  | Griftpark |  | Chi-square |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
|  |  | N | $\%$ | N | $\%$ | Asymptotic <br> sign. |
| Frequency of | Rarely/never \% | 4 | 8,33 | 7 | 13,73 | 0,139 |
| visiting a park | Once a month \% | 7 | 14,58 | 1 | 1,96 |  |
|  | Few times a month \% | 15 | 31,25 | 13 | 25,49 |  |
|  | Once or twice a week \% | 6 | 12,50 | 11 | 21,57 |  |
|  | Few times a week \% | 8 | 16,67 | 6 | 11,76 |  |


|  | Nearly every day/everyday \% | 8 | 16,67 | 13 | 25,49 |  |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| Day times of | Early morning \% | 4 | 8,33 | 5 | 9,62 | 0,823 |
| visiting a park | Late morning \% | $\mathbf{9}$ | $\mathbf{1 8 , 7 5}$ | $\mathbf{2 4}$ | $\mathbf{4 6 , 1 5}$ | $\mathbf{0 , 0 0 4}$ |
|  | Afternoon \% | 15 | 31,25 | 14 | 26,92 | 0,634 |
|  | Late afternoon \% | 25 | 52,08 | 21 | 40,38 | 0,241 |
|  | Evening \% | 18 | 37,50 | 13 | 25,00 | 0,177 |
|  | Night \% | 3 | 6,3 | 2 | 3,8 | 0,582 |
| With whom | Alone \% | 17 | 35,42 | 23 | 44,23 | 0,369 |
| visiting a park | With family/a partner \% | 14 | 29,17 | 18 | 34,62 | 0,560 |
|  | With friends \% | 26 | 54,17 | 20 | 38,46 | 0,115 |
|  | Other \% | 1 | 2,08 | 0 | 0,00 | 0,296 |
| Motivations for | Relaxing \% | 25 | 50,00 | 24 | 48,08 | 0,848 |
| visiting a park | Enjoying nature \% | 22 | 45,83 | 21 | 40,38 | 0,582 |
|  | Having a picnic \% | $\mathbf{2 1}$ | $\mathbf{4 3 , 7 5}$ | $\mathbf{1 2}$ | $\mathbf{2 3 , 0 8}$ | $\mathbf{0 , 0 2 8}$ |
|  | Meeting friends or family \% | 17 | 35,42 | 13 | 25,00 | 0,256 |
|  | Walking \% | 14 | 29,17 | 17 | 32,69 | 0,703 |
|  | Sport \% | 9 | 18,75 | 16 | 30,77 | 0,166 |
|  | Dog walking \% | 8 | 16,67 | 11 | 21,15 | 0,568 |
|  | Being among other people \% | 6 | 12,50 | 8 | 15,38 | 0,678 |
|  | Walking/playing with children \% | 3 | 6,25 | 8 | 15,38 | 0,145 |
|  | Other \% | 1 | 2,08 | 1 | 1,92 | 0,954 |

Results of the question about frequencies of using parks differ quite a lot (see Table 5.2.). Around $1 / 3$ of Wilhelminapark visitors come there few times a month. In Griftpark this answer was chosen by $1 / 4$ of respondents. What is more, over $1 / 3$ in both parks come there fairly often - from a few times a week to everyday. Whereas in Wilhelminapark these categories were chosen by an equal number of respondents, in Griftpark it is more diverse - the percentage of those who come to Griftpark everyday/nearly every day is $25 \%$ and those few times a week is $12 \%$.

The times when respondents use the parks also differed. 52\% of Wilhelminapark visitors come there in the late afternoon, followed by $36 \%$ in the evening, $31 \%$ in the afternoon, $19 \%$ in the late morning and only $8 \%$ in the early morning. In Griftpark $46 \%$ of respondents visit the park in the late morning, followed by $40 \%$ in the late afternoon, $25 \%$ in the evening and $10 \%$ in the early morning. Early morning (before 9 a.m.) scores the lowest in both parks.

From observations it seems that those coming in the early morning usually had some sort of obligation - dog walking or jogging.

Over half of the Wilhelminapark visitors declared they come to the park with friends and around $1 / 3$ on their own and $1 / 3$ with a family or a partner. In Griftpark $44 \%$ of respondents visit the park alone, $38 \%$ with friends and $35 \%$ with family or a partner.

Relaxing seemed to be an important motivation for half of the respondents in both parks. Enjoying nature was the second most commonly chosen motivation - 46\% in Wilhelminapark and $40 \%$ in Griftpark. Other results differ among parks. In Wilhelminapark the third motivation for coming there was to have a picnic (44\%) and fourth to meet friends or family (35\%), followed by $29 \%$ people who come to that park to walk. In Griftpark slightly over $1 / 3$ of respondents come to walk, and also over $1 / 3$ to do sport. There is a significant difference in three motivations: sport, playing with children and having a picnic. Sport is the reason to come to Griftpark for $31 \%$ of the visitors, whereas in Wilhelminapark it is $19 \%$. This might be explained by the number of bootcamps and facilities and a size of Griftpark. When it comes to having a picnic, this was a motivation to come to a park for $44 \%$ of respondents from Wilhelminapark, while in Griftpark it was a reason for $23 \%$ of visitors.

Observation showed that Wilhelminapark is popular for having a picnic, an outdoor birthday party or a date. Large green field in the southern part of Wilhelminapark is often used by big groups, and area around the pond usually by smaller groups of $2-4$ people. The last biggest difference is in the percentage of people coming to a park to play with children - for Wilhelminapark it was $6 \%$ and for Griftpark over twice more - 15\%. Griftpark is indeed widely used by young families with children, but it might be also important to mention that questionnaires were conducted in a playground in Griftpark, but a playground in Wilhelminapark was not observed and therefore also not a place to conduct questionnaires, however some respondents were approached near the playground.

Chi-square tests were conducted to investigate differences in demographics between Wilhelminapark and Griftpark. Only differences in terms of visiting park in the late morning were found significant $(p=0,004)$.

### 5.1.2. Observation results

Table 5.3. shows the descriptive characteristics and the way observed park visitors used Griftpark and Wilhelminapark ( $n=2071$ ).

Table 5.3. Visitors' characteristics and park use

|  |  | Wilhelminapark |  | Griftpark |  | Chi-square <br> Asymptotic sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% |  |
| Gender | Male \% | 385 | 46,95 | 590 | 48,88 | 0,393 |
|  | Female \% | 435 | 53,05 | 617 | 51,12 |  |
| Age | Baby/toddler \% | 38 | 4,60 | 66 | 5,4 | 0,000 |
|  | Child \% | 49 | 5,93 | 143 | 11,64 |  |
|  | Teenager \% | 63 | 7,63 | 143 | 11,64 |  |
|  | Young adult \% | 194 | 23,49 | 223 | 18,14 |  |
|  | Adult \% | 400 | 48,43 | 579 | 47,11 |  |
|  | Elderly \% | 82 | 9,93 | 75 | 6,10 |  |
| Day | Working day \% | 399 | 47,78 | 613 | 49,60 | 0,419 |
|  | Weekend day \% | 436 | 52,22 | 623 | 50,40 |  |
| Day time | Morning \% | 68 | 8,14 | 111 | 8,98 | 0,013 |
|  | Lunch time \% | 220 | 26,35 | 296 | 23,95 |  |
|  | Afternoon \% | 324 | 38,80 | 557 | 45,06 |  |
|  | Evening \% | 223 | 26,71 | 272 | 22,01 |  |
| Activity pace | Sedentary \% | 192 | 22,99 | 322 | 26,05 | 0,162 |
|  | Moderate \% | 174 | 20,84 | 270 | 21,84 |  |
|  | Vigorous \% | 469 | 56,17 | 644 | 52,10 |  |
| Facilities | Path \% | 614 | 73,53 | 666 | 53,88 | 0,000 |
|  | Grass \% | 141 | 16,89 | 264 | 21,36 | 0,012 |
|  | Seat \% | 105 | 12,57 | 161 | 13,03 | 0,763 |
|  | Water \% | 78 | 9,34 | 42 | 3,40 | 0,000 |
|  | Animal \% | 29 | 3,47 | 58 | 4,69 | 0,175 |
|  | Recreational facility \% | 0 | NA | 152 | 12,3 |  |
|  | Slope \% | 0 | NA | 126 | 10,19 |  |
|  | Other \% | 35 | 4,19 | 15 | 1,21 | 0,000 |
| Activities | Walking \% | 416 | 49,82 | 438 | 35,44 | 0,000 |
|  | Sitting/lying \% | 147 | 17,60 | 215 | 17,39 | 0,902 |
|  | Dog walking \% | 132 | 13,65 | 132 | 10,68 | 0,040 |


| Sport/playing \% | $\mathbf{1 1 5}$ | $\mathbf{1 3 , 7 7}$ | $\mathbf{3 5 3}$ | $\mathbf{2 8 , 5 6}$ | $\mathbf{0 , 0 0 0}$ |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| Consuming/picnicking \% | 57 | 6,83 | 63 | 5,10 | 0,098 |
| Using a phone \% | 34 | 4,07 | 47 | 3,80 | 0,757 |
| Other \% | 11 | 1,32 | 11 | 0,89 | 0,352 |

There were slightly more women in both parks. Although at the first glance, tendency in the statistics presenting age of park visitors, looks similar and adults are the biggest group, some differences can be noticed. Firstly, the group of teenagers and children is bigger in Griftpark (each 11,64\% comparing to 5,93\% and 7,3\% respectively in Wilhelminapark). What might be a reason for this disproportion is the presence of facilities such as a skatepark and a children's farm. It should also be mentioned that observations were conducted in a playground in Griftpark and in Wilhelminapark playground was not an observed. Secondly, closeness of UCU campus (University College Utrecht) might have a positive effect on the number of young adults in Wilhelminapark (23,49\% comparing to 18,14\% in Griftpark).

A Chi-square test of independence was calculated comparing parks with a number of visitors of different age. A significant difference between age of visitors and parks was found ( $\mathrm{p}=0,000$ ). Both parks were the most visited during the afternoons and the least in the morning. In Wilhelminapark this distribution was slightly less varied, but overall pattern was the same.

Over half of the observed visitors were performing vigorous activities such as: doing sport, walking, playing etc. Both moderate and standing activities make from $20 \%$ to $26 \%$ of the observations. In general, it can be concluded that people like being active in parks, since around $3 / 4$ of activities in both parks were moderate or vigorous.

Paths were the most commonly used in both parks, however in Wilhelminapark that number is higher ( $74 \%$ ) than in Griftpark ( $54 \%$ ). Wilhelminapark, due to the location and communication with other parts of the city, for many people serves only as a pleasant place to pass through, whereas a visit in Griftpark is more intentional and thus presumably longer. Grass, often used for picnic, playing or sport was scored the second position (17\% in Wilhelminapark and $21 \%$ in Griftpark), and seat which interpretation included benches and other seating surfaces, scored third position ( $13 \%$ in both parks). Other facilities differ among parks. Facilities that were used by the visitors were indubitably dependent on which of them were actually available in the parks. Instead, water and, related to it, animals (ducks) were used together by $13 \%$ of park visitors. In case of these two facilities, 'used' means also sitting close to the water or looking at ducks, and not necessarily actively interacting. Other facilities used by $4 \%$ of Wilhelminapark users were: trees, an information board about birds and a statue
of queen Wilhelminapark, whereas in Griftpark other facility means trees or a roof in a skate park and these were used only by slightly over $1 \%$ of observed people. In Griftpark, skatepark and playground users made $12 \%$ of the used facilities, slope $10 \%$, animal $5 \%$ and water $4 \%$. While in Wilhelminapark the only animals were ducks which are mainly in or around the water, in Griftpark these two categories should be interpreted separately. Except ducks, what is especially attractive to children is the children's farm (Kinderboerderij Griftsteede) with various farm animals such as sheep, cows, goats and others. A Chi-square test of independence was calculated comparing facilities which were used in Griftpark and Wilhelminapark. Recreational facility and slope were present only in Griftpark thus comparison was impossible. A significant relationship between used facilities in Griftpark and Wilhelminapark was found in four cases path ( $p=0,000$ ), grass ( $p=0,012$ ), water $(p=0,000)$ and other facility ( $p=0,000$ ). This means that statistically number of visitors using: a path, grass, water or other facility in Griftpark and Wilhelminapark significantly differed.

