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Name: Adrian P. De Jesus

Supervisor: Elena Marie Enseñado

Specialisation: UESC

Country: Philippines

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Institute for Housing and Urban Development Studies of Erasmus University Rotterdam

Summary

The objective of this research is to explain the conditions of green space that support or hinder social cohesion of ethnically diverse residents in the highly neighbourhoods. The influence of the conditions of green space in terms of free and accessible public amenity, place for social interaction, relieve stress and mental fatigue was examined. The research used this identified condition of the green space on social cohesion domains of the residents.

The survey was conducted in the two neighbourhoods in Feijenoord District, Rotterdam. These neighbourhoods were considered highly diverse, which comprise of old and new migrants from the prominent minor ethnic groups in Rotterdam. These ethnic migrants comprise of the people from Turkey, Morocco, Dutch Antilles/Aruba, and Suriname. The data were analysed using descriptive statistics and inferential statistics through correlation analysis.

The research provides empirical evidence that the conditions of the green space has direct effect on the social cohesion domains. The free and accessible public amenity condition of green space that were found to be significant to the social cohesion domains was safety. The place for social interaction condition such as the park design was found to be significant to social cohesion. Among the aspects of park design that significantly relates with social cohesion are shared activities, variation in activities and facilities, open park design encouraging active recreational activities, and availability of organized activities. In terms of the stress reliever, the physical activities also significantly relate with social cohesion domains. Among the aspects of physical activities such as doing sports/exercise in the park, taking a walk in the park, and socializing are the most common physical activities that significantly affects the social cohesion of the residents.

Keywords

Urban Green Space, Social Cohesion, Social Exclusion

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This research would not have been possible without the coordination of the participant neighbourhoods.

Foreword

Abbreviations

IHS	Institute for Housing and Urban Development
UGS	Urban Green Space

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Chapter 1: Introduction

1.1. Background

Green spaces are essential components of the urban setting. These are the land consisting broadly of unsealed, permeable surfaces such as soil, grass, shrubs, and trees (Swanwick, Dunnett, et al., 2003). Urban green spaces can be described as all open spaces in public ownership and public access with high degree of vegetation coverages (Schipperijn, Stigsdotter, et al., 2010). The characteristics of urban green spaces often relate to the type, size and quality of green spaces and the use its features enable (WHO, 2016). Accessibility, quality, facilities, appeal, and safety are also the characteristics of an urban green space that are likely to impact its use (Lee, Jordan, et al., 2015). Neighbourhood greenness has been related to social cohesion (Maas et al., 2009; Sugiyama et al., 2008 in De Vries, Van Dillen, et al.,2001). There are opportunities in urban green areas for spatial interaction.

Social cohesion can refer to a sense of community, which focuses on trust, shared norms and values, positive and friendly relationships and feelings of being accepted and belonging (Forrest and Kearns, 2001 in De Vries, Van Dillen, et al.,2001). The use of patterns of green spaces and distance to them can offer interaction potential (Krellenberg, Welz, et al., 2014). Most social interactions in urban green spaces are cursory, for example, people are chatting briefly or just saying hello. Moreover, visitors do not have a lot of intense social interaction with people they do not know. In their own social group, most visitors feel comfortable and do not feel the need to communicate with others. Moreover, respectful interactions allow people to reward social interactions and create trust-supported social networks (Peters, 2010).

Social exclusion and the deterioration of local communities are caused by the combination of problems such as unemployment or low-income levels, poor health, high crime and family separation, thus reducing the individual and groups' quality of life. These occurrences tend to concentrate on socially excluded places. Developing and enhancing urban green spaces in socially excluded areas is essential for improving the quality of life of citizens and creating cohesive and inclusive communities (Kazmierczak and James, 2007). In the absence of a need to leave the neighbourhood (due to unemployment), poor health or a lack of means to travel, socially excluded people are likely to be pinned down to a location (Kazmierczak and James, 2007). The distribution of socially excluded areas often coincides with little green space of low quality (Pacione, 1997b; Johnston and Shimada, 2004; Ravetz, 2000; Yli-Pelkonen and Niemela, 2005 in Kazmierczak and James, 2007). It has been suggested that socially deprived areas or individuals are exposed to higher environmental burdens and to a lower availability of environmental resources than more affluent areas or individuals (Diez Roux and Mair, 2010; Schulz and Northridge, 2004 in Shule, Hilz, et al., 2019). Thus, the presence of urban green space can foster positive social interactions that support social cohesion (Jennings and Bamkole, 2019).

According to Peters (2010), on their study found that urban parks can promote social cohesion with people from all ethnic backgrounds. Urban parks can provide a vital locality where everyday experiences are shared and negotiated with a variety of people (Peters, Elands, et al.,

2010). Peters (2010) observed that more interactions would be anticipated in a small neighbourhood park as users had familiarity on each other beforehand. In addition, the small neighbourhood park was mostly visited by individuals living nearby, most of them commonly visited the park and more people greet each other regarding their park use (Peters, Elands, et al., 2010). The park's qualities influence the visit duration, frequency, and character (Kaźmierczak, 2013). Urban green spaces, therefore, give opportunities for social interactions that can assist residents achieve recognition and establish connections (Kaźmierczak, 2013).

1.2. Problem Statement

As more people have become more mobile because of their social contacts, some have become less dependent on their neighbourhood (Tersteeg, Bolt, et al., 2015). Some scholars have warned that the neighbourhood's decreasing function may lead to a lack of social cohesion among local inhabitants (Forrest and Kearns, 2001 in Tersteeg, Bolt et al., 2015). The lack of social cohesion would lead in social disorder and conflict, differing moral values, extreme social inequality, low levels of social interaction between and within groups, and low place attachment (Forrest and Kearns, 2001). Moreover, the lack of social cohesion can be seen in decreased trust and less solidarity and support (Bolt and Kempen, 2013; Tasan-Kok, et al., 2013 in Tersteeg, Bolt, et al., 2015).

Kaźmierczak and James (2007) on their literature review-based paper regarding the role of urban green spaces in supporting social inclusion, argued that urban green spaces in socially excluded areas can increase social cohesion and inclusion of individuals into society in four (4) ways. First of all, urban green space is free and accessible to all. Second, it provides space for social interactions. Third, it relieves stress and mental fatigue. Fourth and finally, it offers opportunities for urban residents to participate in voluntary work. The present study considered and focused these ways as conditions for urban green spaces that supports social cohesion in a highly diverse neighbourhood. Knowledge about these conditions enables to determine, which conditions supports or hinders social cohesion. On a study conducted by Sturgis, Brunton-Smith, et al (2014) in London, they discovered that ethnic diversity is favourably linked to the perceived social cohesion of the inhabitants of the neighbourhoods once the amount of economic deprivation is taken into account. Moreover, they found that ethnic segregation is correlated with reduced rates of perceived social cohesion within neighbourhoods. Both impacts are heavily moderated by the age of individual inhabitants: for young individuals, diversity has a beneficial impact on social cohesion but this impact dissipates in older age groups; for ethnic segregation, the inverse pattern is discovered (Sturgis, Brunton-Smith, et al., 2014).

Several studies have revealed that urban green space have certain conditions that supports or hinders social cohesion. In a study undertaken by Peters, Elands, et al. (2010) in five urban parks in the Netherlands, they discovered that urban parks can promote social cohesion because it is more inclusive than non-urban green areas. They examined whether social interaction in such spaces could stimulate social cohesion by observing the use of public spaces and the specific characteristics of interactions. Furthermore, the attachment of people to particular places can lead to social cohesion (Peters, Elands, et al., 2010). Urban parks are places where various ethnic groups are mixed together and where casual and superficial interactions can

facilitate social cohesion (Peters, Elands, et al., 2010). A study conducted by Francis, Giles-Corti, et al. (2012) states that the sense of community was positively associated with the proximity and quality of parks.

The aforementioned studies conducted in other cities have shown that the conditions of urban green space and social cohesion is related. However, there is still limited studies that explores the conditions how urban green spaces support social cohesion in vulnerable populations (Jennings and Bamkole, 2019). For this study, these vulnerable population includes the demographic diversity between and within such ethnic groups in a specific neighbourhood.

According to Peters (2010), nowadays, western societies have become multicultural. The current discussions on social integration have emerged (Peters, 2010). For instance, the Netherlands has multi-ethnic population with individuals from Morocco, Turkey, Suriname, and the Dutch Antilles (Peters, 2010). They are considered as the country's largest minority groups (Peters, 2010). The idea of conducting the research has come to the proponent’s interest since the topic has become a problem in the city of Rotterdam. Moreover, the researcher would like to investigate the conditions of urban green spaces such as urban parks in one of the districts in Rotterdam whether it promotes or hinders social cohesion among the residents.

Dines and Cattell (2006 in Peters, 2010) argued that public spaces fosters inter-ethnic knowledge by offering individuals the opportunity to meet, which may not have occurred in unorganized environments. Various ethnic groups commonly use public spaces such as parks for recreational purposes. Thus, these spaces have its adverse effects as well. Madanipour (2004 in Peters, 2010) noted that the intensive use of public spaces in Rotterdam led to problematic incidents involving minorities. There were tensions between ethnic groups especially between migrants from Turkey and Morocco and the native Dutch population. These tensions have increased more after the 9/11 and the murder of filmmaker Theo van Gogh in 2004 (Peters, 2010). The Netherlands government has developed a subsidy agreement to aid inter-ethnic interaction in public areas in order to create long-lasting social connections within society (Ruimte voor Contact, 2009 in Peters, 2010).

Urban green spaces in socially excluded areas can improve community cohesion and the integration of people in society (Kazmierczak and James, 2007). The research aims to explain how urban green spaces’ conditions influence social cohesion of residents in selected neighbourhoods in Feijenoord District of Rotterdam, the Netherlands. The area has about 72,000 inhabitants and considered as one of the most diversified areas in the city in terms of its population, entrepreneurship and uses. It consists of nine (9) neighbourhoods, and is located near the centre of the city, with which it is well connected by public transport (Tersteeg, Bolt, et al., 2015). The selected neighbourhoods for this study include the following: Hillesluis and Vreewijk. These two neighbourhoods have large parks located. Varkenoordse park is located in Hillesluis while Valkeniersweide park is located in Vreewijk. Feijenoord District, Rotterdam was chosen as the research study because it is highly diverse district in the city, which includes the largest ethnic groups such as native Dutch (32%), Turkish (19%), Surinamese (9%), Moroccan (11%) (Tersteeg, Bolt, et al., 2015). The research provides a great chance to study the circumstances of urban green areas that affect their residents' social cohesion and add these results to another cities' research.

1.3. Research Objectives

The main objective of the research would be to explain the conditions of urban green spaces that support or hinder social cohesion of ethnically diverse residents in selected neighbourhoods in Feijenoord District, Rotterdam.

Therefore, the specific objectives are:

- Identify the conditions of urban green space in selected neighbourhoods in Feijenoord District, Rotterdam in terms of free and accessible public amenity, providing space for social interaction, and stress relief.
- Explain which of these conditions of urban green spaces in selected neighbourhoods in Feijenoord District, Rotterdam supports or hinders social cohesion.

1.4. Provisional Research Question(s)

Overall Research Question

How do the conditions of urban green spaces support or hinder social cohesion of ethnically diverse residents in selected neighbourhoods in Feijenoord District, Rotterdam?

Sub questions:

1. What are the conditions of urban green spaces in Feijenoord District, Rotterdam in terms of free and accessible public amenity, providing space for social interaction, and relieving stress and mental fatigue?

2. How do these conditions of urban green spaces support or hinder social cohesion?

1.5. Significance of the Study

The research provides knowledge on urban green spaces in the field of social cohesion studies. It could define the conditions of urban green spaces in cities that have a significant impact on residents' social cohesion in a highly diverse neighbourhood. It helps to determine that urban green spaces conditions have a direct and substantial effect on residents' social cohesion. The study enhances the knowledge of social cohesion on urban green space conditions by testing its applicability for residents in Feijenoord District, Rotterdam. The research supports the theory if the conditions of urban green space at the neighbourhood level are able to predict social cohesion. Otherwise, the study provides insights into the potential for higher social cohesion significance.

The studies on the circumstances of urban green space in relation to the ethnic minorities' social cohesion are still lacking in the Netherlands. This study can tackle the research gap by understanding the conditions of an urban green space on social cohesion in other countries,

especially in cities like Rotterdam that are very multicultural and composed of old and new migrants.