Overall, it is especially interesting to look at the water and recreation facilities, because these two facilities were hardly used in one park and used a lot in the other. Whereas recreational facilities in Griftpark included sport facilities and a playground, in Wilhelminapark no sport facilities are available. Nd as the results in the next paragraph show, more people were doing sport in Griftpark than in Wilhelminapark. The other interesting difference is the water. It was used less in Griftpark. Water in there is a big reservoir with still water, some sort of artificial water cascade and only two duck families were noticed during observations. The shape of the reservoir is regular. Contrary to that, Wilhelminapark's water is a pleasant, meandering pond with a central fountain surrounded by trees and other bushes, which form clear barrier between the space to sit down and to move around. In Griftpark the area around water is open, there are no bushes or trees.

In both parks walking was the most common activity, but just like with using paths, this number is higher in Wilhelminapark than in Griftpark ( $50 \%$ to $35 \%$ ). It is interesting to notice that paths were used by $74 \%$ of visitors in Wilhelminapark and $54 \%$ in Griftpark. Sport or playing was an activity performed by $29 \%$ of visitors in Griftpark, which is more than in Wilhelminapark (14\%). Besides the fact that playground was observed only in Griftpark and that that park has a skatepark and three sport fields (two were observed), it also should be noted that in Griftpark there are more bootcamps than in Wilhelminapark. Sitting or lying is comparable in both parks (between 17-18\%), consuming ( $7 \%$ in Wilhelminapark and $5 \%$ in Griftpark), using a phone (4\%) and a small difference in walking the dog ( $14 \%$ in Wilhelminapark and $11 \%$ in Griftpark). A Chi-square test of independence was calculated comparing activities undertaken in Griftpark and Wilhelminapark. A significant relationship
between activities in Griftpark and Wilhelminapark was found in three cases - walking ( $p<0,001$ ), dog walking ( $p<0,05$ ) and sport/playing ( $p<0,001$ ). This means that statistically number of visitors walking, dog walking or doing sport/playing in Griftpark and Wilhelminapark was significantly different.

### 5.1.3. Differences in park use by user demographics

Chi-square tests of independence were calculated comparing various aspects of park use: frequency of visiting a park, day times of visiting a park, with whom visiting a park and motivations for visiting with different characteristics of parks' visitors: gender, age group, employment status, marital status, ethnicity. All results are presented in the tables below, but only tests with significant relationships are described. Some groups were combined where there were a small number of cases.

### 5.1.3.1. Differences in park use between genders

Categories are: male ( $n=44$ ), female ( $n=66$ ).
Table 5.4. Differences between gender of visitors (male and female) and park use (day times of visiting a park)

|  |  | Male |  | Female |  | Chi-square |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
|  |  | N | $\%$ | N | $\%$ | Asymptotic <br> sign. |
| Day times of | Early morning |  |  |  |  | 0,978 |
| visiting a park | Late morning | 4 | 44,4 | 5 | 55,6 | 0 |
|  | Afternoon | 13 | 39,4 | 20 | 60,6 | 0,515 |
|  | Late afternoon | 9 | 31,0 | 20 | 69,0 | 0,095 |
|  | Evening | 20 | 43,5 | 26 | 56,5 | 0,923 |
|  | Night | 17 | 54,8 | 14 | 45,2 | 0,143 |
|  | $\mathbf{5}$ | $\mathbf{1 0 0 , 0}$ | $\mathbf{0}$ | $\mathbf{0 , 0}$ | $\mathbf{0 , 0 1 0}$ |  |

Separate Chi-square tests of independence was calculated to compare gender with different park use categories. The only significant difference was found when comparing how often males and females come to the parks. A significant relationship between time of a day and gender was found in one case - during the night ( $p=0,010$ ). This means that statistically number of females and males visiting the parks during the night did not significantly differ. In fact, no female respondents declared to visit the parks at night (compered to $11 \%$ males)

### 5.3.2. Differences in park use between age groups

Categories are: 16-25 ( $n=36$ ), 26-35 ( $n=29$ ), 36-45 ( $n=9$ ), 46-55 ( $n=11$ ), 56-65 ( $n=4$ ), 66+ $(n=8)$.

Table 5.5. Differences between age of visitors (46-55, 56-65, 66+) and park use (frequency of visiting a park, day times of visiting a park, with whom visiting a park and motivations for visiting a park).

\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{2}{|l|}{\multirow[t]{2}{*}{}} \& \multicolumn{2}{|r|}{16-25} \& \multicolumn{2}{|r|}{26-35} \& \multicolumn{2}{|r|}{36-45} \& \multirow[t]{2}{*}{Chi-square Asymptotic Sign.} \\
\hline \& \& N \& \% \& N \& \% \& N \& \% \& \\
\hline Frequency of visiting a park \& \begin{tabular}{l}
Rarely/never \\
Once a month \\
Few times a month \\
Once or twice a week \\
Few times a week \\
Nearly every day/every \\
day
\end{tabular} \& \[
\begin{gathered}
\hline 8 \\
3 \\
13 \\
4 \\
2 \\
6
\end{gathered}
\] \& \[
\begin{aligned}
\& 80,0 \\
\& 37,5 \\
\& 46,4 \\
\& 23,5 \\
\& 14,3 \\
\& 31,6
\end{aligned}
\] \& \[
\begin{aligned}
\& 1 \\
\& 3 \\
\& 9 \\
\& 8 \\
\& 4 \\
\& 3
\end{aligned}
\] \& \[
\begin{aligned}
\& 10,0 \\
\& 37,5 \\
\& 32,1 \\
\& 47,1 \\
\& 28,6 \\
\& 15,8
\end{aligned}
\] \& 0
1
2
4
1 \& \[
\begin{gathered}
\hline 10,0 \\
0,0 \\
3,6 \\
11,8 \\
7,1 \\
5,3
\end{gathered}
\] \& 0,027 \\
\hline Day times of visiting a park \& \begin{tabular}{l}
Early morning \\
Late morning \\
Afternoon \\
Late afternoon \\
Evening \\
Night
\end{tabular} \& \[
\begin{gathered}
\mathbf{0} \\
\mathbf{3} \\
13 \\
23 \\
12 \\
2
\end{gathered}
\] \& \begin{tabular}{l}
0,0 \\
9,4 \\
44,8 \\
52,3 \\
41,4 \\
40,0
\end{tabular} \& \[
\begin{gathered}
\hline 2 \\
13 \\
5 \\
11 \\
7 \\
1
\end{gathered}
\] \& \[
\begin{aligned}
\& \hline 22,2 \\
\& 40,6 \\
\& 17,2 \\
\& 25,0 \\
\& 24,1 \\
\& 20,0
\end{aligned}
\] \& 3 \& \[
\begin{gathered}
\hline 22,2 \\
15,6 \\
13,8 \\
6,8 \\
10,3 \\
20,0
\end{gathered}
\] \& \[
\begin{aligned}
\& \hline \mathbf{0 , 0 0 4} \\
\& \mathbf{0 , 0 0 0} \\
\& 0,215 \\
\& 0,067 \\
\& 0,722 \\
\& 0,871
\end{aligned}
\] \\
\hline With whom visiting a park \& \begin{tabular}{l}
Alone \\
With family/a partner \\
With friends \\
Other
\end{tabular} \& \[
\begin{gathered}
\hline 7 \\
6 \\
\mathbf{3 0} \\
0
\end{gathered}
\] \& \[
\begin{gathered}
\hline \mathbf{1 8 , 4} \\
18,8 \\
\mathbf{6 6 , 7} \\
\mathbf{0 , 0}
\end{gathered}
\] \& \[
\begin{gathered}
\hline 11 \\
12 \\
\mathbf{1 1} \\
\mathbf{0}
\end{gathered}
\] \& \[
\begin{gathered}
\hline 28,9 \\
37,5 \\
24,4 \\
0,0
\end{gathered}
\] \& 5
3
0 \& \[
\begin{gathered}
\hline \mathbf{1 8 , 4} \\
15,6 \\
\mathbf{6 , 7} \\
\mathbf{0 , 0}
\end{gathered}
\] \& \[
\begin{aligned}
\& \hline 0,012 \\
\& 0,141 \\
\& 0,000 \\
\& \mathbf{0 , 0 0 0}
\end{aligned}
\] \\
\hline Motivations for visiting a park \& \begin{tabular}{l}
Relaxing \\
Enjoying nature \\
Picnic \\
Meeting friends/family \\
Walking \\
Sport \\
Dog walking \\
Being among other \\
people \\
Walking/playing with \\
children \\
Other
\end{tabular} \& \[
\begin{aligned}
\& \hline 26 \\
\& 21 \\
\& 20 \\
\& 18 \\
\& 7 \\
\& 9 \\
\& 3 \\
\& 6 \\
\& 0 \\
\& 0
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathbf{5 4 , 2} \\
\& 50,0 \\
\& \mathbf{6 0 , 6} \\
\& \mathbf{6 0 , 0} \\
\& 23,3 \\
\& 36,0 \\
\& 16,7 \\
\& 50,0 \\
\& \mathbf{0 , 0} \\
\& 0,0
\end{aligned}
\] \& \begin{tabular}{l}
9 \\
10 \\
8 \\
4 \\
1 \\
5 \\
0
\end{tabular} \& \[
\begin{gathered}
\hline 33, \mathbf{3} \\
26,2 \\
\mathbf{2 4 , 2} \\
\mathbf{3 0 , 0} \\
33,3 \\
32,0 \\
22,2 \\
8,3 \\
\hline 45,5 \\
\hline 0,0
\end{gathered}
\] \& 4
4
3
2
3
4
2
1

2 \& $$
\begin{gathered}
\hline \mathbf{8 , 3} \\
9,5 \\
9,1 \\
\mathbf{6 , 7} \\
10,0 \\
16,0 \\
11,1 \\
14,3 \\
\hline \mathbf{1 8 , 2} \\
\hline 100,0
\end{gathered}
$$ \& \[

$$
\begin{aligned}
& \hline \mathbf{0 , 0 0 0} \\
& 0,210 \\
& \mathbf{0 , 0 0 9} \\
& \mathbf{0 , 0 1 4} \\
& 0,465 \\
& 0,481 \\
& 0,080 \\
& 0,463 \\
& \mathbf{0 , 0 2 7} \\
& 0,079
\end{aligned}
$$
\] <br>

\hline
\end{tabular}

Table 5.6. Differences between age of visitors (46-55, 56-65, 66+) and park use (frequency of visiting a park, day times of visiting a park, with whom visiting a park and motivations for visiting a park).

|  |  | 46-55 |  | 56-65 |  | 66+ |  | Chi-square <br> Asymptotic Sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% | N | \% |  |
| Frequency <br> of visiting <br> a park | Rarely/never <br> Once a month <br> Few times a month <br> Once or twice a week <br> Few times a week <br> Nearly every day/every <br> day | $\begin{aligned} & 0 \\ & 2 \\ & 1 \\ & 3 \\ & 1 \\ & 4 \end{aligned}$ | $\begin{gathered} \hline 0,0 \\ 25,0 \\ \hline 3,6 \\ 17,6 \\ 7,1 \\ 21,1 \end{gathered}$ | $\begin{aligned} & 0 \\ & 6 \\ & 0 \\ & 0 \\ & 2 \\ & 2 \end{aligned}$ | $\begin{gathered} \hline 0,0 \\ 0,0 \\ 0,0 \\ 0,0 \\ 14,3 \\ 10,5 \end{gathered}$ | $\begin{aligned} & 0 \\ & 0 \\ & 4 \\ & 0 \\ & 1 \\ & 3 \end{aligned}$ | $\begin{gathered} 0,0 \\ 0,0 \\ 14,3 \\ 0,0 \\ 7,1 \\ 15,8 \end{gathered}$ | 0,027 |
| Day times of visiting a park | Early morning <br> Late morning <br> Afternoon <br> Late afternoon <br> Evening <br> Night | $\begin{aligned} & \hline 4 \\ & 2 \\ & 3 \\ & 5 \\ & 4 \\ & 1 \end{aligned}$ | $\begin{gathered} \hline 44,4 \\ 6,3 \\ 10,3 \\ 11,4 \\ 13,8 \\ 20,0 \end{gathered}$ | 1 4 0 1 2 0 | $\begin{gathered} \hline \mathbf{1 1 , 1} \\ \mathbf{1 2 , 5} \\ 0,0 \\ 2,3 \\ 6,9 \\ 0,0 \end{gathered}$ | $\begin{aligned} & 0 \\ & 5 \\ & 4 \\ & 1 \\ & 1 \\ & 0 \end{aligned}$ | $\begin{gathered} \hline \mathbf{0 , 0} \\ \mathbf{1 5 , 6} \\ 13,8 \\ 2,3 \\ 3,4 \\ 0,0 \end{gathered}$ | $\begin{aligned} & \hline \mathbf{0 , 0 0 4} \\ & \mathbf{0 , 0 0 0} \\ & 0,215 \\ & 0,067 \\ & 0,722 \\ & 0,871 \end{aligned}$ |
| With whom visiting a park | Alone <br> With family/a partner <br> With friends <br> Other | $\begin{aligned} & \hline 6 \\ & 5 \\ & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & \hline 15,8 \\ & 15,6 \\ & \mathbf{2 , 2} \\ & \mathbf{0 , 0} \end{aligned}$ | $\begin{aligned} & \hline \mathbf{2} \\ & 1 \\ & 0 \\ & \mathbf{1} \end{aligned}$ | $\begin{gathered} \hline \mathbf{5 , 3} \\ 3,1 \\ \mathbf{0 , 0} \\ \mathbf{1 0 0 , 0} \end{gathered}$ | $\begin{gathered} \hline \mathbf{5} \\ 9,4 \\ \mathbf{0} \\ \mathbf{0} \end{gathered}$ | $\begin{gathered} \hline \mathbf{1 3 , 2} \\ 3,1 \\ \mathbf{0 , 0} \\ \mathbf{0 , 0} \end{gathered}$ | $\begin{aligned} & \hline 0,012 \\ & 0,141 \\ & \mathbf{0 , 0 0 0} \\ & \mathbf{0 , 0 0 0} \end{aligned}$ |
| Motivations for visiting a park | Relaxing <br> Enjoying nature <br> Picnic <br> Meeting friends/family <br> Walking <br> Sport <br> Dog walking <br> Being among other <br> people <br> Walking/playing with <br> children <br> Other | 0 2 1 1 4 3 4 1 1 1 | $\begin{gathered} \hline \mathbf{0 , 0} \\ 4,8 \\ 3,3 \\ 3,3 \\ 13,3 \\ 12,0 \\ 22,2 \\ 8,3 \\ \hline 9,1 \\ 0,0 \end{gathered}$ | 2 1 0 0 2 1 2 1 0 0 | $\begin{gathered} \hline \text { 4,2 } \\ 2,4 \\ \mathbf{0 , 0} \\ \mathbf{0 , 0} \\ 6,7 \\ 4,0 \\ 11,1 \\ 8,3 \\ \mathbf{0 , 0} \\ 0,0 \end{gathered}$ | $\begin{aligned} & 0 \\ & 3 \\ & 0 \\ & 0 \\ & 4 \\ & 0 \\ & 3 \\ & 2 \end{aligned}$ | $\begin{gathered} \hline \mathbf{0 , 0} \\ 7,1 \\ \mathbf{0 , 0} \\ \mathbf{0 , 0} \\ 13,3 \\ 0,0 \\ 16,7 \\ 16,7 \\ \hline \mathbf{2 7 , 3} \\ \hline 0,0 \end{gathered}$ | $\mathbf{0 , 0 0 0}$ $\mathbf{0 , 2 1 0}$ $\mathbf{0 , 0 0 9}$ $\mathbf{0 , 0 1 4}$ $\mathbf{0 , 4 6 5}$ $\mathbf{0 , 4 8 1}$ $\mathbf{0 , 0 8 0}$ $\mathbf{0 , 4 6 5}$ $\mathbf{0 , 0 2 7}$ $\mathbf{0 , 0 7 9}$ |

Separate Chi-square tests of independence was calculated to compare marital status with different park use categories. Significant differences were identified in all categories of park use. Which means that the way visitors of different age differ significantly.

Significant difference was found between age and frequency of visiting a park ( $p=0,027$ ). Those who declared to visit a park rarely or never were in $80 \%$ young respondents between 16 and 25 . There is one trend in these statistics that can be easily noticed. The decreasing tendency in frequency can be remarked among the youngest group - their share drops with the rising frequency of visits.

It turned out that a significant relationship also exists in case of visiting park during early morning ( $p=0,004$ ) and late morning ( $p=0,000$ ). Despite being the smallest group, visitors at the age of $46-55$ made $44 \%$ of those visiting parks in the early morning, whereas none of the respondents from the biggest group (16-25) declared to come that early. All respondents (4) between 56 and 65 years declared to use a park in the late morning, also quite many visitors over 66 come then as well (5 out of 8).

When looking at who respondents visit a park with a significant relationship was revealed in three out of four categories - visiting a park alone ( $p=0,012$ ), with friends ( $p=0,000$ ) and 'other' ( $p=0,000$ ). Category other was chosen by only one respondent. Therefore, it was not worth to look at. However, an interesting tendency can be noticed the other category. It can be noticed that visiting parks with friends decreases with age. It was chosen by only 4 respondents (out of 33 ) over 36 years old, instead it is rather popular for younger people 67\% of the share is made by $16-25$-year-olds and nearly $1 / 4$ by those between 26 and 35 . Tendencies in those coming to park alone are less obvious, for example $18 \%$ of respondents from the youngest category and $18 \%$ of those between 36 and 45 declared to visit a park alone. However, when looking at cases it $18 \%$ of those coming alone is 7 out of 36 , and $18 \%$ for those at the age of $36-45$ is 7 out of 9 cases. Generally, it can be noticed that young respondents are rather keen on visiting parks with friends than on their own, whereas it is more common for older respondents.

Especially interesting variation was discovered in motivations. Significant differences were found in four cases - coming to a park in order to relax ( $p=0,000$ ), have a picnic ( $p=0,009$ ), meet friends or family ( $p=0,014$ ) and walk or play with children ( $p=0,027$ ). It can be noticed that relaxing, having a picnic and meeting friends or family were motivations for rather young respondents. $87 \%$ of those using park to relax, $85 \%$ of those for a picnic and $90 \%$ in order to meet friends or family were up to 35 years old. Contrary to these categories, despite walking or playing with children was not a motivation for many, but it was the most common for those over 66 years (27\%), but especially for respondents between 26 and 35 (46\%).

### 5.1.3.2. Differences in park use between employment status

Due to a small number of some groups the categories were transformed. Categories are: fulltime worker ( $n=36$ ), part-time worker ( $n=24$ ), student ( $n=25$ ) and other (including: retired, unemployed and prefer not to answer, $n=15$ ).

Table 5.7. Differences between employment status of visitors (full-time worker, part-time worker, student and other) and park use (day times of visiting a park and with whom visiting a park).

|  |  | Full-time worker |  | Part-time worker |  | Student |  | Other |  | Chi- <br> square <br> Asym. <br> Sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% | N | \% | N | \% |  |
| Day <br> time of <br> visiting <br> a park | Early morning | 3 | 33,3 | 4 | 44,4 | 1 | 11,1 | 1 | 11,1 | 0,457 |
|  | Late morning | 10 | 30,3 | 14 | 42,4 | 2 | 6,1 | 7 | 21,2 | 0,001 |
|  | Afternoon | 7 | 24,1 | 9 | 31,0 | 7 | 24,1 | 6 | 20,7 | 0,343 |
|  | Late afternoon | 16 | 34,8 | 8 | 17,4 | 17 | 37,0 | 5 | 10,9 | 0,060 |
|  | Evening | 10 | 32,3 | 9 | 29,0 | 9 | 29,0 | 3 | 9,7 | 0,617 |
|  | Night | 1 | 20,0 | 2 | 40,0 | 2 | 40,0 | 0 | 0,0 | 0,532 |
| With whom visiting a park | Alone | 15 | 37,5 | 10 | 25,0 | 5 | 12,5 | 10 | 25,0 | 0,034 |
|  | With family/a partner | 13 | 40,6 | 11 | 34,4 | 4 | 12,5 | 4 | 12,5 | 0,137 |
|  | With friends | 14 | 30,4 | 9 | 19,6 | 21 | 45,7 | 2 | 4,3 | 0,000 |
|  | Other | 1 | 0,0 | 0 | 100 | 0 | 0,0 | 0 | 0,0 | 0,362 |

Separate Chi-square tests of independence was calculated to compare employment status with different park use categories. Significant differences were found in two categories of park us. A significant relationship between time of a day and employment status was found during late morning ( $p=0,001$ ). Group 'other' made $21 \%$ of the late morning visitors, which is quite a lot, taking into consideration that the whole group consists of only 9 people. There were quite many part-time workers as well (14), who made $42 \%$ of all late morning parks' users.

A significant relationship was also revealed in case of variable 'with whom visiting a park'. Two categories were significant - visiting a park alone ( $p=0,034$ ) and with friends ( $p=0,000$ ). 10 out of 15 people from the category 'other' declared to visit a park alone and that was $25 \%$ of all respondents visiting parks on their own. Among those visiting a park with friends the biggest share was taken by students (46\%).

### 5.1.3.3. Differences in park use between marital status

Due to a small number of some groups the groups were transformed. Categories are: married/with a partner ( $\mathrm{n}=38$ ), single ( $\mathrm{n}=56$ ), other (including: divorced, widowed, prefer not to answer, $\mathrm{n}=6$ ).