For the urban management practice, the findings of the research would find relevance to the ministry, municipality, civil society, development agency, and private sector. The research is relevant to the municipality because it is the key agency that provides and develops urban green space facilities, implements policies relative to the urban green space users. The ministry, on the other hand, may also find relevance of this research in terms of legislating and/or formulating policies on social cohesion and on the state of implementation of existing policies on social cohesion. The civil society may also find the research relevant if they are advocating for a more cohesive community. For the development agencies, the research will be relevant in terms of possible financial partnership in the provision of necessary urban green space facilities and infrastructures.

1.6. Scope and Limitations

The present study focused on the conditions of the urban green space and social cohesion of the residents within a highly diverse neighbourhoods in Feijenoord District, Rotterdam. The study covers the period from April 2019 – November 2019 including data collection and analysis. The study includes the following neighbourhoods in Feijenoord District: Hillesluis and Vreewijk. As the study areas, the aforementioned neighbourhoods were chosen because these areas containing urban green spaces such as parks. These areas are highly diverse, which composed of different ethnic migrant groups.

In terms of the methodology, the research is quantitative. The results from the statistical analysis can uncover possible causal relationships between certain conditions of urban green spaces and social cohesion of the residents. The findings from prior similar research would be used to validate and substantiate the research's quantitative findings and explain the relationship between the variables studied.

However, the research is limited by the survey scale. The survey is an important source of resident’s level data on conditions of urban green spaces and social cohesion to be used in this study. The survey has been used for the primary data collection. Secondary data from desk research have also been used in the study. The questionnaire has been translated from English to Dutch and pretested to some Dutch Erasmus students. In terms of the analysis performed in this study, social cohesion within an urban green space will be examined from the perspective of the residents in the aforementioned neighbourhoods. Systematic sampling and convenience sampling have been applied to select some household participants who were present at home when the survey has been conducted. Some residents from the neighbourhood have been approached in public places in the neighbourhood such as parks to increase the number of respondents.

Chapter 2: Theory Review

2.1. State of the Art of the Theories/Concepts of the Study

2.1.1. Urban Green Spaces Defined

Urban green spaces can provide ecosystem services (Haq, 2011). Urban green spaces are essential habitats for enhancing urban quality of life and offering ecosystem services such as biodiversity and climate regulation (Vargas-Hernández, Pallagst, et al., 2018). Ecosystem services are the ecosystem's direct and indirect contribution to human well-being (TEEB Foundations, 2010 in Braat and De Groot, 2012). One of the ecosystem advantages of the individuals include the cultural services, which offer leisure, aesthetic, and spiritual gains (Millennium Ecosystem Assessment, 2005). In addition, urban green spaces can promote beneficial social interactions, fostering social cohesion through enhanced health and well-being. These have also been linked to favourable health behaviours resulting in enhanced physical activity and social commitments (Jennings and Bamkole, 2019).

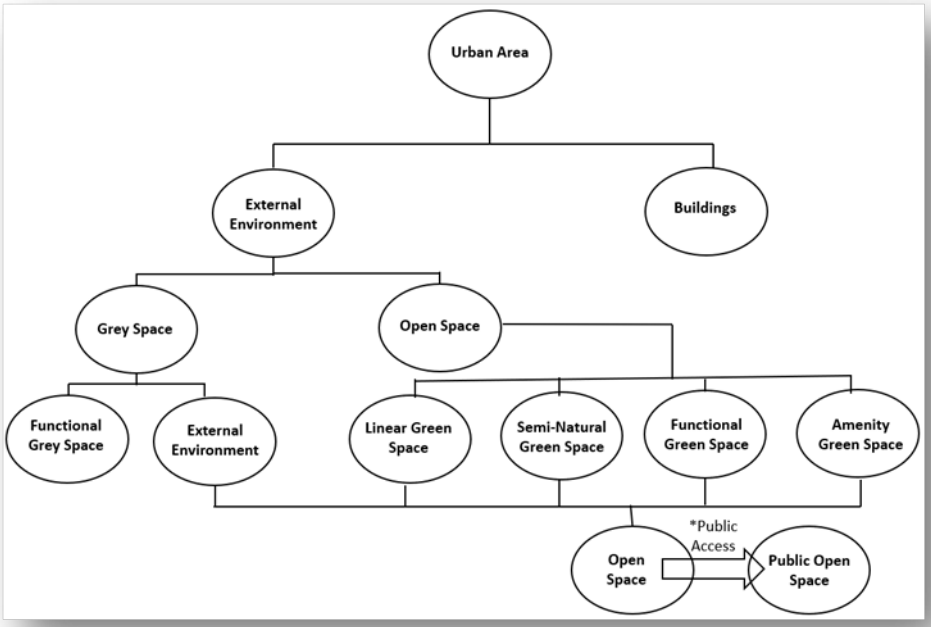
According to Schipperijn, Stigsdotter, et al. (2010, p. 26) urban green spaces are "all publicly owned and publicly accessible open spaces with a high degree of cover by vegetation, e.g. parks, woodlands, nature areas and other green space. It can have a designed or planned character as well as a more natural character. Only areas from it can be entered and used from 'within' are included. Swanwick, Dunnett, et al. (2003) also defined urban green spaces. They argued that green space is used to highlight that urban areas' green environment is about more than just parks, garden, and playgrounds, while open space includes some reference to some part of the external environment, which are the space outside the buildings of an urban areas. These terms can be considered as a subset of a green space. Moreover, the term open space or public open space tend to be defined as publicly accessible land whose management is usually the responsibility of the local authority. Most of the time, these terms were used by local authorities, who is responsible for the planning and management of parks and open spaces (Swanwick, Dunnett, et al., 2003).

Urban areas are made up of the built environment and the external environment between buildings. Green space, where land is predominantly covered by unsealed, permeable, 'soft' surfaces such as soil, grass, shrubs, and trees. Thus, urban green space can be defined as an umbrella terms for all areas of land covered by the definition of green space, whether or not they are publicly accessible or publicly managed (Swanwick, Dunnett, et al., 2003). Refer to Figure 1 for the definition of an urban green spaces.

Urban green spaces can also be private if these are intended only for specific users, while these can be public if these are intended for all types of users (Rasidi, Jamirsah, et al., 2012). It is essential to emphasize, however, that not all green spaces are publicly available because developers have their rules and conditions. Other green spaces owned by the public bodies are always viewed as public amenities. Consequently, green spaces created by private entities are usually not available to everyone but allow public access (Rasidi, Jamirsah, et al., 2012).

Figure 1 Definition of Urban Green Spaces

Source: Swanwick, Dunnett, et al., 2003



Urban green spaces can serve as a popular outdoor space for individuals for variety of uses and events regardless of nationality or ethnicity. People have their own purpose in going to urban green areas such as parks. As urban parks are inclusive spaces, they can be considered as favourable spaces for stimulating social cohesion (Peters, Elands, et al., 2010).

2.1.2. Typology of an Urban Green Space

Based on the importance of each space in terms of its extent, the size of its catchment area, the nature of the resource and the type of facilities provided, a four level of hierarchy of parks are presented by (Swanwick, Dunnett, et al., 2003). The categories proposed included the following:

- **Principal/City/Metropolitan Parks** which is of more than eight hectares in size, with a town/city wide catchment, a varied physical resource and a wide range of facilities, which would generally be recognized as a visitor attraction in its own right;

- **District Parks** is up to eight hectares in extent with a catchment area from 1,500 to 2,000 meters, with a mixture of landscape features and a variety of facilities such as sports fields or playing fields and play areas;

- **Neighbourhood Park** comprise up to four hectares in extent, which serve a catchment area of between 1,000 to 1,500 meters with both landscape features and a variety of facilities;

- **Local Park** is up to 1.2 hectares in extent serving a catchment area of between 500 and 1,000 meters and is usually consisting of a play area and informal green area and landscape features but lacking facilities.

It is only useful to apply this type of hierarchical classification to publicly owned and managed green spaces that are accessible for some form of recreation (Swanwick, Dunnett, et al., 2003). The local park was considered the green space used for this study due to its availability within the study areas. Moreover, within the local park, residents have more possibility to interact with each other and meet new people within the neighbourhoods. It is also the best place to organize such events and for people to engage in recreational or leisure activities. In addition, the residents have an immediate access to do physical activities.

2.1.3. Overview of Social Cohesion

Social cohesion is a concept that enjoys an ever-increasing popularity among academicians and policymakers alike as the concept has become another day buzzword (Chan, To, et al., 2006). However, the concept of social cohesion in a fixed definition is difficult to describe as there is lack of consensus on the construct's definition. Ordinary citizens, policymakers, and social scientist often simply refer social cohesion as the 'glue' or 'bonds' that keep societies together (Larsen, 2013). While some see it as an equivalent to solidarity and trust, and others have shown a tendency to distort the meaning of the terms so that notions such as inclusion, social capital, and poverty are integrated (Chan, To, et al., 2006).

On a literature review of Schiefer and van der Noll (2017), they identified the following reasons regarding the constraints to reach consensus on the conceptualization of social cohesion. First, the nature of the policy discourse is politicized and driven by the agent's concerns from specific policy areas. Second, it is used to promote the views of the agents in national political with different and opposing political views. Third, equality and solidarity could be emphasized as an essential ingredient of social cohesion from a social-democratic point of view. Fourth, it is possible to highlight the shared national history and traditional values from nationalist view. Fifth, and finally, liberal views emphasize the importance of equality as it concerns individual opportunities (Green et al., 2009; Green and Janmaat, 2011 in Schiefer and van der Noll, 2017). Therefore, social cohesion is relative as it is comprised of different approaches to define based on the agents or scholars' point of view and thought.

2.1.4. Definition of Social Cohesion

Nowadays, the concept of social cohesion has been sought to be defined by several scholars, governments and multilateral organizations. According to Chan, To et al. (2006), there are two traditions to analyse social cohesion in the literature. First, it is from the academic social science disciplines, sociology and social psychology. Second, from the policymakers and the more policy-oriented analysts, which is more recent but increasingly influential. For example, the Canadian Federal Government, Council of Europe, European Union (EU), Organisation for Economic Co-operation and Development (OECD), and World Bank. Chan, To e al. (2006)

have given emphasis on the policymakers and policy-oriented analyst given that it is more relevant in the present context and also to develop an operational definition.

Fonseca, Lukosch, et al. (2018) cited three current definitions of social cohesion that are widely used today such as the definitions from the Council of Europe, Canadian Government, and OECD. According to the Council of Europe (2008, p. 9) "social cohesion is the capacity of a society to ensure well-being of all its members, minimising disparities and avoiding marginalisation." The Canadian Government defined social cohesion as "the ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity among all Canadians." According to OECD (2011), a cohesive society works for the well-being of all its members, fights exclusion and marginalization, creates a sense of belonging, fosters trust, and provides opportunities for upward social mobility to its members. These three current definitions do not fit current societies with their shifting conceptions (Bulmer and Solomos, 2017 in Fonseca, Lukosch et al., 2018).

Schiefer and van der Noll (2017 p. 592) defined social cohesion as "a descriptive attribute of a collective, indicating the quality of collective togetherness." A cohesive society is characterized by close social relationships, a pronounced emotional connection to the social entity, and a strong orientation towards the common good (Schiefer and van der Noll, 2017). They conceptualize cohesion as a gradual phenomenon, meaning societies can be more or less cohesive. This degree of cohesion manifests itself in the attitudes and behaviours of all individuals and groups within society and includes components of both ideation and relation (Schiefer and van der Noll, 2017). Moreover, Schiefer and van der Noll (2017) have revealed six dimensions that are frequently referred with regards to social cohesion. Most social cohesion approaches combine some of these dimensions, most notably social relationships, identification, and common good responsibility (Schiefer and van der Noll, 2017). They have focused on three of the six identified dimensions. Refer to Figure 2 for the essentials of social cohesion identified by Schiefer and van der Noll (2017).

2.1.5. Six Common Dimensions of Social Cohesion

Schiefer and van der Noll (2017) identified six common dimensions of social cohesion. They suggested the three essential dimensions of social cohesion such as social relations, identification with the geographical unit/sense of belonging, and orientation towards the common good. These three dimensions were also further differentiated into several sub-dimensions. The other three dimensions of social cohesion are shared values, inequality, and quality of life. These three additional elements of social cohesion are rather determinants or consequences of social cohesion, but not constituting the elements.