Table 5.8. Differences between age of visitors (married/with a partner, single and other) and park use (day times of visiting a park, with whom visiting a park and motivations for visiting a park).

|  |  | Married/with a partner |  | Single |  | Other |  | Chi-square Asymptotic sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% | N | \% |  |
| Day times of visiting a park | Early morning | 5 | 55,6 | 2 | 22,2 | 2 | 22,2 | 0,028 |
|  | Late morning | 19 | 57,6 | 13 | 39,4 | 1 | 3,0 | 0,017 |
|  | Afternoon | 12 | 41,4 | 15 | 51,7 | 2 | 6,9 | 0,856 |
|  | Late afternoon | 12 | 26,1 | 32 | 69,6 | 2 | 4,3 | 0,041 |
|  | Evening | 9 | 29,0 | 19 | 61,3 | 3 | 9,7 | 0,335 |
|  | Night | 0 | 0,0 | 5 | 100,0 | 0 | 0,0 | 0,126 |
| With whom visiting a park | Alone | 15 | 37,5 | 20 | 50,0 | 5 | 12,5 | 0,077 |
|  | With family/a partner | 25 | 78,1 | 6 | 18,8 | 1 | 3,1 | 0,000 |
|  | With friends | 9 | 19,6 | 37 | 80,4 | 0 | 0,0 | 0,000 |
|  | Other | 0 | 0,0 | 1 | 100,0 | 0 | 0,0 | 0,672 |
| Motivations for visiting a park | Relaxing | 13 | 26,5 | 36 | 73,5 | 0 | 0,0 | 0,001 |
|  | Enjoying nature | 14 | 32,6 | 27 | 62,8 | 2 | 4,7 | 0,487 |
|  | Picnic | 8 | 24,2 | 25 | 75,8 | 0 | 0,0 | 0,012 |
|  | Meeting friends/family | 10 | 33,3 | 20 | 66,7 | 0 | 0,0 | 0,158 |
|  | Walking | 16 | 51,6 | 14 | 45,2 | 1 | 3,2 | 0,156 |
|  | Sport | 12 | 48,0 | 13 | 52,0 | 0 | 0,0 | 0,226 |
|  | Dog walking | 6 | 31,6 | 10 | 52,6 | 3 | 15,8 | 0,132 |
|  | Being among other people | 4 | 28,6 | 8 | 57,1 | 2 | 14,3 | 0,325 |
|  | Walking/playing with children | 9 | 81,8 | 1 | 9,1 | 1 | 9,1 | 0,004 |
|  |  | 1 | 50,0 | 0 | 50,0 | 0 | 0 | 0,899 |

Separate Chi-square tests of independence was calculated to compare marital status with different park use categories. Significant differences were found between employment status and two categories - day times of visiting a park, with whom visiting a park and motivations for visiting a park.

Dissimilarities were identified in the late morning ( $p=0,017$ ) and the late afternoon ( $\mathrm{p}=0,041$ ). Nearly $60 \%$ of late morning visitors were married or in relationship, $70 \%$ of late afternoon visitors were single. Quite big differences could be noticed. $78 \%$ of those coming to parks with family were full-time workers, while $80 \%$ of those coming by themselves own were single.

Also visiting park alone ( $p=0,000$ ) and with friends ( $p=0,000$ ) was significantly different. This means that statistically number of visitors of different marital status visiting parks on their own and with friends was not similar.

In case of motivations, employments status also played a role. A significant relationship between times of visiting a park and motivations was found in three cases coming to a park in order to relax ( $p=0,001$ ), have a picnic ( $p=0,012$ ) and walk or play with children ( $p=0,004$ ). This means that statistically number of visitors of different marital status visiting parks for relaxing, having a picnic or walking or playing with children was not alike. $74 \%$ of those coming to relax were part-time workers, similarly, the also made the biggest share in among those coming for a picnic, but $82 \%$ of parks' visitors playing with or walking children were full-time workers.

### 5.1.3.4. Differences in park use between ethnicities

Categories are Dutch ( $n=76$ ), Western ( $n=13$ ), non-Western ( $n=10$ ).

Table 5.9. Differences between ethnicity of visitors (Dutch, Western, Non-Western) and park use (with whom visiting a park and motivations for visiting a park).

|  |  | Dutch |  | Western |  | Non-Western |  | Chi-square Asymp. Sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% | N | \% | N | \% |  |
| With whom visiting a park | Alone | 31 | 79,5 | 5 | 12,8 | 1 | 7,7 | 0,804 |
|  | With family/a partner | 28 | 87,5 | 1 | 3,1 | 3 | 9,4 | 0,114 |
|  | With friends | 28 | 62,2 | 10 | 22,2 | 7 | 15,6 | 0,007 |
|  | Other | 1 | 100,0 | 0 | 0,0 | 0 | 0,0 | 0,858 |
| Motivations for visiting a park | Relaxing | 35 | 72,9 | 8 | 16,7 | 5 | 10,4 | 0,584 |
|  | Enjoying nature | 24 | 57,1 | 10 | 23,8 | 8 | 19,0 | 0,000 |
|  | Picnic | 21 | 63,6 | 6 | 18,2 | 6 | 18,2 | 0,072 |
|  | Meeting friends/family | 21 | 70,0 | 5 | 16,7 | 4 | 13,3 | 0,574 |
|  | Walking | 23 | 74,2 | 4 | 12,9 | 4 | 12,9 | 0,822 |
|  | Sport | 18 | 75,0 | 3 | 12,5 | 3 | 12,5 | 0,903 |


| $\mathbf{1 0 0 , 0}$ | $\mathbf{0}$ | $\mathbf{0 , 0}$ | $\mathbf{0}$ | $\mathbf{0 , 0}$ | $\mathbf{0 , 0 2 9}$ |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Dog walking <br> Being among other <br> people | $\mathbf{9}$ | 69,2 | 2 | 15,4 | 2 | 15,4 | 0,747 |
| Walking/playing with <br> children | 11 | 100,0 | $\mathbf{0}$ | 0,0 | 0 | 0,0 | $\mathbf{0 , 1 5 4}$ |
| Other | 1 | 50,0 | $\mathbf{0}$ | 0,0 | $\mathbf{1}$ | 50,0 | 0,159 |

Separate Chi-square tests of independence was calculated to compare ethnicity with different park use categories. Significant dissimilarities were found in two categories of park use. Visiting a park with friends ( $p=0,007$ ) was statistically different for users of various ethnicities. Although the biggest share in this category belonged to respondents of Dutch ethnicity ( $62 \%$ ), taking into consideration size of other groups, it is worth to notice that 10 out of 13 Western and 7 out of 10 non-Western visitors also declared they come to a park with friends.

What is more, a significant relationship was identified in a category of motivation enjoying nature ( $p=0,000$ ) and dog walking ( $p=0,029$ ). Visiting a park to enjoy nature seems to be more important for non-Dutch visitors. Nearly half of the visitors coming to enjoy nature were of Western or non-Western ethnicity. Opposite results were found in the other motivation - dog walking. Only Dutch declared to walk dogs in Wilhelminapark or Griftpark.

### 5.2. The second research question

Who uses the parks for social interaction, and which facilities are associated with social interaction? Is this different between parks?

### 5.2.1. Questionnaire results

Who uses the parks for social interaction?

Three sets of multiple regressions were run to examine the relationship between visitors' characteristics. First, a model was run using the full sample to examine overall associations. Then, models were run separately for Griftpark and Wilhelminapark, to examine how associations were different between parks.

## Full sample: Multiple regression

A multiple regression was run to predict frequency of interacting with others from demographic characteristics such as: age, education, ethnicity, marital status, employment status, living in a neighbourhood or not, length of living in a neighbourhood; and variables concerning usage of park such as: day time of visiting a park, frequency of visiting a park, with who visiting a park, motivation for visiting a park (see Table 5.10.).

These variables statistically significantly predicted frequency of interacting with others in Griftpark, $F(27,19)=2,497, p<0,05, R 2=0,783$. Five variables added statistically significantly to the prediction: gender, visiting a park in late morning, frequency of visiting a park, visiting a park alone, visiting a park with family/partner, $\mathrm{p}<0,05$.

Table 5.10. Frequency of social interaction and visitors' characteristics.

|  |  | Non-standardised coefficients |  | Standardised coefficients Beta | t |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Standard <br> error |  |  |  |
|  | (Constant) | 2,898 | 0,604 |  | 4,800 | 0,000 |
|  | Age | -0,028 | 0,016 | -0,353 | -1,711 | 0,091 |
|  | Gender | -0,555 | 0,276 | -0,218 | -2,011 | 0,048 |
| Ethnicity | Western <br> Non-Western | $\begin{aligned} & \hline-0,753 \\ & -0,311 \end{aligned}$ | $\begin{aligned} & \hline 0,386 \\ & 0,470 \end{aligned}$ | $\begin{aligned} & \hline-0,208 \\ & -0,069 \end{aligned}$ | $\begin{aligned} & -1,949 \\ & -0,662 \end{aligned}$ | $\begin{aligned} & 0,055 \\ & 0,510 \end{aligned}$ |
| Education | Lower than high school <br> High school <br> Bachelors <br> PhD or above | $\begin{array}{r} -1,863 \\ 0,187 \\ -0,280 \\ 1,408 \end{array}$ | $\begin{aligned} & \hline 0,945 \\ & 0,355 \\ & 0,335 \\ & 0,673 \end{aligned}$ | $\begin{array}{r} \hline-0,215 \\ 0,068 \\ -0,093 \\ 0,227 \end{array}$ | $\begin{array}{r} -1,971 \\ 0,527 \\ -0,837 \\ 2,091 \end{array}$ | $\begin{aligned} & \hline 0,052 \\ & 0,600 \\ & 0,405 \\ & 0,040 \end{aligned}$ |
| Marital status | Married/with a partner Divorced Widowed | $\begin{array}{r} -0,007 \\ 1,102 \\ 0,536 \end{array}$ | $\begin{aligned} & \hline 0,302 \\ & 1,011 \\ & 0,950 \end{aligned}$ | $\begin{array}{r} \hline-0,003 \\ 0,127 \\ 0,062 \end{array}$ | $\begin{array}{r} -0,023 \\ 1,090 \\ 0,564 \end{array}$ | $\begin{aligned} & \hline 0,981 \\ & 0,279 \\ & 0,575 \end{aligned}$ |
| Employment status | Full-time worker <br> Part-time worker <br> Unemployed <br> Retired <br> Living in a neighbourhood Length of living in a neighbourhood | $\begin{aligned} & \hline 0,495 \\ & 1,000 \\ & 1,202 \\ & 1,979 \\ & 0,299 \\ & 0,017 \end{aligned}$ | $\begin{aligned} & \hline 0,374 \\ & 0,397 \\ & 0,748 \\ & 0,856 \\ & 0,324 \\ & \\ & 0,014 \end{aligned}$ | $\begin{aligned} & \hline 0,189 \\ & 0,343 \\ & 0,194 \\ & 0,441 \\ & 0,107 \\ & \\ & 0,170 \end{aligned}$ | $\begin{aligned} & \hline 1,324 \\ & 2,515 \\ & 1,607 \\ & 2,311 \\ & 0,923 \\ & \hline \end{aligned}$ | $\begin{aligned} & 0,189 \\ & 0,014 \\ & 0,112 \\ & 0,024 \\ & \\ & 0,359 \\ & \\ & 0,233 \end{aligned}$ |

Reference groups: Dutch, Master's, Single, Student

A multiple regression was run to predict frequency of interacting with others from demographic characteristics: age, education, ethnicity, marital status, employment status, living in a neighbourhood or not and length of living in a neighbourhood (see Table 5.10.). Three variables were found to be statistically significant: gender, PhD or above (education), part-time worker and retired (employment status), p < 0,05 (see Table 5.10.).