2.1.5.1. Social Relations

Social relations are the interaction of a group with its members. It also keeps people staying in the group (Friedkin, 2004 in Schiefer and van der Noll, 2017). Social relationships also include relationships within a community between different groups, whether cultural, ethnic, or groups with a particular lifestyle or sexual orientation. This element often arises in social cohesion

discussions, with the fundamental tenor that a cohesive society requires mutual tolerance among such organizations, especially minority groups need to be socially included (Schiefer and van der Noll, 2017).

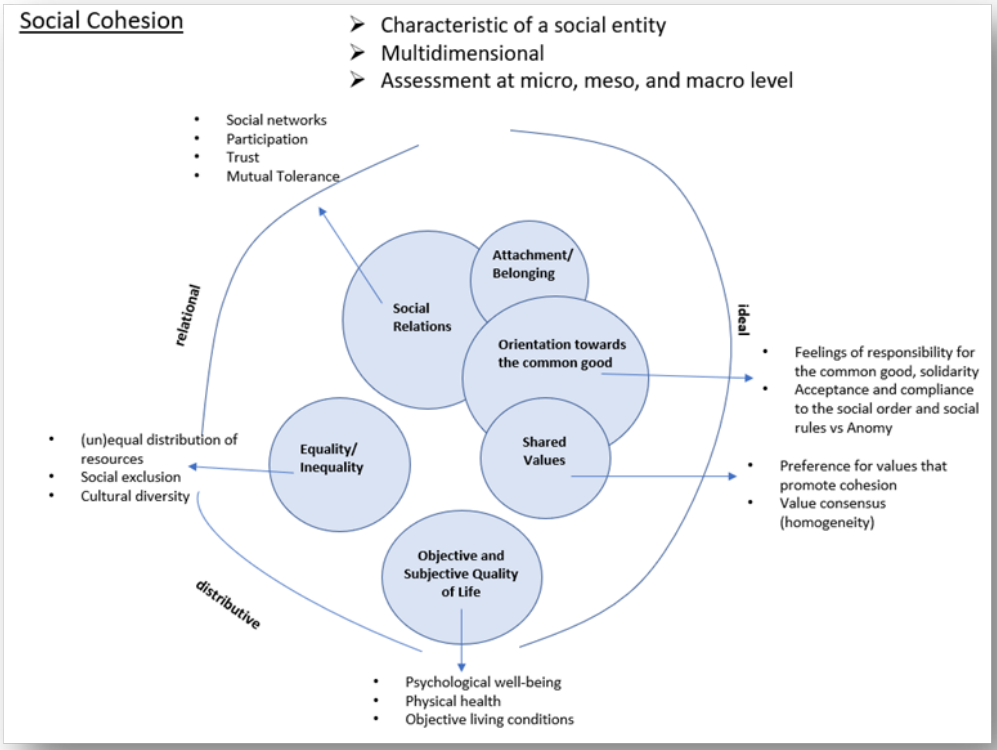
Social networks are one of the components related with social relations. It is the quality and quantity of social interactions with family members, friends, and acquaintances.

Without some degree of trust, not only between people, but also between institutions, a cohesive society would not be possible (Chan et al., 2006; Dickens et al., 2010; Uslaner, 2012 in Schiefer and van der Noll, 2017). Trust is another component of the social relations dimension (Schiefer and van der Noll, 2017).

Finally, participation or civic engagement is another important component of social relations (Ackets et al., 2011; Berger-Schmitt, 2000; Bernard, 1999; Chan et al., 2006; Chiesi, 2004; Dickies et al., 2010; Jenson, 1998; Klein, 2013; Rajulton et al., 2007 in Schiefer and van der Noll, 2017). Participation in public life reflects a sense of belonging, solidarity and willingness to cooperate with one another in pursuing common goals (Berger-Schmitt, 2000 and European Commission, 2001 in Schiefer and van der Noll, 2017).

Figure 2 The Essentials of Social Cohesion

Source: Schiefer and van der Noll, 2017



2.1.6.2. Identification with the geographical unit

The relevance of feeling attached to or identifying with the social entity for social cohesion is in regard to the element of participation (Schiefer and van der Noll, 2017). The sense of belonging was listed in parallel with social interactions, trust and willingness to participate and help (Chan et al., 2006 in Schiefer and van der Noll, 2017). They argue that without the identification aspect with the geographical space in which social interactions take place, the other components may also reflect the general humanitarianism of peoples. It is the identification aspects that reflect these concepts of social cohesion. The emotional attachment to a geographical entity is an expression of shared values, lifestyles and contexts of socialization as it provides security and self-worth that reinforces willingness to participate and social networking (Kearns and Forrest, 2000 in Schiefer and van der Noll, 2017).

2.1.6.3. Orientation Towards the Common Good

It involves the feelings of responsibility for the common good and respect for social rules and order and furthermore emphasize in many definitions, as a component of social cohesion. A cohesive society needs a minimum degree of commitment to the community and the willingness to subordinate personal needs under the welfare of the social environment (Schiefer and van der Noll, 2017).

Solidarity is the closely related term, means caring for others, whether or not one knows the person (Schiefer and van der Noll, 2017). Moreover, it also includes accepting the social order and compliance with social rules and norms to be oriented towards the common good (Schiefer and van der Noll, 2017). The basis on which individuals and groups can work together to achieve common goals is social order (Wrong, 1994 and Kearns and Forrest, 2000 in Schiefer and van der Noll, 2017). Compliance with social order is regarded as an aspect of social cohesion because it is necessary to observe carefully the degree to which compliance with standards and order is enforced in a society (Schiefer and van der Noll, 2017).

2.1.6.4. Shared Values

Shared values are important for social cohesion since they facilitate the members of society to define common goals and plans and structure social interactions through shared codes of conduct (Botterman et al., 2012 and Kearns and Forrest, 2000 in Schiefer and van der Noll, 2017).

2.1.6.5. (In)equality

The (in)equality dimension can be assigned to two components. First, the (un)equal distribution of accessible material and immaterial resources across all members of a society. Such resources include employment, income, education, health care, social welfare and legal means. A term often used in connection with this is social exclusion, defined as the isolation from cultural and social life of people or groups as a result of uneven distribution or accessibility of resources (Berger-Schmitt and Noll, 2000; Jeannotte et al., 2002; Jenson, 2010 in Schiefer and van der

Noll, 2017). Second, the composition, or fractionalization and often considered as an (in)equality between people in terms of cultural, ethnic, religious, and social background.

The potential threat to social cohesion is social diversity because it erodes shared cultural values, beliefs and practices (Green and Janmaat, 2011 and Letki, 2008 in Schiefer and van der Noll, 2017). Others have argued that cultural diversity has a negative impact on trust and social networks. Nevertheless, this view is opposed by the argument that the way societies deal with it is not so much the actual degree of (in)equality that is being discussed in relation to cohesion (Schiefer and van der Noll, 2017). Hence, cohesion is undermined by segregation rather than diversity per se (Uslaner, 2012 in Schiefer and van der Noll, 2017).

2.1.6.6. Objective and Subjective Quality of Life

Finally, a number of definitions highlight aspects that can be summed up as quality of life objective and subjective. The objective and subjective quality of life dimension can be divided into psychological well-being, physical health, and objective conditions of living. These dimensions of social cohesion are discussed as to their (un)equal distribution across individuals, groups, or regions and reveals the greatest lack of clarity. Concepts such as social cohesion, quality of life, and welfare are either used interchangeably or related to each other differently (Schiefer and van der Noll, 2017).

2.1.7. The links between urban green spaces and social cohesion

This study focuses on three conditions of urban green spaces that influences in supporting or hindering social cohesion: free and accessible public amenity, place for social interaction, and stress reduction. These three conditions were identified by Kazmierczak and James (2007) on their literature review-based paper and applied in this research. Opportunities for participation in voluntary work will not be included in the study. These three conditions of urban green spaces can enhance the community cohesion as well as contributing the inclusion of individuals into the society (Kazmierczak and James, 2007). On their literature review, they have concluded that any mechanisms should be implemented, which can increase social interaction and the sense of community and place (Kazmierczak and James, 2007).

2.1.7.1. Urban Green Spaces as free and accessible public amenities

Access to urban public facilities such as parks and green space is claimed to contribute to the well-being of the society as well as social capital growth and inclusive neighbourhoods (Wang, Brown, et al., 2013). An essential aspect of urban quality life is the availability of accessible and attractive green spaces (Van Herzele and Wiedemann, 2003). Francis, Giles-Corti, et al. (2012) on their cross-sectional study in Western Australia found that park proximity and quality were favourably linked to community sense.

Van Herzele and Wiedemann (2003) formulated the following guiding principles for the monitoring of the urban green space provision:

- **Citizen-based**: Since green spaces are intended to support the quality of life of urban populations, they must be considered in relation to the places where people live and in a manner that reflects their point of view.

- **Functional level**: Green spaces inside and outside the city are no replacements, and both are viewed differently.

- **Preconditions for use**: First consideration should be given to the preconditions for use (proximity, accessibility, surface, safety, etc.). If these are not achieved, green spaces would not attract individuals.

- **Variety of qualities**: A range of characteristics ensure a range of urban green-related activities and experiences close to households and workplaces.

- **Multiple use**: People freely and frequently use open landscapes, such as parks, playgrounds, forests or farmlands, in and around cities, regardless of their primary purposes.

Focusing on the preconditions for use, restrictions such as distance and safety determine whether an environment will effectively be visited by individuals (Van Herzele and Wiedemann, 2003). The most significant precondition for using green spaces appeared to be the distance or walking from home (Deconinck, 1982; Grahn, 1994; Bussey, 1996; Holm, 1998 in Van Herzele and Wiedeman, 2003). It is frequently used by people who live close to a green space, those who live further away do so less frequently in direct proportion to the increase in distance (Van Herzele and Wiedemann, 2003). Following the concept of "functional levels", the maximum walking distance may vary depending on the function of fulfilling a green space. For instance, according to most researchers, if they are not viewed as accessible, neighbourhood parks should be located within a 5-minute walk, which corresponds to a maximum of 400 meters from home (Van Herzele and Wiedemann, 2003).

Harrison, Burgess, et al. (1995, p. 2) defined access as "certain rights of approach, entry or use that are legally or conventionally defined", while accessibility as "the extent to which these rights can be exercised in particular places, at particular times and by particular people." Therefore, defining whether or not natural places are accessible includes not only thinking about site ownership and access rights, but also physical and social factors that limit the extent to which access rights can be exercised (Harrison, Burgess, et al., 1995).

Distance from have included by Van Herzele and Wiedemann (2003). Moreover, according to Harrison, Burgess, et al. (1995), there are two factors that limits accessibility in the context of urban areas:

- **Physical constrains**: Distance from home, severance factors such as roads, and the degree of independent mobility that particular groups of adults and children enjoy.

- **Social and cultural factors**: Including the fear of crime linked to public spaces and their effect on individuals' willingness and ability to use and enjoy natural places viewed as 'risky'.

In theory, those within walking or cycling scope that are easily seen from home are the most accessible natural places (Harrison, Burgess, et al., 1995). In practice, in most public open-space and wildlife approaches, 'distance from home' or a time equivalent has served as main criteria for defining accessible sites (Harrison, Burgess, et al., 1995). All people have an access to and use public urban green spaces (Vargas-Hernández, Pallagst, et al., 2018). Urban green spaces should be accessible, distributed evenly, optimal in quality and amount, sufficiently big to meet the requirements of the population (Haq, 2011), sustainable and liveable (Vargas-Hernández, Pallagst, et al., 2018). Several studies indicate that personal safety, anxiety and concerns inhibit the actual and potential use of green spaces (Harrison, Burgess, et al., 1995). These social limitations, contrary to the common attraction natural fields have, imply that individuals modify their conduct to minimize the risks that natural places pose to them (Harrison, Burgess, et al., 1995). Women and girls, younger kids, and individuals of colour, particularly women and the elderly, are the groups most severely restricted in this manner (Harrison, Burgess, et al., 1995).

Pasaogullari and Doratli (2004) states that public spaces such as parks have central role, both physically and functionally. An increase of sense of community when intensive social interaction takes place in these areas adds to the functional roles of public spaces. On their study of public spaces, accessibility and utilization were assessed, regarding the effects of rapid urbanization growth on their physical and functional structure. First, they evaluated the significance of public spaces in an urban setting. Second, they identify the variables effective in terms of accessibility and utilization. Third, and lastly, assess the factors affecting the accessibility and utilization of public spaces through a questionnaire survey on the role of public spaces in social interactions.

Open spaces assist to create trust or boost cohesion among individuals (Pasaogullari and Doratli, 2004). Access to public spaces can be seen as one of the main problems in terms of the public realm's physical dimension, which the social environment could both facilitate and restrict (Pasaogullari and Doratli, 2004). Public space accessibility itself can be asserted as one of the most efficient variables and deterrents in increasing the use and accomplishment of social interaction in a public space (Pasaogullari and Doratli, 2004).

Accessibility is described as “the freedom or ability of people to achieve their basic needs in order to sustain their quality of life” (Lau and Chiu, 2003 in Pasaogullari and Doratli, 2004). Therefore, an accessible public space can be accessed by many separate individuals, but also one where many different people can do many different things: it is a node that is accessible, but also a location that is accessible (Bertolini, 1999; Bertoloni and Djist, 2003 in Pasaogullari and Doratli, 2004).

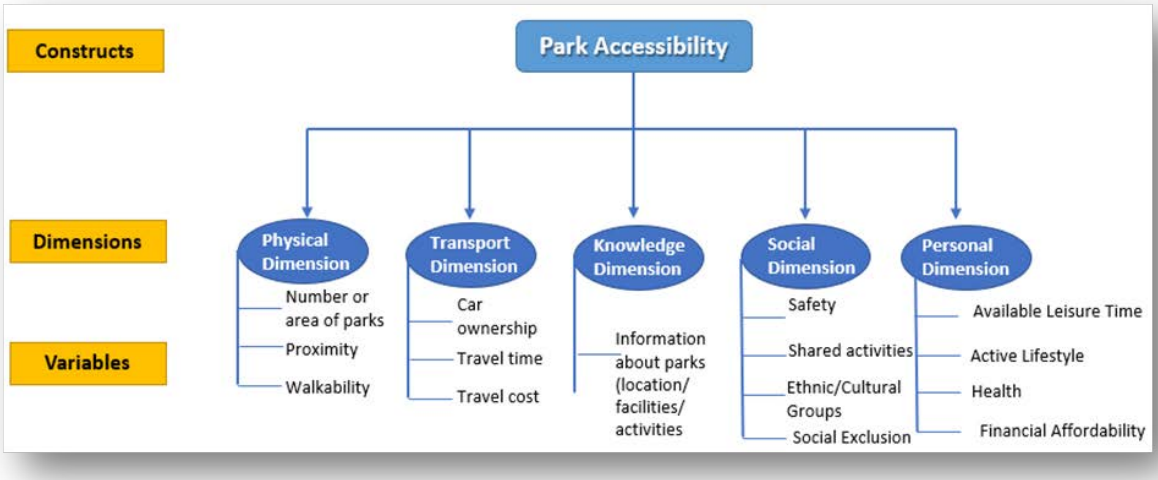
They identified dispersion, proximity, ways and means of accessibility as key variables that would add to the assessment of public space accessibility. Furthermore, when a public space is

accessible, other considerations also play a part in identifying and influencing the quality of the public space, which in turn increases citizens' use (Pasaogullari and Doratli, 2004). These are comfort, quality, and aesthetic considerations are also key factors for measuring the utilization of public spaces (Pasaogullari and Doratli, 2004).

Wang, Brown, et al (2015) on their research, argued that contributing to community well-being and inclusive neighbourhoods, access to urban parks and green space is expected. They empirically tested the multi-dimensional model of park access in two contrasting suburbs with contrasting social economic status (SES) using a community level survey in Brisbane, Australia to empirically test a multivariate model of park accessibility. They have empirically investigated the mix of both physical and non-physical factors that influence self-reported access to urban parks. Refer to Figure 3 for the integrated model of park accessibility.

Figure 3 Integrated model of park accessibility

Source: Wang, Brown, et al., 2015



On the model, a combination of physical and non-physical variables account for the perception of park accessibility. They have conceptualized park accessibility as a multi-dimensional construct, which includes physical, transport, knowledge, social, and personal dimensions of accessibility (Wang, Brown, et al., 2015).

The quality of urban life is strongly linked to nature access and possibilities for recreation in cities (Nicholls, 200; Pred, 1977 in Wang, Brown, et al, 2015). As a result, park accessibility and utilization are frequently investigated within leisure and geography disciplines (Byrne, Wolch, 2009; Scott, Munson, 1994; Wendel, Zarger, Mihelcic, 2012 in Wang, Brown, et al., 2015). Accessibility to the park is recognized as one of the key variables in influencing park utilisation (Wang, Brown, et al., 2015). Accessibility relates to the ease with which a location can be reached, providing a measure that assesses the relative opportunity for contact or use (Gregory, Johnstone, et al., 1986 in Wang, Brown, et al., 2015). Accessibility as a construct encompasses both physical and non-physical dimensions (Aday and Andersen, 1974; Ferreria and Batey, 2007; Gregory, Johnston, Pratt, Watts, Whatmore, 2009; Lindsey, Maraj, Kuan, 2001; Wang, Brown, Mateo-Babiano, 2013 in Wang, Brown, et al., 2015). Recent literature on

accessibility has recognized the need to incorporate the physical and socio-personal dimensions into the notion of accessibility operationalization (Brown, 2008; Nicholls, 2001 in Wang, Brown, et al., 2015).

The perception of park access and park use by people can be affected by both park-based and user-based factors (Byrne and Wolch, 2009 in Wang, Brown, et al., 2015). Park-based factors (inner characteristics operating within park fields), including lighting, signage, facilities locations, program and operations, landscape design, and maintenance frequency, can explain perceived park access (Gobster, 1995, 1998; Reynolds et al., 2007 in Wang, Brown, et al., 2015). If park designs are guided exclusively by Anglo-Celtic landscape aesthetics, people from other racial / ethnic groups may find public park spaces less attractive (Loukaitou-Sideris, 1995; Loukaitou-Sideris and Stieglitz, 2002; Risbeth, 2001 in Wang, Brown, et al., 2015).

Another important aspect that explains differentiated park access and use is the potential park users' characteristics. An individual's socio-economic (e.g. income, education) and socio-demographic (e.g. ethnicity, age, sex) characteristics can influence park access (Byrne & Wolch, 2009 in Wang, Brown, et al., 2015). Neighbourhood characteristics, perception of safety, and personal sense of community belongings are also included in other user-based variables associated with park access (Chen & Jim, 2010; Chiesura, 2004; Hille, 1999; Winter & Lockwoord, 2005 in Wang, Brown, et al., 2015). These user-based factors have been the focus of leisure studies to explain the ethno-racially differentiated user preferences and racial segregation observed in park use (Byrne & Wolch, 2009; Gobester, 1998; Hutchinson, 1987 in Wang, Brown, et al., 2015).

The result of their study indicated that park accessibility comprises of physical and socio-personal dimensions. The strongest dimension of the park accessibility construct is the physical dimension such as proximity to the park, a pleasant walking experience, and sufficient number of parks in the neighbourhood. Also, contributing to accessibility of urban parks are non-physical factors such as safety and cultural similarity. However, increasing park infrastructure may not necessarily enhance perceived park access (Wang, Brown et al., 2015). For the operationalization of accessibility of the present study, the park accessibility model of Wang, Brown, et al. has been adapted in the study focusing on proximity, walkability, and safety. As per the methodology of the study, these variables are doable to for data collection and related for investigating the conditions of the urban green space.

2.1.7.2. Urban Green Space should consider the diversity of people going to them

Urban green spaces also provide social interaction possibilities (Lee, Jordan, et al., 2015). The presence of urban green spaces can encourage beneficial social interactions that encourage social cohesion in ways that enhance health and well-being (Jennings and Bamkole, 2019).

Most social interactions in the park are cursory such as people are chatting a little bit or just saying hello. Moreover, park users do not have a lot of intense social interactions with people

they do not know. Respectful interactions enable the residents to reward social interactions and develop trust-supported social networks (Peters, Elands, et al., 2010).

In an urban green space, positive interactions can help facilitate social cohesion, social capital, and critical health-promoting activities that can improve psychological health and well-being (Jennings and Bamkole, 2019). Green spaces encourage people-to-people interaction, social ties development, and social cohesion (Vargas-Hernández, Pallagst, et al., 2018). The existence of urban green spaces can foster beneficial social interactions that enhance social cohesion in ways that improve health and well-being (Jennings and Bamkole, 2019).

In their urban park research, Peters, Elands, et al. (2010) found that urban parks in urban neighbourhoods can in fact facilitate social cohesion. They have analysed activities such as walking, cycling, having a barbecue, or a meeting can foster social interactions and social cohesion. Their observations varied by location of the parks and socio-demographic variables of Dutch and Non-Western migrants. Urban parks were seen as a place for social gatherings and other leisure activities (Peters, Elands, et al., 2010). Their investigation was recorded with the help of a scheme comprising six aspects, namely gender, age, origin, number of people, activities and interaction.

Peters, Elands, et al. defined social cohesion using the definition of Beckley (1994) as to the extent to which 'society' achieves a geographical location in the sense of shared values, cooperation and interaction. Interaction refers to intensive relations in social networks by which social capital is built (Peters, Elands, et al., 2010). Social capital refers to resources that are accessible with social interactions and social networks, reciprocity, norms and mutual trust (Bourdieu, 1986; Putnam, 2000 in Peters, Elands, et al., 2010) and viewed as prerequisite for social cohesion (Forrest and Kearns, 2001 in Peters, Elands, et al., 2010). Interactions in public spaces are too informal and too cursory to stimulate social cohesion, others consider that such interactions positively influence social cohesion (Kleinhans et al., 2007 in Peters, Elands, et al., 2010). Moreover, place attachment is also ways to facilitate social cohesion (Peters, Elands, et al., 2010). They argued that familiarity with public spaces such as place attachment is an expression of social cohesion. Therefore, social cohesion was operationalized in terms of social interaction and place attachment (Peters, Elands, et al., 2010).

In addition, with the cultural features of different ethnic groups, the design of a park, its place and the picture of the park by people indicate the possibilities for intercultural interactions (Peters, Elands, et al., 2010). Differences in activity can also be associated with park design, as design facilitates certain activities and limits others (Peters, Elands, et al., 2010). According to Rasidi, Jamirsah, et al., (2012), urban green space's design character is an important factor in promoting urban society activities, thereby changing patterns of human behaviour and cultural norms among urban communities. A sense of urban resident interaction provides an opportunity to get to know their neighbourhoods and friends in the area (Rasidi, Jamirsah, et al., 2012). According to Jennings and Bamkole (2019), the following factors may relate to social interactions with urban green spaces: open design of the park to encourage active recreation, access to the sidewalks, improved access to parks by means of quality transport options, shaded areas that promote relaxing environments, functional playgrounds, and the extent of organized activities.

Based on the result of their quantitative survey of Peters, Elands, et al., it shows that in general urban parks are more widely known than nature areas, and that more native Dutch people than immigrants seem to know about the existence of nature areas and urban parks. The results show that in general nature areas are less visited than urban parks. This applies to ethnic people, who according to the data visit green spaces outside the city much less than native Dutch people. Therefore, urban parks are both more known and more visited than nature areas especially by ethnic communities such as Turkish and Moroccan people. Urban parks have stronger inclusive character than nature areas. On the activities in the park, all activities were important to both non-Western migrants and native Dutch people. Having a picnic or a barbecue and meeting other people are much more important to non-Western migrants than to native Dutch people, whereas walking and cycling are more or less equally important to both groups. In terms of social interaction, it is valued by both non-Western migrants and native Dutch people, whether that interaction is with the people with whom they visit the park or with other, known or unknown people. In terms of place attachment, it appears that in general, people feel reasonably attached. The frequency of use is positively correlated to park attachment. For the park use (per year), it shows that the more often people visit an urban park, the more attached they are to it. Attachment of frequent users of public spaces to such spaces seems not to depend upon their origin (Peters, Elands, et al., 2010).

Cattell, Gesler, et al. (2006) identified the factors such as proximity, endurance, familiarity, the freedom to linger, facilities, and supportive physical characteristics that had more specific influence on social interaction in public spaces. According to Jennings and Bamkole (2019), positive interactions in urban green space can catalyse social cohesion, social capital, and critical health behaviours that can improve psychological health and well-being. The existence of urban green spaces can foster beneficial social interactions that foster social cohesion in ways that improve health and well-being. Urban green spaces were also associated with beneficial health behaviours and results, including enhanced physical activity and social involvement. To inform holistic solutions to health, understanding the connection between social cohesion and urban green space is essential.