## Griftpark: Multiple regression

A multiple regression was run to predict frequency of interacting with others from demographic characteristics: age, education, ethnicity, marital status, employment status, length of living in a neighbourhood in Griftpark.

Table 5.11. Frequency of social interaction and visitors' characteristics.

|  |  | Non-standardised coefficients |  | Standardised$\begin{array}{\|c\|} \hline \text { coefficients } \\ \hline \text { Beta } \end{array}$ | t | Sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Standard error |  |  |  |
|  | (Constant) | 5,283 | 1,261 |  | 4,190 | 0,000 |
|  | Age | -0,048 | 0,029 | -0,579 | -1,664 | 0,107 |
|  | Gender | -0,758 | 0,426 | -0,323 | -1,779 | 0,085 |
| Ethnicity | Western Non-Western | $\begin{aligned} & -1,254 \\ & -0,567 \end{aligned}$ | $\begin{aligned} & \hline 0,487 \\ & 0,562 \end{aligned}$ | $\begin{aligned} & -0,404 \\ & -0,150 \end{aligned}$ | $\begin{aligned} & \hline-2,575 \\ & -1,010 \end{aligned}$ | $\begin{aligned} & \hline 0,015 \\ & 0,321 \end{aligned}$ |
| Education | Lower than high school High school <br> Bachelors <br> PhD or above | $\begin{array}{r} \hline-1,336 \\ -0,064 \\ -0,745 \\ 1,473 \end{array}$ | $\begin{aligned} & \hline 1,107 \\ & 0,489 \\ & 0,462 \\ & 0,824 \end{aligned}$ | $\begin{aligned} & \hline-0,165 \\ & -0,024 \\ & -0,271 \\ & 0,309 \end{aligned}$ | $\begin{array}{r} \hline-1,206 \\ -0,131 \\ -1,613 \\ 1,787 \end{array}$ | $\begin{aligned} & \hline 0,237 \\ & 0,897 \\ & 0,117 \\ & 0,084 \end{aligned}$ |
| Marital <br> status | Single <br> Divorced <br> Widowed | $\begin{aligned} & 0,111 \\ & 3,225 \\ & 6,463 \end{aligned}$ | $\begin{aligned} & 0,409 \\ & 1,586 \\ & 2,253 \end{aligned}$ | $\begin{aligned} & 0,047 \\ & 0,558 \\ & 0,799 \end{aligned}$ | $\begin{aligned} & 0,273 \\ & 2,034 \\ & 2,868 \end{aligned}$ | $\begin{aligned} & 0,787 \\ & 0,051 \\ & 0,007 \end{aligned}$ |
| Employment status | Full-time worker <br> Student <br> Unemployed <br> Retired <br> Length of living in a <br> neighbourhood | $\begin{aligned} & -0,414 \\ & -0,939 \\ & -0,212 \\ & -2,144 \\ & \\ & 0,024 \end{aligned}$ | $\begin{aligned} & 0,411 \\ & 0,561 \\ & 1,126 \\ & 1,979 \\ & 0,020 \end{aligned}$ | $\begin{aligned} & -0,176 \\ & -0,329 \\ & -0,037 \\ & -0,371 \\ & 0,227 \end{aligned}$ | $\begin{gathered} -1,007 \\ -1,673 \\ -0,188 \\ -1,083 \\ \\ 1,170 \end{gathered}$ | $\begin{aligned} & 0,322 \\ & 0,105 \\ & 0,852 \\ & 0,287 \\ & 0,251 \end{aligned}$ |

[^0]Comparing to the previous regression for parks altogether, one predictor - Living in a neighbourhood was excluded from the regression to improve the model (see Table 5.11.). These variables statistically significantly predicted frequency of interacting with others in Griftpark, $F(16,30)=2,024, p<0,05, R 2=0,519$. Two variables added statistically significantly to the prediction: Western (ethnicity, $\mathrm{p}=0,015$ ) and widowed (marital status, $\mathrm{p}=0,007$ ), (see Table 5.11.).

## Wilhelminapark: Multiple regression

Table 5.12. Multiple regression of interaction frequency in Wilhelminapark

|  |  | Non-standardised coefficients |  | Standardised coefficients <br> Beta | t | Sign. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Standard error |  |  |  |
|  | (Constant) | 2,902 | 0,754 |  | 3,851 | 0,001 |
|  | Age | -0,038 | 0,023 | -0,525 | -1,638 | 0,112 |
|  | Gender | -0,689 | 0,444 | -0,270 | -1,553 | 0,131 |
| Ethnicity | Western Non-Western | $\begin{aligned} & -0,735 \\ & -0,182 \end{aligned}$ | $\begin{aligned} & \hline 0,617 \\ & 1,017 \end{aligned}$ | $\begin{aligned} & -0,182 \\ & -0,036 \end{aligned}$ | $\begin{aligned} & \hline-1,191 \\ & -0,179 \end{aligned}$ | $\begin{aligned} & \hline 0,243 \\ & 0,860 \end{aligned}$ |
| Education | Lower than high school <br> High school <br> Bachelors <br> PhD or above | $\begin{array}{r} -1,913 \\ 0,417 \\ -0,237 \\ 0,879 \end{array}$ | $\begin{aligned} & 2,302 \\ & 0,516 \\ & 0,529 \\ & 1,420 \end{aligned}$ | $\begin{array}{r} -0,222 \\ 0,155 \\ -0,078 \\ 0,102 \end{array}$ | $\begin{array}{r} -0,831 \\ 0,808 \\ -0,447 \\ 0,619 \end{array}$ | $\begin{aligned} & 0,413 \\ & 0,426 \\ & 0,658 \\ & 0,541 \end{aligned}$ |
| Marital <br> status | Married/with a partner <br> Widowed <br> Full-time worker | $\begin{array}{r} \hline-0,067 \\ -1,694 \\ 0,697 \end{array}$ | $\begin{aligned} & \hline 0,553 \\ & 1,621 \\ & 0,660 \end{aligned}$ | $\begin{array}{r} \hline-0,026 \\ -0,197 \\ 0,255 \end{array}$ | $\begin{array}{r} -0,121 \\ -1,045 \\ 1,056 \end{array}$ | $\begin{aligned} & \hline 0,905 \\ & 0,304 \\ & 0,299 \end{aligned}$ |
| Employment status | Part-time worker Unemployed Retired | $\begin{aligned} & 1,069 \\ & 0,696 \\ & 2,394 \end{aligned}$ | $\begin{aligned} & 0,595 \\ & 1,596 \\ & 1,231 \end{aligned}$ | $\begin{aligned} & 0,351 \\ & 0,113 \\ & 0,642 \end{aligned}$ | $\begin{aligned} & 1,795 \\ & 0,436 \\ & 1,944 \end{aligned}$ | $\begin{aligned} & 0,083 \\ & 0,666 \\ & 0,061 \end{aligned}$ |
|  | Length of living in a neighbourhood | 0,036 | 0,020 | 0,392 | 1,845 | 0,075 |

Reference groups: Dutch, Master's, Divorced, Single, Student.

A multiple regression was run to predict frequency of interacting with others from demographic characteristics such as: age, education, ethnicity, marital status, employment status, length of living in a neighbourhood in Wilhelminapark. Comparing to the previous
regression for parks altogether, one predictor - Living in a neighbourhood was excluded from the regression to improve the model (see Table 5.12.).

These variables did not statistically significantly predicted frequency of interacting with others in Griftpark, $\mathrm{F}(15,30)=1,422, \mathrm{p}<0,05, \mathrm{R} 2=0,416$. None of the variables added statistically significantly to the prediction, $\mathrm{p}<0,05$ (see Table 5.12.).

### 5.2.2. Observation results

## Who uses the parks for social interaction?

Table 5.13. shows the number of observed social interactions based on age, gender, activity type and time slot.

Table 5.13. Visitors' characteristics and social interaction.

|  |  | Social Interaction |  |
| :--- | :--- | ---: | ---: |
|  |  | Cases |  |
| Gender | Male | 705 | 47,3 |
|  | Female | 787 | 52,7 |
| Age group | Baby/toddler | 75 | 72,1 |
|  | Child | 186 | 96,9 |
|  | Teenager | 195 | 94,7 |
|  | Young adult | 284 | 68,1 |
|  | Adult | 669 | 68,3 |
|  | Elderly | 96 | 61,1 |
| Type of activity | Sedentary | 430 | 83,7 |
|  | Moderate | 353 | 79,5 |
|  | Vigorous | 731 | 65,7 |
| Time slot | Morning | 97 | 54,2 |
|  | Lunch time | 374 | 72,5 |
|  | Afternoon | 676 | 76,7 |
|  | Evening | 367 | 74,1 |

There is a little difference between genders in terms of social interaction. Looking at age, children and teenagers scored very high. $97 \%$ and $95 \%$ respectively interacted with others. For babies/toddlers, young adults, adults and elderly the results were similar. Adults and young adults scored very similar (68\%), babies/toddlers slightly above that (72\%) and elderly a little lower ( $61 \%$ ). Occurrence of social interaction decreases with higher activity. 84\%
of those undertaking sedentary activities and $80 \%$ doing moderate activates (activities with some sedentary "moments") interacted with others. For vigorous activities the score is $66 \%$. Observed park users interacted equally during throughout a day ( 73 to $77 \%$ ), except in the mornings, when slightly over half interacted with others (54\%).

### 5.2.3. Activity pace and social interaction

Table 5.14. Table shows percentages and numbers of people who interacted with others while doing sedentary, moderate or vigorous activity

Table 5.14. Social interaction and activity pace

|  | sedentary |  | moderate |  | vigorous |  | Chi-square <br> Asymptotic <br> Significance |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  | N |  | $\%$ | N | $\%$ | N | $\%$ |
| Social interaction <br> occurred | 430 | 83,7 | 353 | 79,5 | 731 | 65,7 | 0,000 |

A significant relationship between social interaction and activity pace was found $(p=0,000)$. This means that statistically occurrence of social interaction differs in case of different activity paces. Occurrence of social interaction drops with increased activity pace. $84 \%$ of those doing sedentary activities were interacting with others, while for those doing moderate activities it was $80 \%$, and for visitors involved in vigorous activities this rate was 66\%.

### 5.2.4. Facilities and social interaction

Which facilities are associated with social interaction, and how is this different between parks?

Table 5.15. shows the facilities where social interaction was observed in both parks. Path and grass were the two facilities used most for social interaction. $49 \%$ of Griftpark visitors who interacted with others used a path. Seat scored quite high as well - 13\% in Griftpark and 16\% in Wilhelminapark. However, it is interesting to look at three other facilities as well - water, recreational facilities and slope. Water was used by $11 \%$ if users of Wilhelminapark who interacted with others. This is a big difference comparing to $4 \%$ in Griftpark. Recreational facilities and slope scored quite high - $15 \%$ and $11 \%$ in Griftpark.