2.1.7.3. Urban Green Space as Stress Reliever

According to Kua and Sia (2016), the use of urban parks and gardens can reduce stress. It also provides advantages for mental health, as the natural environment has restorative features that can mitigate stress and fatigue and can encourage physical activities. It is often serving as a location for practice and physical activity by individuals or groups (Lee, Jordan, et al., 2015). Urban green spaces provide opportunities for people to get outdoors and interact in ways that may not occur in other environments (Jennings and Bamkole, 2019).

A mixture of environmental and social stressors, unfortunately, often makes urban residents susceptible to health challenges (Lederbogen, F., Kirsch, P., Haddad, L., Streit, F., et al., 2011 in Jennings and Bamkole, 2019). These are related to social isolation and a limited amount of time spent in nature (Jennings and Bamkole, 2019). As more people spend most of their time indoors experiencing a "nature deficit" (Louv, 2011 in Jennings and Bamkole, 2019), lack of exposure to urban green space can also decrease social connection possibilities and the ability for social cohesion to develop (Jennings and Bamkole, 2019).

According to Thompson, Roe, et al. (2012), there are conditions by which natural environments might be associated with stress reduction. They argued that there are three candidate behavioural conditions which may operate synergistically, depending on the environment and contact type (de Vries, 2010). First, several people perform some form of physical activity as in inherent part of experiencing natural environments such as walking in the park. The beneficial impacts of physical activity on mood and stress are well established (Barton, Pretty, 2010; Penedo, Dahn, 2005 in Thompson, Roe, et al., 2012). Second, people have often the chance to have some kind of social contact, however casual or unplanned, when experience green space: they can go with someone while there, or participate with others. It is also recognized that social contact has beneficial impacts on mood and stress level (Heinrichs, Baumgartner, Kirschabaum, Ehlert, 2003 in Thompson, Roe, et al., 2012). Third, and lastly, people often intentionally seek environments that they find attractive to relax, to enable them to recover from demanding circumstances and duties, and for this purpose they often seek natural environments (Grahn et al., 2010; Hartig, 2007, 2008; Kaplan, 1995; Kaplan and Kaplan, 1989 in Thompson, Roe, et al., 2012).

Physical activity may help exposure to greenery (De Vries, Van Dillen, et al., 2013). For this reason, people with a lot of greenspace in their living setting may be more physically active (De Vries, Van Dillen, et al., 2013). There is also a common link between stress reduction and other restorative impacts with physical activity (Van Herzele and de Vries, 2012). In this regard, the recovery achieved in a green environment through physical activity may be higher than in a less green environment (Bodin and Hartig 2003; Hartig 2007 in Van Herzele and de Vries, 2012). The measurement of physical activity has been tailored from the SQUASH (Short Questionnaire to Assess Health enhancing physical activity (Wendel-Vos, Schuit, et al., 2003). It focused on activities that could be performed in green outdoor environments, such as walking for transport (from/to work or school), cycling for transport, walking for leisure, cycling for leisure, and gardening. The scores for frequency (number of days per week) and duration (average time in minutes per day) were multiplied per activity and then summed to obtain total scores for (green) physical activity (De Vries, Van Dillen, et al., 2013). Cradock, Kawachi, et al. (2009) found that social cohesion in the neighbourhood impacts physical activity involvement. They examined whether social cohesion neighbourhood levels, range of youth facilities and academic achievement were associated with youth participation in recreational programs and overall physical activity.

Increased social contacts can foster a sense of community and other factors informing our sense of social cohesion and perception (Wickes, Zahnow et al., 2019 in Jennings and Bamkole, 2019). Social cohesion and increased social contacts as a major pathway that promotes health promotion through the natural environment (Hartig, Mitchell, et al., 2014 in Jennings and Bamkole, 2019). Social contacts can take many forms, including discussion, joint operations and visits. Maas, Van Dillen, et al. (2009) measures social contact in terms of contact with neighbours and friends in the neighbourhoods. It is whether people often contacted neighbours and friends in the neighbourhood (more than 3 times per week or 1-3 times per week = 1) or not often (1-3 times per month, 4-11 times per year, maximally 3 times a year = 0).

Seeking an environment that finds attractive to relax, an aesthetic consideration of public space is needed in order to utilize public space such as green space. According to Pasaogullari and Doratli (2004) for aesthetic consideration, the physical attractiveness and maintenance is among the most important factors of successful place making. The indicators to measure it are maintenance and cleanliness, and appearance. According to Van Herzele and de Vries (2012)

An essential aspect of the urban quality of life is the accessibility of affordable and attractive green spaces. On their study, they provided a significant indication of the attractiveness by relating dominating perceptual attributes to physical features of a green space as a whole and considering the context of the surroundings. These are following: “space”; “nature”; “culture and history”; “quietness”; and “facilities”.

Assessments of the connection among environment and health indicate that the existence and quality of urban green areas such as parks and forests positively influence social cohesion (Hartig, Mitchell, et al., 2014; Jennings, Larson et al., 2016; Cattell, Dines, et al, 2008 in Jennings and Bamkole, 2019). For instance, a nature and health assessment define social cohesion and enhanced social contacts as a significant pathway that supports health promotion through natural environment (Hartig, Mitchell, et al, 2015 in Jennings and Bamkole, 2019). Therefore, different activities and health promoting habits in urban green spaces can foster social cohesion and vice versa.

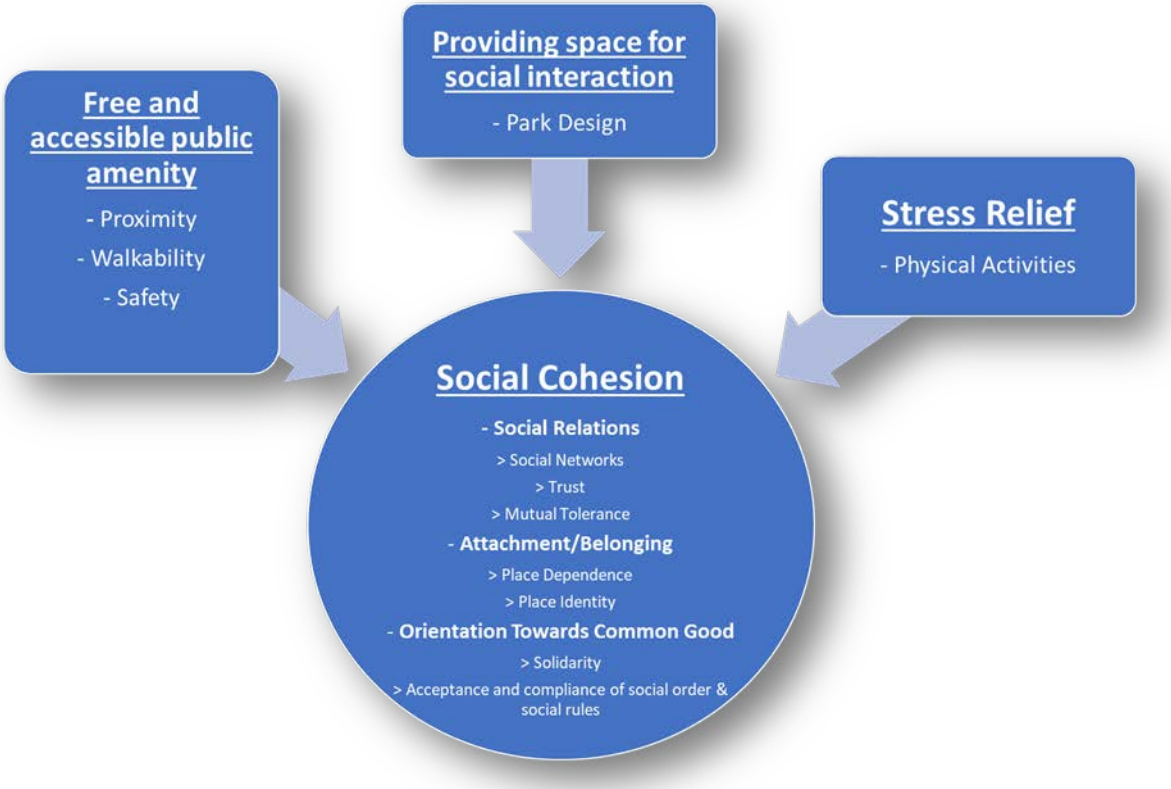
Table 1 Factors Influencing Social Cohesion

Author	Factor Influencing Social Cohesion
Social interaction in urban park: Stimulating social cohesion? Peters, et al., 2010	• Park Use • Attachment • Distance • Gender • Age • Origin • Activities and interactions
The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion Jennings and Bamkole, 2019	• Open park design to encourage active recreational activities (Peters, et al., 2010) • Availability of sidewalks (Bennet, et al., 2012) • Shaded areas that support relaxing environments • Organized activities • Shaded areas support relaxing environment

Table 2 Research Findings from different authors

Author	Methodology	Green Space & Social Cohesion Findings	Country
Social interaction in urban park: Stimulating social cohesion? (Peters, et al., 2010)	• Survey (Quantitative) • Observations (Qualitative)	Urban parks can facilitate social cohesion in urban neighbourhoods	Netherlands

2.2. Conceptual Framework



Several studies have shown that urban green spaces and social cohesion have a positive relationship. The conceptual framework of the study focuses on the three conditions through which urban green spaces might exert its positive effect on social cohesion: free and accessible public amenity, place for social interaction, and stress reliever. The knowledge on these conditions helps to identify which among these conditions of urban green spaces is the most effective in supporting or hindering social cohesion among the residents in a highly diverse neighbourhood. Social cohesion is a collective descriptive attribute that indicates the quality of collective unity. A cohesive society is defined by close social interactions, a powerful emotional connection to the social entity, and a strong orientation towards the common good. This degree of cohesion manifest itself in the attitudes and behaviours of all individuals and groups within society and includes components of both attention and relation (Schiefer and van der Noll, 2017). Moreover, social cohesion includes interpersonal dynamics and people's feeling of attachment (Jennings and Bamkole, 2019). The lack of social cohesion would lead to social disorder and conflict, different moral values, severe social inequality, low levels of social interaction between and within groups, and low attachment to places (Forrest and Kearns, 2001). Refer to Figure 5 for the conceptual framework of the study.

The way urban green spaces can promote social cohesion results in the need to broaden the perspective of their role in cities (Jennings and Bamkole, 2019). Access to public urban amenities such as parks and green spaces is therefore asserted to contribute to society's well-being as well as capital growth and inclusive neighbourhoods (Wang, Brown, et al., 2013). Access to urban green spaces, along with sense of place and community satisfaction, can

encourage place attachment (Jennings, Larson, et al., 2016; Peters, Elands, et al., 2010 in Jennings and Bamkole, 2019). Urban green spaces can promote positive social interactions that foster social cohesion in ways that improve health and well-being (Jennings, and Bamkole, 2019). Green spaces enable social interaction, development of social ties, and social cohesion (Vargas-Hernández, Pallagst, et al., 2018). It is argued that contact with nature will help individuals recover from attentional fatigue and reduce stress (De Vries, Van Dillen, et al., 2013). More urban green space coverage is associated with less stress and the awareness that green space can foster a sense of belonging and minimize social isolation in ways that mitigate stress (Ward Thompson, Aspinall, et al., 2016 in Jennings and Bamkole. 2019).

Based on these concepts, the research has three aforementioned conditions of urban green spaces that will be tested. First, the condition of urban green spaces as free and accessible; Second, place for social interaction; and third, stress reliever. The dependent variable of the study is social cohesion, which according to the literature is composed of social relations, identification with the geographical unit, and orientation towards the common good. The following hypotheses have been set up and to be tested in the case study area.

Ho: The conditions of urban green space in terms of free and accessible public amenity, place for social interaction, and stress reliever hinders social cohesion.
Ha: The conditions of urban green space in terms of free and accessible public amenity, place for social interaction, and stress reliever supports social cohesion.

Through statistical analysis, the research will test and compare the effect of different conditions of urban green space on the social cohesion as indicated by the arrows in the conceptual framework. The focus of the research is to establish that there is a relationship between the conditions of urban green spaces that support or hinder social cohesion.

Chapter 3: Research Design and Methods

This chapter describes the operationalization and research design used in answering the research questions and fulfilling the research objectives of the study. Moreover, this chapter also provides detailed information on the research strategy, data collection methods, instruments, sample size of the study, sampling method, and data analysis.

3.1. Operationalization: Variables, Indicators

Based on the conceptual framework, the research variables and indicators are derived and categorized under two types: independent variables (X), and dependent variable (Y).