Table 5.15. Facilities and occurrence of social interaction.

|  | Wilhelminapark |  | Griftpark |  |
| :--- | ---: | ---: | ---: | ---: |
|  | N | $\%$ | N | $\%$ |
| Path | 377 | 66 | 462 | 49 |
| Seat | 90 | 15,8 | 126 | 13,4 |
| Grass | 126 | 22,1 | 232 | 24,6 |
| Water | 65 | 11,4 | 37 | 3,9 |
| Animal | 20 | 3,5 | 55 | 5,8 |
| Recreational facility | NA | NA | 142 | 15,1 |
| Slope | NA | NA | 107 | 11,3 |
| Other facility | 32 | 5,6 | 10 | 1,1 |

Next, two separate logistic regressions were carried out to examine relationship between facilities use and occurrence of social interaction.

## Wilhelminapark: Logistic regression

Table 5.16. shows a logistic regression which was performed to ascertain the relationship between use of different facilities such as: path, seat, grass, water, animal and other facilities on the likelihood that research participants interacted with others in Wilhelminapark.

Table 5.16. Logistic regression of facilities and occurrence of social interaction in Wilhelminapark

| Facility | B | Standard error | Wald | df | Significance | Exp(B) |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Path | $\mathbf{- 0 , 9 5 2}$ | $\mathbf{0 , 3 0 2}$ | $\mathbf{9 , 9 6 1}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 2}$ | $\mathbf{0 , 3 8 6}$ |
| Seat | 0,466 | 0,374 | 1,553 | $\mathbf{1}$ | 0,213 | $\mathbf{1 , 5 9 3}$ |
| Grass | $\mathbf{0 , 9 5 1}$ | $\mathbf{0 , 3 2 4}$ | $\mathbf{8 , 5 9 9}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 3}$ | $\mathbf{2 , 5 8 8}$ |
| Water | 0,132 | 0,382 | 0,120 | 1 | 0,729 | $\mathbf{1 , 1 4 1}$ |
| Animal | $-0,354$ | 0,471 | 0,565 | $\mathbf{1}$ | 0,452 | 0,702 |
| Other facility | $\mathbf{1 , 3 9 6}$ | $\mathbf{0 , 6 2 5}$ | $\mathbf{5 , 0 0 0}$ | $\mathbf{1}$ | $\mathbf{0 , 0 2 5}$ | $\mathbf{4 , 0 4 1}$ |
| Constant | $\mathbf{1 , 3 3 2}$ | 0,301 | $\mathbf{1 9 , 6 2 2}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 0}$ | 3,788 |

The logistic regression model was statistically significant, $\chi 2(6)=78,359, p<.001$. The model explained $13 \%$ (Nagelkerke R2) of the variance in social interaction and correctly classified $68,4 \%$ of cases. The odds of social interaction occurring on a path were 0.39 times lower than not on a path. Using grass was 2,59 times more likely to stimulate social interaction than not using grass. But it was other facilities that were found to be the strongest stimulator of social
interaction, the visitors who used other facilities they were 4,04 times more likely to interact with others than those who did not use other facilities.

## Griftpark: Logistic regression

Table 5.17. shows logistic regression which was performed to ascertain the effects of the usage of different facilities such as: path, seat, grass, water, animal and other facility on the likelihood that research participants interact with others in Griftpark.

Table 5.17. Logistic regression of facilities and occurrence of social interaction in Griftpark

| Facility | B | Standard error | Wald | df | Significance | Exp(B) |
| :--- | :---: | ---: | ---: | ---: | ---: | ---: |
| Path | $\mathbf{- 0 , 5 7 3}$ | $\mathbf{0 , 1 7 1}$ | $\mathbf{1 1 , 2 4 3}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 1}$ | $\mathbf{0 , 5 6 4}$ |
| Seat | $-0,039$ | 0,230 | 0,028 | $\mathbf{1}$ | 0,867 | 0,962 |
| Grass | $\mathbf{0 , 8 4 3}$ | $\mathbf{0 , 2 0 9}$ | $\mathbf{1 6 , 3 1 3}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 0}$ | $\mathbf{2 , 3 2 4}$ |
| Water | 0,672 | 0,498 | 1,822 | $\mathbf{1}$ | 0,177 | 1,959 |
| Animal | $\mathbf{1 , 7 6 6}$ | $\mathbf{0 , 6 0 3}$ | $\mathbf{8 , 5 8 2}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 3}$ | $\mathbf{5 , 8 4 7}$ |
| Recreational | $\mathbf{1 , 4 4 7}$ | $\mathbf{0 , 3 4 4}$ | $\mathbf{1 7 , 6 5 5}$ | $\mathbf{1}$ | $\mathbf{0 , 0 0 0}$ | $\mathbf{4 , 2 5 1}$ |
| facility |  |  |  |  |  |  |
| Slope | 0,278 | 0,273 | $\mathbf{1 , 0 3 7}$ | $\mathbf{1}$ | 0,308 | 1,321 |
| Other facility | $-0,625$ | 0,575 | $\mathbf{1 , 1 8 0}$ | $\mathbf{1}$ | 0,277 | 0,535 |
| Constant | $\mathbf{1 , 1 7 2}$ | 0,162 | 52,274 | $\mathbf{1}$ | 0,000 | 3,228 |

The logistic regression model was statistically significant, $\chi 2(8)=102,150, p<.001$. The model explained 12\% (Nagelkerke R2) of the variance in social interaction and correctly classified $76,2 \%$ of cases. Using grass was 2,32 times more likely to stimulate social interaction than not using grass, and using recreational facility was 4,25 time more likely to stimulate social interaction. But these were animals that were found to be the strongest stimulators of social interaction, the visitors who interacted with animals they were 5,88 times more likely to interact with other visitors than those who did not interact with animals.

### 5.3. The third research question

What are the levels of social cohesion in both parks? What is the relationship between social cohesion and social interaction? Is social interaction and social cohesion related to well-being?

### 5.3.1. Questionnaire results

## What are the levels of social cohesion in both parks?

Level of social cohesion was made on the basis of 5 questions (Sampson et al., 1997) with answers about how much respondents agreed with the questions (Likert scale). The scores were summed to give a total score up to 25 points.

An independent-samples t-test was conducted to compare levels of social cohesion and in Griftpark and Wilhelminapark. The difference in the levels of social cohesion in Griftpark ( $M=18,10, S D=2,74$ ) and Wilhelminapark ( $M=18,13, S D=2,58$ ) was not significantly different; $t$ (96) $=-0,055 ; p=0,935$.

What is the relationship between social interaction and social cohesion?

Level of willingness to interact was made on the basis of 3 questions with answers about how much respondents agreed with the questions (Likert scale), which in total could give a minimum of 3 and maximum of 15 . The level of willingness to interact was produced by summing the answers. The questions concerned agreement with the following statements: if a park gives an opportunity to interact, whether respondent enjoys seeing others in a park and if a respondent likes to talk to others in a park. Willingness to interact was correlated with level of social cohesion. There was a positive correlation between the two variables, $r=0,365, n=97$, $p=0,000$. Overall, there was a weak yet statistically significant, positive correlation between level of willingness to interact and level of social cohesion.

Frequency of social interaction is based on one question concerning how often a respondent talks to others in a park. This is also expressed on a Likert scale, with a minimum of 1 and maximum of 5 points. Frequency of social interaction and level of social cohesion were not significantly correlated ( $p=4.09$ ).

## Multiple regression

Table 5.18. Table title here

|  |  | Non-standardised <br> coefficients |  | Standardised <br> coefficients | t | Sign. |
| :--- | :--- | ---: | ---: | ---: | :---: | :---: |
|  |  | B |  | Standard <br> error | Beta |  |  |
|  | Constant | 18,372 | 1,479 |  | 12,423 | 0,000 |
| Gender | Gender | $-0,194$ | 0,642 | $-0,036$ | $-0,302$ | 0,764 |
| Age | Age | $-0,003$ | 0,036 | $-0,017$ | $-0,077$ | 0,939 |


| Ethnicty | Western | 0,585 | 0,950 | 0,074 | 0,616 | 0,540 |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
|  | Non-Western | $-0,763$ | 1,072 | $-0,085$ | $-0,711$ | 0,479 |
| Education | Lower than high school | 1,201 | 2,384 | 0,066 | 0,504 | 0,616 |
|  | Bachelor's | $-0,134$ | 0,868 | $-0,021$ | $-0,154$ | 0,878 |
|  | Master's | $-0,070$ | 0,833 | $-0,013$ | $-0,085$ | 0,933 |
|  | PhD or above | $-0,893$ | 1,671 | $-0,068$ | $-0,534$ | 0,595 |
| Marital status | Married/with a partner | 0,447 | 0,719 | 0,082 | 0,622 | 0,536 |
|  | Divorced | 2,275 | 2,324 | 0,125 | 0,979 | 0,331 |
|  | Widowed | 1,294 | 2,149 | 0,071 | 0,602 | 0,549 |
| Employment | Part-time worker | 0,849 | 0,844 | 0,136 | 1,006 | 0,318 |
| status | Student | $-0,761$ | 0,885 | $-0,126$ | $-0,860$ | 0,392 |
|  | Unemployed | 0,102 | 1,713 | 0,008 | 0,060 | 0,953 |
|  | Retired | $-1,581$ | 1,769 | $-0,167$ | $-0,894$ | 0,374 |

Reference groups: Dutch, High school, Single, Full-time worker

A multiple regression was run to examine predictors of the level of social cohesion. Demographic variables such as: gender, age, ethnicity, education level, marital status and employment status were entered. None of the variables was a significant predictor (see Table 5.18.). This means that there was no significant relationship between different demographic variables and the level of social cohesion $(F(15,77)=0,587, p<0,05)$.

### 5.3.2. Is social interaction and social cohesion related to well-being?

Linear regression was run to predict relationship between the level of social cohesion and considering a park important for well-being. Results of the linear regression indicated that there was a significant relationship between the level of social cohesion and considering a park important for well-being ( $p=0.026$ ).

### 5.3.3. Is social cohesion related to frequency of social interaction?

Another linear regression was run to predict relationship between the level of social cohesion and frequency of social interaction. Results of the linear regression indicated that there was no significant relationship between the level of social cohesion and frequency of social interaction ( $\mathrm{p}=0,409$ ).
5.3.4. Is social cohesion related to willingness to interact?

Linear regression was also run to predict relationship between the level of social cohesion and level of willingness to interact. Results of the linear regression indicated that there was a significant relationship between the level of social cohesion and level of willingness to interact ( $\mathrm{p}=0,000$ ).

## 6. Discussion

How do different facilities in Griftpark and Wilhelminapark in Utrecht stimulate social interaction among different parks' visitors and how does that influence their perception of social cohesion in the neighbourhood and their individual well-being?

### 6.1. Summary of findings

The main research question concerned park facilities and their power to enhance social interactions between park visitors. The question also asked about whether the use of facilities can influence visitors' perceptions of well-being and social cohesion in the neighbourhood. Additionally, the research aimed to get information on visitors and park use. In order to answer research questions observations and questionnaires were conducted in Griftpark and Wilhelminapark in Utrecht. The sample size was 2071 for observations and 100 for questionnaires. The study gave fairly large amount of data. The main findings are divided into three topics: park use, facilities \& social interactions, social cohesion \& social interactions.

Around 70\% of the respondents both in Griftpark and Wilhelminapark declared to live in the neighbourhood, which leads to the conclusion that proximity to the park may play a vital role in the motivation to use parks. That is in line with the study conducted in Dublin, which found proximity more important indicator of park use than age and gender (Burrows et al., 2018). Review of literature from 2010 showed the weight of "accessibility for encouraging park use among children and adults regardless of gender, ethnicity, and socioeconomic status" (p.723, McCormack et al., 2010).