There are three types of X-variables, which are the accessibility, social interaction, and stress reduction of the free and accessible public amenity, place for social interaction, and relieve stress and mental fatigue, respectively. Each of the X-variables in this research were categorized into sub-variables. First, the X-variable, which is accessibility was categorized into three sub-variables: proximity, walkability, and safety. For each sub-variable of accessibility, one question has been asked to obtain the respondent's accessibility within their neighbourhood green space. Second, social interaction was categorized into one sub-variable, which is park design. Ten questions have been asked to gather the respondent's perception about the design of their neighbourhood green space. Lastly, the X-variable, which is stress reduction was also categorized into one sub-variable, which is physical activity. Six questions have been asked to gather the respondent's frequency of use or visit in the park. In the analysis, the indicators of the X-variables were correlated to Y-variable (social cohesion). For example, proximity such as distance from home to the park, park design, and physical activities used to correlate with social cohesion domains. The variables and indicators were derived from the related literature sources.

The Y-variable is social cohesion was also categorized in this research into three sub-variables which are social relations, attachment/belonging (place attachment), and orientation towards the common good. For each sub-variable, several questions have been asked to obtain the respondent's social relations, attachment/belonging (place attachment), and orientation towards the common good within their neighbourhoods.

Table 3 provides an overview of the concepts operationalized by different variables and indicators.

Table 3 Operationalization of Research Concepts

Source: Author

Concept	Variable	Sub Variables	Definition	Indicators	Sequence No. in Questionnaire
Free and accessible public amenity	Accessibility	Proximity	How close a person lives to a park or recreation opportunity.	Distance from home to the park	**16**
		Walkability	How conducive an area is to walking to and from chosen destination.	Pleasant or ease of walk experience	**17**
		Safety	It shapes park user's approach and avoidance behaviours and can be assessed as either a facilitator or a park-use inhibitor.	Perceived safety	**18**
Place for social interaction	Social Interaction	Park Design	A significant factor in promoting activities for urban society, thus changing human behavioural patterns and cultural norms among urban communities.	Shared activities	**19**
				Variation in activities	**20**
				Variation in facilities	**21**
				Open park design encouraging active recreational activities	**22**
				Maintenance and cleanliness	**23**
				Availability of sidewalks	**24**

				Shaded areas supporting relaxing environments	**25**
				Availability of organized activities	**26**
				Likeability of the park design	**27**
				Likelihood of providing suggestions for improvement about the park	**28**
Relieve stress and mental fatigue	Stress reduction	Physical Activity	An inherent part of experiencing the natural environments. It may help to expose to greenery. It has been found to have psychological benefits such as relieving symptoms of stress, reducing depression, and promoting well-being (US Department of Health and Human Services, 1996 in Fan, et al., 2011).	Doing sports/exercise	**9**
				Taking a walk	**10**
				Walking a dog	**11**
				Socializing	**12**
				Playing with children	**13**
				Gardening	**14**
Social Cohesion	Social Relations	Social Networks	The quality and quantity of social	Interactions in daily life between people	**29**

			interactions with family members, friends, and acquaintances	Frequency of mutual visits (e.g. in the park)	**30**
				Frequency of phone calls	**31**
		Trust	The expectancy that other persons' behaviour is predictable and is in principal lead by positive intentions (Morrone et al., 2009 in Schieffer and van der Noll, 2011), is a moral resource of solidarity (Delhey, 2007 in Schieffer and van der Noll, 2011) and strengthens cooperation, unity and identification (Schieffer and van der Noll, 2011).	Trust in neighbours	**32**
		Mutual Tolerance / Acceptance of diversity	The relations between various groups within society, may it be cultural, ethnic or groups with a certain lifestyle or sexual orientation.	Tolerance or acceptance of diversity of neighbourhood	**33**

		Participation or civic engagement	Participation in the public life reflects sense of belonging, solidarity and the readiness for mutual cooperation in the pursuit of common goals (Berger-Schmitt 2000; European Commission 2001 in Schiefer and van der Noll, 2011).	Membership in sports or cultural associations or voluntary work (e.g. socio-cultural participation).	**34**
	Attachment / Belonging (Place Attachment)	Place dependence (Functional Attachment)	The importance of a place in providing features and conditions that support specific goals or desired activities.	Place is close enough to allow for frequent visitation	**35**
		Place Identity (Emotional Attachment)	The symbolic importance of a place as repository for emotions and relationships that give meaning and purpose to life.	History of repeat visitation due to place dependence	**36**
	Orientation towards the common good	Solidarity	Caring for the other, regardless of whether one knows the person or not.	People's willingness to give time / effort / material to others	**37**

		Acceptance of and compliance to the social order and social rules	The basis on which individuals or groups can cooperate to reach common goals. The lack of compliance to social order manifests in anomy, or the state of a society in which societal members' goals (e.g. welfare, success) no longer correspond with legitimate means of reaching these goals.	Absence of norm-violating behaviour	**38**

3.2. Research Strategy

For this study, the main research strategy is survey using questionnaires based on the Likert scale of measurement that was administered to collect primary data in two selected neighbourhoods in Feijenoord District, Rotterdam. The primary data collected from the survey were analysed to meet the research objectives, which was to explain the conditions of urban green spaces that support or hinder social cohesion of ethnically diverse residents in selected neighbourhoods. The research approach is quantitative and explains the relationship between urban green spaces conditions with respondents ' social cohesion primarily through statistical testing and analysis.

The survey was described by Van Thiel (2014) as a large-scale approach. This allows a significant amount of data to be obtained effectively on a number of variables and many sample groups, called the respondents. Survey uses large number of respondents and structured information. Once the data is collected and completed, the population would be convenient to generalized and make it a valid research strategy that is highly external.

The survey was considered to be an appropriate research strategy for theory-driven or deductive forms of research with an objective of explanation or testing, applying existing theories to add theory or ascertain whether the theory is true for the context of being studied (Van Theil, 2014). The literature review has already identified certain conditions of urban green spaces that support or hinder the social cohesion of the people. Hence, the relationships between the variables being studied were already known to some extent as indicated in the study's conceptual framework.

3.3. Data Collection & Sample Size and Selection

3.3.1. Data Collection Methods

The study used primary data from the prepared survey questionnaire. The questionnaires for selected neighbourhoods were translated from English to Dutch version. The translated questionnaires were pre-tested by some Dutch Erasmus students. Refer to Annex 1 for the questionnaires (research instrument) both available in English and Dutch version.

The researcher personally distributed a self-administered questionnaire to the sample of households in two selected neighbourhoods in Feijenoord District, Rotterdam. The researcher waited for few minutes until the respondents finished answering the questionnaire. For each household, any member 18 years of age and above have been requested also to complete the questionnaire.

Besides the hard copy questionnaire distributed in the households, a flyer containing the link and QR code to access the online questionnaires were also prepared. The flyers were distributed to the mailbox, passers-by within the vicinity of the parks, and through the playground caretakers. The residents from the two selected neighbourhoods were also approached in the public areas such as park to answer the questionnaires in order to increase the survey response rate.

A survey questionnaire is the most appropriate method for this research as it is an active way to gather large amounts of information from the many respondents about their social cohesion and urban green space conditions. A questionnaire often provides sufficient standardized information that can be translated into quantitative data, which makes it possible to perform statistical analysis and generalize results to the entire target population.

3.3.2. Sample Size and Selection

Two steps have been taken to classify the participants of this study sample survey. First, the selection of the neighbourhoods. Second, each neighbourhood’s probability sampling of respondents. Two neighbourhoods were chosen to assess whether urban green spaces’ conditions could explain the residents' social cohesion in the study areas. Only two neighbourhoods are included for this study due to resource and time limitations in performing

a survey research. Further research can build on this study's preliminary results by including more neighbourhoods to generalize the findings for more contexts and larger population.

For this study, Hillesluis and Vreewijk are the two neighbourhoods chosen within the district of Feijenoord, Rotterdam. The selected neighbourhoods comprise of an urban green space such as parks and comprise of highly diverse neighbourhoods.

In each neighbourhood, systematic sampling was used to select every 3rd household on each block of the buildings within the neighbourhoods. Convenience sampling has been used to select some household respondents who were present in their house when the survey has been distributed. Some residents in the neighbourhood were approached in the public places such as parks to increase the number of respondents. Households have been selected as the population of the research to increase the response rate and making it possible to have more than one adult in a household to answer the questionnaire.

A sample of 104 respondents were selected in each neighbourhood, for a total sample size of 208. The sample size was calculated by the formula for determining the sample size of the mean with confidence level of 90%, a standard deviation set at 0.5, and a margin of error of +/- 8%.

3.4. Validity and Reliability

The survey questionnaires used during data collection have been translated from English to Dutch language and pretested to some Dutch Erasmus students. The pre-test was conducted to ensure that the questionnaires used during field work were reliable. The questionnaires have been slightly modified to improve clarity, look and feel, organization, and understandability based on the pre-test feedback. The respondents were left to answer the questionnaire on their own during the conduct of the actual survey without the researcher's interference to refrain from biases. Only when the respondents asked for clarification did the researcher interfere. The Cronbach’s alpha coefficient has been applied to check the reliability of the scales used in the survey. Considering the validity of this research, the questionnaire applied the indicators and measurements from the previous studies.

3.5. Data Analysis Techniques

The collected data were analysed for statistical analysis using SPSS software version 26. The five-point Likert scale has been applied for this study. It used a scale from one being the lowest level up to five as the highest level. Descriptive statistics has been generated for the socio-demographic variables in the survey. Moreover, data aggregation has been performed to measure the variable from several indicators. Before the analysis is conducted, a reliability test or Cronbach’s alpha has been used to check the reliability of a scale consisting of different items. A value of greater than 0.7 has been proceeded for data aggregation and used for statistical analysis.

After the reliability of scales has been generated, several statistical analyses have been applied to answer the research questions. The descriptive statistics has been used in the study to analyse the socio-demographic characteristics of the sample survey respondents. The descriptive statistics has also been applied to answer the first sub research question. Frequency, percentages, mean scores, and summing up of same responds has been used to analyse the question. By doing this, the conditions of the urban green spaces have been known. Moreover, T-test has also been applied to determine the significant differences of the variables on selected neighbourhoods.

Correlation techniques have also been applied to answer the second sub research question. The Spearman's Rho correlation has been used to analyse the relationship between ordinal data. Moreover, the Pearson Product-Moment correlation has also been used to find the relationship between two continuous (interval) variables. The value of the correlation has been defined into three categories as suggested by Cohen (1998). These are small, medium, and large relationship. The small relationship ranges from 0.10 to 0.29. Medium relationship ranges from 0.30 to 0.49. Large relationship ranges from 0.50 to 1.0 (Pallant, 2007). The significance test has automatically been shown in the analysis describing the significance of the relationship of both variables whether the relationship is not randomly occurred.

3.6. Overview of the Research Areas

The research was conducted in two Rotterdam neighbourhoods, namely Hillesluis and Vreewijk. Hillesluis is located between the busy Breeweg, Colosseumweg, Hillevliet and Putselaan roads. There are four residential areas in Hillesluis: Walravenbuurt, Slaghekbuurt, Riederbuurt Noord and Riederbuurt Zuid. These areas are often defined by narrow roads scattered with green areas that are densely populated. Like other southern neighbourhoods in Rotterdam, Hillesluis was created at the start of the last century. Hillesluis has therefore always been a working-class neighbourhood due to the increasing demand for manpower in the ports at the start of the last century. Hillesluis has nearly 12,000 residents and 6,000 households as of 2015. The average educational and revenue rate is small compared to the remainder of the city. Hillesluis has plenty in children and multicultural. A significant proportion of the population has a distinct cultural background. There is plenty of room for sports, games and barbecues in the Colosseum Park and Varkenoordse park (Wijkprofiel Rotterdam, 2018).

Built in the 1980s, Varkenoordse Park is situated in Hillesluis neighbourhood, located in the Rotterdam South. The park contains a swamp with a walking platform, which can be seen up close the various native swamp plants. Moreover, the park also has playground and a petting zoo (Gemeente Rotterdam, n.d.).

Vreewijk in the south of the Feijenoord district is a green neighbourhood. It contrasts strongly with Vreewijk's surrounding metropolitan neighbourhoods. Vreewijk is Rotterdam's only garden village. High-rise neighbourhood structures are uncommon. Vreewijk has a population of over 13,500 and more than 7,000 households as of 2015. The green and comfortable atmosphere ensures that for a longer period they continue to live there, often even their entire lives. Most inhabitants are of origin in Rotterdam. The green Valkeniersweide ends in the beautiful Zuiderpark (Wijkprofiel Rotterdam, 2018).

Vreewijk neighbourhood has its own park, as if all the back gardens and canals are not enough. Valkeniersweide park, located in the middle of the neighbourhood between the Groene Hilledijk and Valkeniersweg. The park is close to home for the whole neighbourhood. Moreover, the park comprises of winding paths, play equipment and many outdoor art. The park is ideal for an evening stroll, sunbath, or to walk the dog or children (Wonen in Rotterdam, 2019).

Figure 4 Map location of the research areas

Source: Esri Online Base Maps, 2019

3.7. Overview of the Survey Respondents

The respondents of this survey were residents from the two selected neighbourhoods in Feijenoord District: Hillesluis and Vreewijk. A total of 146 responses were collected through face-to-face interview, and online method of the survey for over almost a month (from July 2019 – August 2019). From the 208 questionnaires distributed, the response rate is 70.19%. The Vreewijk neighbourhood had a slightly higher number of respondents than Hillesluis. Table 4 below shows the distribution of respondents who answered in several methods and locations within the neighbourhoods.

Table 4 Methods and location of survey respondents

Study Areas	**Hillesluis (Varkenoordse Park)**		**Vreewijk (Valkeniersweide Park)**	
Methods and locations of survey respondents	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Online	5	6.76	5	6.58
Parks	44	59.46	65	85.53
Mosque	15	20.27	1	1.31
Streets	10	13.51	5	6.58
Total	74	100	76	100

To sum up, the study included an equal number of male (73) and female (73) respondents. Hillesluis neighbourhood (37) has slightly higher number of male than Vreewijk. Nevertheless, there is a slightly higher number of females in the Vreewijk neighbourhood (38) than Hillesluis (35). The large number of respondents are 25 – 34 years (32.9%) age interval in the sample followed by 18 – 24 years old (25.3%) and 35 – 44 years old (22.6%). A few respondents from age group 55 – 64 years old (10.3%), 45 – 54 years old, and 65 and over were also included in the sample of the study. Some interesting feature of the age data is that young adults, whose ages are 18 – 39 are more representative sample of this study. The respondents are composed mostly of Dutch or Netherlands origin (43%), followed by Moroccans (15.1%), and Turkish (13%). There are also few representative samples of the study from Non-western (8.2%), Western (7.5%), Netherlands Antilles/Aruba (6.2%), Suriname (6.2%), and Cape Verde (1.4%). In terms of the highest educational attainment, majority of the respondents were educated up to primary professional/preparatory professional or MBO (49.3%). The number of respondents attaining higher education were also quite high. There are 28.1% of the respondents were educated up to the HBO or University level. A considerable number of respondents were just functionally literate or who have finished primary education (6.2%) and 2.7% of them were illiterates. Near about half of the total respondents (47.3%) have permanent job. Whereas, near about 15% of the respondents were students. The number of respondents with temporary job and self-employed were 11.6% and 8.9%, respectively. The majority of the respondents living in their current neighbourhood are within 1 - 10 years (39%), 11 - 20 years (19%), 21 – 30 years (16%), 31 – 40 years (10%), and less than a year (8%). Moreover, 22% of the respondents lives in Rotterdam for 1 – 10 years, 11 – 20 years (21%), 21 – 30 years (25%), 31 – 40 years (14%). On the frequency of use of their parks, 30% of the respondents

occasionally (every month but not every week) visit the park, 24% frequently (at least one time a week), 21% always (more than 3 times a week) use their park, and 9% never use their park within their neighbourhoods. Refer to Annex 2 for the demographic data of the survey respondents.

Chapter 4: Presentation of data and analysis

First, this section focused on the research findings using the survey questionnaire distributed during fieldwork in the two neighbourhoods sample respondents in the district of Feijenoord District, Rotterdam. In the review of results, descriptive statistics such as frequency, percentages, mean score, and standard deviation were applied. Inferential statistics were also used such as t-test, and correlation. This present step is helpful to obtain description and provide explanation of the conditions of urban green spaces that might support or hinder social cohesion. The preparatory study of the respondents' social cohesion with the conditions of urban green spaces is also essential. Secondly, scale evaluation has been analysed by applying the Cronbach's alpha measure. This portion is designed to determine the reliability of the scales used in data collection. Lastly, the final part of this section concentrated on analysing the relationship between the variables of social cohesion and the factors that influenced it within the conditions of the urban green spaces.

4.1. The Conditions of the Urban Green Spaces

This section discussed narratively the results of the quantitative study for the two selected neighbourhoods. Before discussing social cohesion, the conditions of urban green spaces were first presented in terms of free and accessible character, opportunity for social interactions, and contact of restorative nature. The objective of this description is to preliminary identify the conditions of urban green spaces in selected neighbourhoods in Feijenoord District, Rotterdam. The following conditions of urban green spaces were discussed as follows:

4.1.1. Free and Accessible Public Amenity

The respondents were asked if they agree or disagree with the following conditions of urban green spaces in terms of free and accessible public amenity within their neighbourhoods.

4.1.1.1. Green Space Proximity

Table 6 (Annex 3) shows that 61.6% of the total respondents strongly agreed and 22% of them agreed with the statement that the park is close to where they live. Exactly 13% of the respondents could not decide whether the park is close or far from their households. Whereas, 2.1% of the respondents strongly disagreed and 0.7% of them disagreed about the statement.

More than 84% or majority of the respondents' acceptance that the park is close to where they live indicates that there is an accessible or walking distance urban green spaces to the residents within the neighbourhoods. This also proves with a computed mean score of 4.42 (Table 25 of Annex 4).

In general, it can be seen that there are no significant differences of proximity among the selected neighbourhoods. Table 28 (Annex 5) shows that Hillesluis (4.51) has the lowest mean score of proximity, while Vreewijk (4.34) has the highest mean score of proximity.

To analyse the significant difference of proximity among the neighbourhoods, T-test procedure has been conducted. From the table 29 (Annex 6), the significant value is 0.210. This value is higher than p value (=0.05). Thus, it can be concluded that the level of proximity among these neighbourhoods is not significant.

4.1.1.2. Green Space Walkability

Table 7 (Annex 3) shows that large percentage of the respondents comprising 62.3% strongly agreed and 22.6% agreed with the statement that they can easily walk to the park. However, 13% of the respondents were undecided whether the park is walkable or not walkable. Nevertheless, 1.4% of the respondents disagreed and 0.7% of them strongly disagreed about the statement.

Near about 85% or majority of the respondent's approval of being able to walk easily to the park shows that the green space in the neighbourhoods are walkable. This also shows a computed mean score of 4.45 (Table 25 of Annex 4).

It can be seen that among the selected neighbourhoods, there are no significant differences in walkability. Table 28 (Annex 5) shows Vreewijk (4.38) has the lowest walkability mean score, while Hillesluis (4.51) has the highest walkability mean score.

However, the differences of walkability mean score among the selected neighbourhoods is not significant. From table 30 (Annex 6), it is indicated by the significant value of 0.321, derived from T-test, which is higher than p value of 0.05.

4.1.1.3. Green Space Safety

Table 8 (Annex 3) shows the perceived safety of the respondents. Based on the table, 33.6% of the respondents strongly agreed and 24.7% agreed with the statement that they feel safe in the park at any moment of day and night. It was also found that less of them (24%) were undecided whether they feel safe or not in the park. However, a very few of them strongly disagreed (3.4%) and disagreed (14.4%) in answering their perception of safety about the park.

Nearly 60% of the respondent's acceptance that they feel safe in any time of the day and night in the park indicates that the urban green spaces in the neighbourhoods are safe. This is also shown by a 3.71 computed mean score (Table 24 of Annex 4).

It can be seen that there are no significant differences in safety in the identified neighbourhoods. The table 28 (Annex 5) shows that Vreewijk (3.55) has the lowest mean score for safety, while Hillesluis (3.55) has the highest mean score for safety.

Nonetheless, the difference between the selected neighbourhoods in safety mean score is not significant. The significant value of 0.115, obtained from the T-test, which is higher than the p value of 0.05, is shown from the table 31 (Annex 6).

4.1.2. Place for Social Interaction

In terms of place for social interaction in their neighbourhoods, respondents were asked whether they agree or disagree with the following conditions for urban green spaces.

4.1.2.1. Park Design

In particular, it can be seen that in the selected neighbourhoods, there is a significant difference in park design. The table 28 (Annex 5) shows that Hillesluis (3.50) has the highest park design mean score while Vreewijk (3.21) has the lowest park design mean score.

From the table 28 (Annex 5), the significant value is 0.014. The value is lower than p value (=0.05). Thus, it can be concluded that the level of park design among those selected neighbourhood is significantly different.

4.1.2.1.1. Green Space Shared Activities

The respondents were asked if they find the park attractive because they can do their favourite activities with other people of shared interest. The data presented in table 9 (Annex 3) shows that 26.7% of the respondents agreed and 19.2% strongly agreed with the statement. It was also found that 34.2% of the respondents were undecided in answering their perception about the statement. However, 10.3% of the respondents disagreed and 9.6% of them strongly disagreed with the statement.

About half (45.9%) of the total sample respondent's acceptance by finding the park attractive because they can perform activities with other people of shared interest indicates that there are shared activities available in the urban green spaces of the neighbourhoods. This is also shown by a mean score of 3.36. (Table 26 Annex 4).

4.1.2.1.2. Green Space Variation in Activities

The respondents have been asked if they consider the park pleasant as it provides a range of leisure activities. The data in the table 10 (Annex 3) shows that 31.5% of the respondents agreed and 24% of them strongly agreed about the statement. Noticeably, 31.5% of them were unsure whether they find the park pleasant for offering them variety of leisure activities. Nonetheless, a very few of the respondents disagreed (9.6%) and strongly disagreed (3.4%) about the statement.

More than 55% of respondents agreed that the park offers a ranges of leisure activities, indicating that there are variations in urban green space activities. The mean score of 3.63 indicates this as well. (Table 26 Annex 4).

4.1.2.1.3. Green Space Variation in Facilities

The respondents were asked if they found the park attractive as it offers a range of facilities available. The table 11 (Annex 3) shows that 29.5% of the respondents agreed and 24% of them strongly agreed about the statement. Hence, 28.8% of the respondents could not decide whether they find the park enticing or not. However, a very few of the respondents disagreed (9.6%) and strongly disagreed (3.4%) about the statement.

Nearly about 55% (53.5%) of the respondents acknowledged that the park is enticing for them because of the range facilities available indicates that there is variation in facilities of the green spaces. This is also shown by the mean score of 3.63. (Refer to Table 26 of Annex 4).

4.1.2.1.4. Green Space Open Park Design Encouraging Active Recreational Activities

The respondents were asked if the park has an open character that encourages active recreational activities. It is evident from the table 12 (Annex 3) that 26% of the respondents agreed and 22.6% of them strongly agreed about the statement. Hence, 32.9% were unsure whether the park has an open character or not. However, 11.6% of the respondents disagreed and 6.8% of them strongly disagreed with the statement.

Almost half of the total respondents (48.6%) agreed that the park has an open character that stimulates them to be in active recreational activities indicates that the park has an open character design encouraging active recreational activities. The mean score of 3.46 also indicates this. (Refer to Table 26 of Annex 4).

4.1.2.1.5. Green Space Maintenance and Cleanliness

The respondents have been asked whether they consider the park pleasant because it is well-maintained and clean. The data presented in Table 13 (Annex 3) indicates that 28.8% of respondents agreed on the claim and 16.4% strongly agreed on it. Whereas, 32.9% of them, though referring to their interpretation of the claim, are undecided. However, 16.4% of the respondents disagreed, and 5.5% of the respondents strongly disagreed.

More than 45% of respondents agreed that the park is pleasant, meaning it is well maintained and cleaned. This is also shown by the mean score of 3.34. (Refer to Table 26 of Annex 4).

4.1.2.1.6. Green Space Available Sidewalks

The respondents were then asked if the parks had sidewalks accessible to facilitate leisure activities. The data presented Table 14 (Annex 3) indicates that 37% of respondents agreed and

17.1% strongly agreed with the statement that the park has accessible sidewalks that facilitate leisure activities. In the meantime, 33.6% of respondents were indifferent to whether or not the parks had sidewalks available. However, 10.3% of respondents disagreed and 2.1% strongly disagreed with the claim.