Nevertheless, besides location facilities also matter. Parks that contain range of amenities dedicated to various segments of population can do better in luring potential visitors (McCormack et al., 2010). Furthermore, they can stimulate specific types of activities (McCormack et al., 2010). This is in line with the findings of this research. Recreational facilities, including sport and playground amenities, were used by $12 \%$ of respondents in Griftpark. Furthermore, sport was chosen a motivation for a visit by 12 percentage points more respondents than Wilhelminapark, where sport facilities are not available.

Consistent with the other study where playgrounds located in parks on commonly used ways were visited more frequently (Ferré et al., 2006), observations revealed disproportion in people walking in Griftpark and Wilhelminapark. Wilhelminapark had 15 percentage points more people walking than the other park. It can be explained by the park's location and central
cycling and walking paths going through the park. However, to be sure about this explanation, further study is needed.

This research also studied how different characteristics of park visitors influence the way they use the parks. The greatest variation was found in the case of age. Some motivations like relaxing, having a picnic and meeting friends or family were more common for visitors up to 35 years old. Visiting parks with friends decreased with age, same as frequency of visiting parks. It is in opposition to the study from Dublin which 'found little difference between the frequency of park visit behaviour across all age groups' (p.8, Burrows et al., 2018).

The study tried to find a relationship between facilities and social interaction. It was found that social interaction decreases with increasing activity level. That means that parks' visitors involved in sedentary activities were interacting more ( $84 \%$ were interacting) than those doing moderate activities ( $80 \%$ ) and even more than those using park in an active way ( $66 \%$ ). This finding can be linked with the fact that using a path turned out to reduce the likelihood of occurrence of social interaction in booth parks. Around $70 \%$ of paths' users in both parks were performing vigorous activities.

Facilities that were positively correlated with the odds of social interaction were 'grass' in both parks, and additionally 'animal' and 'recreational facility’ in Griftpark, and 'other facility' in Wilhelminapark. Category 'other facility' in Wilhelminapark means: an information board about birds, a statue of Queen Wilhelmina and trees. Griftpark offers its visitors: a children's farm, a playground and sport facilities such as: a skatepark and three various sport fields. While these significantly influential facilities from Griftpark are rather adequate for certain segments of population, e.g. caregivers or skaters, 'grass' has no specific recipient or intended use. It can be concluded that such multifunctional and fairly open spaces might serve as encounter places of various park users, and thus can enable social interactions to emerge. This interpretation corresponds with finding of the study connected in Malaysia, where lawns areas had various users and were more successful in promoting social interactions than tree clusters (Jamirsah et al., 2011). Especially remarkable research about grass spaces was carried out in Sweden. In three case studies lawns were used for 'walking/passing through, playing, sitting, sport, meeting friends, sunbathing and family partying/barbequing' (p.217, Ignatieva et al., 2016).

Lastly, this research was also about social cohesion and its relationship with parks and social interactions. Social cohesion was the most difficult phenomenon to notice. A discussion in a study of five parks in the Netherlands was particularly helpful in understanding interdependencies between parks, social cohesion and social interactions (Peters et al., 2009).

Social cohesion is created in two ways. Firstly, coming to a park with familiar people and having even cursory interactions with strangers 'leads to feelings of comfort and makes people feel at ease' (p.99, Peters et al., 2009). Secondly, through the use park visitors start to feel place attachment and public familiarity (Peters et al., 2009), which according to a definition used in this study, are components of social cohesion. This study from Griftpark and Wilhelminapark found that social cohesion was correlated with willingness to interact, but not with a frequency of social interaction. Questions about social cohesion and willingness to interact were both rather declarative, and the one about frequency of interaction asked about how often the interaction is actually practiced. Nevertheless, it can be concluded that in the situation of a high social cohesion people feel they can talk to others and enjoy seeing them. Vice versa, if they feel they can easily interact with others it gives them some sense of cohesion in the neighbourhood. At the same time, whether they choose to interact or not, does not influence their perceptions of social cohesion and opportunities to interact.

### 6.2. Strengths and limitations

In terms of strengths and limitations, two aspects of the study should be addressed its practical part regarding conduction of the research, as well as the choice of fairly diverse theoretical concepts - combination of social cohesion, social interaction and well-being with the use of facilities.

This research concerned use of facilities in urban parks and their social outcomes. Thus, the strength of this research is the attempt to combine various areas of science sociology with design aspects. The study, however, was more oriented towards social research on social cohesion and social interaction, and not so much on design of the facilities or parks. What is more, incorporating four different phenomenon in the research might have been too much for a Master's thesis and made it more challenging to draw conclusions that would connect all areas in a coherent way. For this reason, well-being, despite being present in a research question, has not been widely discussed.

Other strengths and limitations concern conduction of the research. Two different methods were used - questionnaires and observations. Some of the research topics were covered only in one method, and others in both. Questionnaires studied perceptions and declarations of respondents, whereas observations gave a view on the behaviour of people in parks. Thanks to that, the chosen methods complemented each other. However, some limitations concerning questions and observations have to be taken in to account. Firstly, the sample size of the questionnaires could be bigger. Even though 100 questionnaires seemed
to be sufficient, it has not allowed to compare certain categories of park visitors in a reliable way, therefore some categories had to be transformed. To give an example, marital status 'divorced' had to be combined with 'widowed' and 'prefer not to answer', which in the end, made a small group of 6 cases anyway.

Secondly, although closed questions in the questionnaire did not give much room for different interpretations, there were three questions that require explanation. One of them concerned frequency of interacting with 'others', which could be interpreted as in with strangers, but also as with people who were already known to a respondent. The second imprecise question was the one about employment status. Those whose main occupation was studying, could have also been part-time workers, but the question required choosing only one answer. Another uncertainty concerns a question about education, specificity of Dutch educational system and its different levels were not taken into account. And lastly, question in the social cohesion and well-being sections asked about respondents' perceptions rather than their actual actions. Also, some of the respondents had difficulties with answering questions about social cohesion in the neighbourhood, since they did not live there. That leads to another concern, some respondents were unsure whether they lived in the neighbourhood of a park or not. However, that was taken into consideration while creating a question, and the aim was to leave this decision to the perception of a respondent. Adding to the limitations of observations, some categories in the observation sheet could be interpreted differently - e.g. age group of an observed person (young adult could be interpreted as adult) or type of activity (active could be interpreted as moderate).

Finally, research was conducted in two parks in Utrecht. In addition to the possibility of observing a larger number of diverse facilities, it also gave valuable overview of who the visitors of Griftpark and Wilhelminapark are and the way they use these parks. One last remark should be given to the practical matters. Weather has influence on the study in situ and was a reason for some delays in the study conduction and certainly had influence on the number and activity of the park visitors.

### 6.3. Future research suggestions

Working in situ inspires reflection. During many visits to Griftpark and Wilhelminapark, some unstructured observations were carried out. Although they were not a part of the study, so they are rather speculative and cannot be confirmed by data. Also talks with respondents during conduction of the questionnaires, gave some ideas on what to pay attention to in the future research.

The observation showed that facilities like pond in Wilhelminapark and a large water reservoir in Griftpark were not used equally. It can be concluded that it is not always facility per se, is decisive for the busyness of a place. Wilhelminapark is divided into a few areas separated by trees and bushes that make visual boundaries between spaces, whereas large part of Griftpark is rather large open space. Even though, the uninterrupted field of view and the ability to see what is happening throughout the park are good, dimension should not be too big. Distance of 20-25 m allows identifying feelings and moods of others, and such space is perceived as well-arranged and comfortable in a social context. (Gehl, 2013).

In addition, senses include not only vision, but also smell or hearing. Seeing other park visitors, being able to talk to them can be desired, as long as certain distance is kept in order to avoid negative outcomes of being in the same space (Rasidi et al., 2012). Lawson estimates this comfort distance at approximately 4 m (Rasidi et al., 2012). This also appeared during conversations unstructured observations, although not measured precisely, visually groups of people looked like located about 3-4 m from each other. The needs of park users are different, also in terms of qualities such as e.g. aesthetics or sounds. What is more, they can also change in the context of one person. This has been confirmed in this study. Some respondents chose many different motivations for coming to the park and also declared to use the parks both alone and with friends or family. In order to understand those different motivations, more qualitative research method such as walk-along interview could be applied.

Finally, it is worth recalling Jan Gehl who writes about the fact that conversations with strangers occur when both people feel at ease and are occupied with the same thing, e.g. standing or sitting next to each other, or are busy doing something together (Gehl, 2013). In addition to physical dimensions and distances between seats, described thoroughly by Edward T. Hall in 'Hidden Dimension' (Hall, 2006), Whyte's triangulation theory on how to bring strangers together, can be used to understand the chances of occurrence of social interactions in parks (Gehl, 2013). Thus, it is also worth noting that some facilities and areas are designed for specific groups of people, whereas others can be used in a freer way. In the future research, it is worth thinking about what that element bonding a specific group could be, and what makes a place attractive for different users. Wilhelmina Park seems to be a place where diverse groups actually mix. For example, although the grass area around the pond seems to be used mainly by young people sitting on the grass, there are also benches both in and just outside of this zone. And benches are much more friendly sitting places for e.g. seniors (Ottoni, 2016). In turn, a skatepark in Griftpark is rather dedicated for certain sport disciplines, but during conduction of the questionnaires, caregivers watching over their children were present there as well.

Referring to triangulation, not only objects, or facilities can be inducers of social interactions. In future studies, it would be worth thinking about what else may could encourage contact between park visitors. Clearly, a different study to be taken. Delving into some theories of psychology of design or theories of how ties between people actually arise. That could make an interesting contribution to this research.

## 7. References

Anquetil, V. (2009). Neighbourhood social cohesion through the collective use of green spaces: A case study of EVA-Lanxmeer neighbourhood, Culemborg, the Netherlands.

Burrows, E., O'Mahony, M., \& Geraghty, D. (2018). How urban parks offer opportunities for physical activity in Dublin, Ireland. International journal of environmental research and public health, 15(4), 815.

Carmona, M. (2010). Contemporary Public Space, Part Two: Classification. Journal Of Urban Design, 15(2), 157-173. doi: 10.1080/13574801003638111

Dinnie, E., Brown, K. M., \& Morris, S. (2013). Community, cooperation and conflict: Negotiating the social well-being benefits of urban greenspace experiences. Landscape and Urban Planning, 112, 1-9.

Evenson, K. R., Jones, S. A., Holliday, K. M., Cohen, D. A., \& McKenzie, T. L. (2016). Park characteristics, use, and physical activity: A review of studies using SOPARC (System for Observing Play and Recreation in Communities). Preventive medicine, 86, 153-166.

Forrest, R., \& Kearns, A. (2001). Social cohesion, social capital and the neighbourhood. Urban studies, 38(12), 2125-2143.

Ferré, M. B., Guitart, A. O., \& Ferret, M. P. (2006). Children and playgrounds in Mediterranean cities. Children's Geographies, 4(2), 173-183.

Gehl, J. (2013). Życie między budynkami (Life between buildings: using public space). Wyd. RAM, Kraków.

Gehl Institute (2019). Retrieved 8 August 2019, from https://gehlinstitute.org/wpcontent/uploads/2017/08/PL_Complete_Guide.pdf

Gezondheidsraad (Netherlands). (2004). Nature and Health: The Influence of Nature on Social, Psychological, and Physical Well-being. Health Council of the Netherlands.

Guest, A. M., \& Wierzbicki, S. K. (1999). Social ties at the neighborhood level: Two decades of GSS evidence. Urban Affairs Review, 35(1), 92-111.

Hall, E. T., Birdwhistell, R. L., Bock, B., Bohannan, P., Diebold Jr, A. R., Durbin, M., ... \& La Barre, W. (1968). Proxemics [and comments and replies]. Current anthropology, 9(2/3), 83108.

Hall Edward, T. (2009). Ukryty wymiar (The Hidden Dimension), translated by: Teresa Hoáówka. Warszawskie Wydawnictwo Literackie MUZA SA, Warszawa.
Hartig, T., Mitchell, R., De Vries, S., \& Frumkin, H. (2014). Nature and health. Annual review of public health, 35, 207-228.

Ignatieva, M., Eriksson, F., Eriksson, T., Berg, P., \& Hedblom, M. (2017). The lawn as a social and cultural phenomenon in Sweden. Urban Forestry \& Urban Greening, 21, 213-223.

Jamirsah, N., Said, I., \& Rasidi, M. H. (2011). Social Interaction Among Urban Residents In Greenspaces Of New Township, Malaysia.

Kabisch, N., Qureshi, S., \& Haase, D. (2015). Human-environment interactions in urban green spaces-A systematic review of contemporary issues and prospects for future research. Environmental Impact Assessment Review, 50, 25-34.

Kaźmierczak, A. (2013). The contribution of local parks to neighbourhood social ties. Landscape and urban planning, 109(1), 31-44.

Kim, J., \& Kaplan, R. (2004). Physical and psychological factors in sense of community: New urbanist Kentlands and nearby Orchard Village. Environment and behavior, 36(3), 313-340.

Krellenberg, K., Welz, J., \& Reyes-Päcke, S. (2014). Urban green areas and their potential for social interaction-A case study of a socio-economically mixed neighbourhood in Santiago de Chile. Habitat International, 44, 11-21.

Litaman, T. (2018). Urban Sanity. Understanding Urban Mental Health Impacts and How to Create Saner, Happier Cities, Victoria Transport Policy Institute

Luximon, Y., Kwong, H. Y., \& Tai, Y. Y. (2015). User preferences of urban park seating pattern in Hong Kong. Procedia Manufacturing, 3, 4273-4278.

Lyytimäki, J. (2015). Brief for GSDR 2015: Towards eco-efficient and enjoyable lighting, Finnish Environment Institute https://sustainabledevelopment.un.org/content/documents/5520Light\%/20pollution_rev.pdf

Maas, J., Verheij, R., de Vries, S., Spreeuwenberg, P., \& Groenewegen, P. (2005, October). Green space, urbanity, and health: how strong is the relation. In Forest trees and human health and well-being. Proceedings of the 1st European COST E39 Conference, Medical and Science, Thessaloniki (pp. 353-354).

McKenzie, T. L., Cohen, D. A., Sehgal, A., Williamson, S., \& Golinelli, D. (2006). System for Observing Play and Recreation in Communities (SOPARC): reliability and feasibility measures. Journal of Physical Activity and Health, 3(s1), S208-S222.

Mind. (2007). Ecotherapy: The Green Agenda for Mental Health. Executive Summary. Mind.

Nasution, A. D., \& Zahrah, W. (2017). Public Open Space's Contribution to Quality of Life: Does privatisation matters?. Asian Journal of Environment-Behaviour Studies, 2(5), 71-83.

OpenStreetMap. (2019). Retrieved 7 August 2019, from
https://www.openstreetmap.org/\#map=7/52.154/5.295

Ottoni, C. A., Sims-Gould, J., Winters, M., Heijnen, M., \& McKay, H. A. (2016). "Benches become like porches": Built and social environment influences on older adults' experiences of mobility and well-being. Social Science \& Medicine, 169, 33-41.

Peters, K., Elands, B., \& Buijs, A. (2010). Social interactions in urban parks: stimulating social cohesion?. Urban forestry \& Urban greening, 9(2), 93-100.

Population - Figures - Society. (2019). Retrieved 1 August 2019, from https://longreads.cbs.nl/trends18-eng/society/figures/population/

Rand Health Care (2019). Retrieved 9 August 2019, from https://www.rand.org/healthcare/surveys_tools/soparc.html

Rasidi, M. H., Jamirsah, N., \& Said, I. (2012). Urban green space design affects urban residents' social interaction. Procedia-Social and Behavioral Sciences, 68, 464-480.

Sandstrom, G., \& Dunn, E. (2014). Social Interactions and Well-Being. Personality And Social Psychology Bulletin, 4O(7), 910-922. doi: 10.1177/0146167214529799

Seaman, P. J., Jones, R., \& Ellaway, A. (2010). It's not just about the park, it's about integration too: why people choose to use or not use urban greenspaces. International Journal of Behavioral Nutrition and Physical Activity, 7(1), 78.

Silva, L. T., \& Mendes, J. F. (2012). City Noise-Air: An environmental quality index for cities. Sustainable Cities and Society, 4, 1-11.

Van den Berg, A. E., Maas, J., Verheij, R. A., \& Groenewegen, P. P. (2010). Green space as a buffer between stressful life events and health. Social science \& medicine, 70(8), 12031210.

Wilkinson, D. (2007). The multidimensional nature of social cohesion: Psychological sense of community, attraction, and neighboring. American journal of community psychology, 40(3-4), 214-229.

WistUdata I Gemeente Utrecht. (2019). Retrieved 6 August 2019, from https://wistudata.nl/jive?presel_code=p635804133201299301

World Health Organization. (2016). Urban green spaces and health: A review of evidence. World Health Organization: Copenhagen, Denmark.

## 8. Appendix

## Questionnaire sheet, page 1

For any questions please contact:
Olga Sowa (author): o.a.sowa@students.nl
Utrecht University

## QUESTIONNAIRE

This questionnaire is part of a research conducted for a Master's thesis of Olga Sowa at Utrecht University. The research concerns use of various facilities in parks and which facilities are associated with social cohesion and well-being.

## PARK USAGE

1. At what time do you usually come to this park?

| $\square$ early morning (before 9) | $\square$ afternoon (12-15) | $\square$ evening (19-21) |
| :--- | :--- | :--- |
| $\square$ late morning (9-12) | $\square$ late afternoon (15-19) | $\square$ night (after 21) |

2. How often do you come to this park?

| $\square$ rarely/never | $\square$ few times a month | $\square$ few times a week |
| :--- | :--- | :--- |
| $\square$ once a month | $\square$ once or twice a week | $\square$ nearly everyday/everyday |

3. Who do you usually come to this park with?

| $\square$ on my own | $\square$ with friends |
| :--- | :--- |
| $\square$ with family/partner | $\square$ other: |

4. Do you interact with other people in this park?rarely/neversometimes $\square$ very oftenoccasionally $\square$ often
5. What is your main motivation to come to this park? (tick all that apply)
$\square$ walking the dog
$\square$ doing sports
$\square$ walking
$\square$ enjoying nature
$\square$ having a picnic
$\square$ relaxing $\square$ relaxingmeeting friends/family being among other people other: $\qquad$

## SOCIAL COHESION

How strongly do you agree with the following statements?

1. People around here are willing to help their neighbours.
neither agree or disagreesomewhatstronglysomewhat disagreestronglystrongly $\square$ somewhat agree agreeneither agree or disagree disagree
2. People in the neighbourhood can be trusted.

strongly

omewhat
 or disagree
somewhat disagree gree $-\square$ agree
h each other. strongly

somewhatneither agreedisagree
3. People in this neighbourhood do not share the same values.

$\square$| agree |
| :--- |$\quad \square$ agreen | somewhat |
| :--- |
| agree |$\quad \square$ or disagree $\quad \square$| nemewhat |
| :--- |
| disagree |$\quad \square$ disagrengly

How strongly do you agree with the following statements?

1. This park is important for the social cohesion (sense of community) in this neighbourhood.

2. I enjoy seeing people in this park.

3. I like speaking to others in this park.

4. This park is important to my well-being.

$\square$| strongly |
| :--- |
| agree |$\quad \square$| somewhat |
| :--- |
| agree |$\quad \square$| neither agree |
| :--- |
| or disagree |$\quad \square$| somewhat |
| :--- |
| disagree |$\quad \square$| strongly |
| :--- |
| disagree |

5. This park gives opportunities for social interation.

$\square$| a |
| :--- | :--- | :--- |
| agree |$\quad \square$| somewhat |
| :--- |
| agree |$\quad \square$| neither agree |
| :--- |
| or disagree |$\quad \square$| somewhat |
| :--- |
| disagree |$\quad \square$| strongly |
| :--- |
| disagree |

## GENERAL

1. Age: $\qquad$
2. Gender:

3. What is your background?

4. Which level of education did you complete?

5. What is your marital status?

6. What is your current employment status?

7. Do you live close to this park?

8. If yes, for how long have you lived in this neighbourhood? $\qquad$

## Griftpark

Place:

Observ. length: 51015 Weather:

## Activity

gh. 510 15 Weather

##  <br> $\begin{array}{ll}\text { Activity } & \text { Social } \\ \text { duration } & \text { interacti. }\end{array}$

Time slope:
Age group
$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog
 $\square$ teenager $\square$ adult $\square$ moderate $\square$ brief
$\square$ young ad. $\square$ elderly
$\square$ vigorous
$\square$


$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog

$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $~ \square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog

$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog $\square$ teenager $\square_{\text {adult }} \square$ moderate $\square$ brief $\square$ grass $\square$ tree $\square$ statue $\square$ water $\square$ cascade $\square$ walking dog $\square$ jogging $\square$ walking bike $\square$ picnic $\square$ drinking
$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog
$\square$ teenager $\square$ adult $\square_{\text {moderate }} \square$ brief $\square$ grass $\square$ tree $\square$ statue $\square$ water $\square$ cascade $\square$ walking dog $\square$ jogging $\square$ walking bike $~ \square$ picnic $\square$ drinking $\square$ teenager $\square$ adult $\square$ moderate $\square$ brief $\quad \square$ grass $\square$ tree $\square$ statue $\square$ water $\quad \square$ cascade $\quad \square$ walking dog $\square$ jogging $\square$ walking bike $\square$ picnic $\square$ drinking $\square$ baby/todd. $\square_{\text {child }}^{\text {chen }} \square_{\text {standing }} \square_{\text {yes }} \square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog



$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog

$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog $\square$ teenager $\square$ adult $\square_{\text {moderate }} \square_{\text {brief }} \square_{\text {grass }} \square_{\text {tree }} \square_{\text {statue }} \square_{\text {water }} \quad \square$ cascade $\quad \square$ walking dog $\square_{\text {jogging }} \square_{\text {walking bike }} \square_{\text {picnic }} \square$ drinking
$\square$ baby/todd. $\square$ child $\square$ standing $\square$ yes $\square$ no $\square$ bench $\square$ lake $\square$ bridge $\square$ low wall $\square$ grass slope $\square$ playing ball $\square$ walking $\square$ talking phone $\square$ sitting $\square$ playing dog
 $\square$ young ad. $\square$ elderly $\square$ vigorous $\square$ sustained $\square$ animal $\square$ path $\square$ river $\square$ stairs


[^0]:    Reference groups: Dutch, Master's, Married/with a partner, Part-time worker