Approximately 55% of the respondents acknowledged that the park promotes leisure activities shows that there are sidewalks available for urban green spaces in their neighbourhoods. This is also shown by the mean score of 3.57. (Table 27 of Annex 4).

4.1.2.1.7. Green Space Shaded Areas Supporting Relaxing Environment

The respondents were asked if they consider the park as appealing because it is shaded by trees where they can spend time with family and friends. The data presented in Table 9 (Annex 3) indicates that 37% of respondents agreed and 17.1% of respondents agreed strongly with the claim. Thus 32.2% of them were undecided in response to their perception of the shaded areas that help relaxing surroundings. Nonetheless, 9.6% of them disagreed with the claim and 4.1% strongly disagreed.

Approximately 55% of respondents who indicated that the park is appealing and could spend time with family and friends say that the park has shaded areas that support pleasant surroundings. The mean score of 3.53 indicates this as well. (Table 27 of Annex 4).

4.1.2.1.8. Green Space Availability of Organized Activities

The respondents were asked if there are free activities taking place in the park bringing together people to meet and socialize. From the table 16 of Annex 3, 28.8% of respondents strongly disagreed and 18.5% disagreed with the statement that free events are offered in the park bringing people together to meet and socialize. While, 26% of them have been unclear whether there are programs free of charge or none. Nevertheless, the claim was strongly agreed by 16.4% of them and 10.3% of them.

More than 45% of the respondent's refusal to admit any free activities in the park suggests that organized events in the urban green space are unavailable. This is also shown by the mean score of 2.61.(Table 27 of Annex 4).

4.1.2.1.9. Green Space Likeability of the Park Design

The respondents were asked if they like their neighbourhood park design. From the table 17 of Annex 3, it is clear that 32.2% of respondents agreed and 15.8% strongly agreed with the statement that they like the design of the park. Hence, 38.4% of them were unsure whether or not they liked the design of the park. Nonetheless, 11.6% of them strongly disagreed and 2.1% of them disagreed with the statement.

Near about half of the total respondents agreed that they like the park design generally. The mean score of 3.48 indicates this as well. (Table 27 of Annex 4).

4.1.2.1.10. Green Space Likelihood of Providing Suggestions for Improvements About the park

The respondents were asked if they could have suggestions on how the design of the park could be further improved. This indicates from the table 18 of Annex 3, 19.2% of respondents disagreed strongly and 14.4% of respondents agreed with the claim. Hence, 32.9% of them were undecided whether they could provide suggestions to further improve the park design. However, 20.5% of the respondents strongly agreed and 13% of them agreed about the statement.

Nearly one-third of the respondents' agreement, disagreement, and neutrality on the claim. This indicates that the respondents were undecided about having suggestions on improvement of the park design. The computed mean score of 3.01 indicates this as well. (Table 27 of Annex 4).

4.1.3. Relieve stress and mental fatigue

The respondents were asked if which of the following physical activities they undertake in the park.

4.1.3.1. Physical Activity

In general, it can be seen that there is a significant difference of physical activities in the selected neighbourhoods. Table 28 of Annex 5 shows that Hillesluis has the highest physical activity mean score while Vreewijk has the lowest physical activity mean score.

From the table 33 of Annex 6, the significant value is 0.036. The value is lower than value (=0.05). Thus, it can be concluded that the level of physical among those selected neighbourhood is significantly different.

4.1.3.1.1. Doing sports/exercise

From the table 19 of Annex 3, it is evident that majority or 40.4% of the respondents never and 14.4% of them almost never doing sports/exercise in the park. Whereas in the park, 24.7% of respondents occasionally/sometimes do sports/exercise in the park. There are also few respondents who almost everytime (9.6%) and evertyime (11.0%) doing sports/exercise in the park. Therefore, the majority of the respondents or 54.5% of them never doing sports/exercise in the park.

4.1.3.1.2. Taking a walk

Based on the table 20 (Annex 3), most respondents never walk in the park (30.1%) and almost never (11%). Hence, 26.7% of respondents walk in the park occasionally sometimes. Nonetheless, almost every time 17.1% of respondents and 15.1% of respondents take a walk in the park. Therefore, most of the respondents almost never walk in the park.

4.1.3.1.3. Walking a dog

It is evident that majority of respondents never (75.3%) and almost never (5.5%) walk their dogs in the park. Hence, 9.6% of the respondents everytime and 2.1% of them almost everytime walked their dog in the park. A very few of them occasionally/sometimes (7.5%) walk their dog in the park. Therefore, majority of the respondents never walk their dog in the park. (Table 21 of Annex 3).

4.1.3.1.4. Socializing

It is clear from table 22 (Annex 3) that most respondents never socialized in the park (40.4%) and almost never (14.4%). Hence, 20.5% of the respondents occasionally/sometimes socialized in the park. A very few of them everytime (7.5%) and almost everytime (9.6%) socialized in the park. Therefore, majority of the respondents never socialize in the park.

4.1.3.1.5. Playing with children

From the table 23 (Annex 3), it is evident that majority of the respondents never (48.6%) and almost never (4.8%) playing with their children in the park. Hence, 19.2% of the respondents everytime and 11% of them almost everytime playing with their children in the park. A very few of them occasionally/sometimes (16.4%) playing with their children in the park. Therefore, majority of the respondents never play with their children in the park.

4.1.3.1.6. Gardening

From the table 24 (Annex 3), it is evident that majority of the respondents never (80.1%) and almost never (4.1%) do gardening in the park. Hence, 4.8% of the respondents almost everytime and 4.1% of them everytime gardening in the park. A very few of them occasionally/sometimes (6.8%) gardening in the park. Therefore, majority of the respondents never do gardening in the park.

4.2. The Social Cohesion in the Selected Neighbourhoods

This section describes the level of social cohesion domains in the selected neighbourhoods of Feijenoord District, Rotterdam. The purpose of this description is to preliminary identify

whether the conditions of urban green spaces influence the level of social cohesion of the respondents in the selected neighbourhoods.

The respondents have been asked about their local area and their neighbours if they agree or disagree with the following statements. Refer to Annex for the questions.

4.2.1. Social Relations

4.2.1.1. Social Networks

This variable was measured by a scale using three items asking the respondents if they agree or disagree with the statements. Refer to Annex 1 for the statements.

In the table 28 (Annex 5), it shows that social networks have the higher mean score in Hillesluis (3.17) neighbourhood than Vreewijk (2.84) neighbourhood.

In general, it can be seen that there is a significant difference of social networks among those two neighbourhoods within the urban green space. Table shows that Hillesluis has higher mean score of social networks as compared to Vreewijk.

To analyse the significance of difference of social networks among neighbourhoods, T-test procedure has been conducted. From the table, the significant value is 0.049. This value is lower than value (=0.05). Thus, it can be concluded that the level of social networks among those neighbourhoods is significantly different (Table 34 Annex 6).

4.2.1.2. Trust

The table 28 (Annex 5) shows that the mean score of trust among neighbourhoods for both Hillesluis and Vreewijk is 2.79 and 2.65, respectively. Hillesluis had the higher mean score of trust than Vreewijk.

However, the difference of mean score for trust among the two neighbourhoods is not significant. It is indicated by the significant value 0.515, derived from T-test, which is higher than p value (=0.05). (Table 34 of Annex 6).

4.2.1.3. Mutual Tolerance/Acceptance of Diversity

From the table 28 (Annex 5), it can be seen that Hillesluis (3.38) has the highest mean score of mutual tolerance or acceptance of diversity than Vreewijk (2.96).

The difference of mean score among neighbourhoods these neighbourhoods is significant as can be seen on the table. The significant value of this difference is 0.021, which is lower than p value (=0.05). (Table 35 Annex 6).

4.2.1.4. Participation or civic engagement

From the table 28 (Annex 5), it can be seen that Hillesluis (3.21) has the highest mean score of participation or civic engagement than Vreewijk (3.18).

The difference of mean score among neighbourhoods is in insignificant as can be seen on the table. The significant value of this difference is 0.869, which is higher than p value (=0.05). (Table 36 Annex 6).

4.2.2. Attachment/Belonging (Place Attachment)

4.2.2.1. Place Dependence (Functional Attachment)

From the table 28 (Annex 5), it can be seen that Hillesluis (3.47) has the highest mean score of place dependence than Vreewijk (3.12).

The difference of mean score among neighbourhoods is insignificant as can be seen on the table. The significant value of this difference is 0.042, which is lower than p value (=0.05). (Table 37 Annex 6).

4.2.2.2. Place Identity (Emotional Attachment)

From the table 28 (Annex 5), it can be seen that Hillesluis (3.03) has the highest mean score of place dependence than Vreewijk (2.68).

The difference of mean score among neighbourhoods is insignificant as can be seen on the table. The significant value of this difference is 0.109, which is higher than p value (=0.05). (Table 38 Annex 6).

4.2.3. Orientation Towards the Common Good

4.2.3.1. Solidarity

From the table 28 Annex 5, it can be seen that Hillesluis (30. has the highest mean score of solidarity than Vreewijk.

The difference of mean score among neighbourhoods is insignificant as can be seen on the table. The significant value of this difference is 0.089, which is higher than p value (=0.05). (Table 39 Annex 6).

4.2.3.2. Acceptance of and compliance to the social order and social rules

From the table 28 Annex 5, it can be seen that Hillesluis (3.29) has the highest mean score of acceptance and compliance than Vreewijk (3.09).

The difference of mean score among neighbourhoods is insignificant as can be seen on the table. The significant value of this difference is 0.334, which is higher than p value (=0.05). (Table 40 Annex 6).

4.3. The Relationship of the conditions of urban green spaces with social cohesion

Based on the descriptive scenario regarding the investigation of the above-mentioned conditions of urban green spaces, this section is discussing the relationship between social cohesion and the factors that might influence social cohesion such as accessibility, park design, and physical activity conditions. Using correlation analysis, the relationship was evaluated.

Some variables have been converted into categorical / interval type variable in order to execute the computations since correlation analysis only handles both interval information, or one of them is categorical data. The two outputs of the correlation analysis are the coefficient of correlation and the important value. The correlation coefficient indicates the relationship strength, ranging from -1 to + 1, while the significant value defines the relationship whether the relationship between the two factors is significantly related.

The study focused on the relationship of the variables that are significant either high or low correlation coefficient.

The following analysis of relationships is outlined below in relation with social cohesion domains: social relations, attachment/belonging, and orientation towards the common good.

4.3.1. Social Relations

In terms of the green spaces' free and accessible public amenity using the accessibility variable, safety is the only variable which significantly relate with social relations. Proximity and walkability variables are not significantly related with social relations. It seems that the process of proximity and walkability happened randomly within the neighbourhoods. The relationship of safety and social relations is considered medium, referring to their correlation coefficient of 0.341. The positive relationship between safety and social relations shows that an increasing

value of safety will increase social relations, and vice versa. The respondents living in Hillesluis neighbourhood have more positively influence to their social relations, and the safer urban green space will positively build social relations. It also implies that a safer urban green space has more interactions of a group with its members as well as the people will stay in the group.

In relation with place for social interaction, the park design is significantly correlated with social relations. Their relationship is considered medium with a coefficient of 0.494. The positive relationship between them both indicates that increasing park design value will increase social relations, and the other way around. This also means that a better design of the park would promote interaction among different groups, whether religious, racial, or groups with a particular lifestyle or sexual orientation.

With the stress reliever condition of the green space, the physical activity is also significantly related with social relations with a coefficient correlation of 0.397, and considered medium relationship. This implies that frequent physical activity in the park will establish social relations. All the factors of physical activity in urban green space significantly relate social relations, except for walking a dog in the park. The physical activity through socializing in the green space gives more degree of relationship with place attachment. Socializing has the highest coefficient of relationship among the other factors. This is regarded as medium relationship, with a coefficient correlation of 0.424. This is implied that the more socialization in the green space, the more social relations will establish. Refer to Table 49 of Annex 7

4.3.1.1. Social Networks

The condition of accessibility through safety gives more degree of relationship with social networks than those of the other accessibility variable. Only the safety has the significant relationship with social networks. It has a coefficient correlation of 0.304 and considered medium relationship. It implies that a safer urban green space has the tendency to have better quality time and more social interactions among the family members, friends as well as acquaintances.

In terms of the place for social interaction, the park design is significantly related with the social networks (0.540). It is considered a large relationship. The positive relationship between the two variables indicates that increasing the value of park design will increase social networks. All of the indicators of park design are significantly related with social networks. The likelihood of providing suggestions for improvements about the park had the highest coefficient of relationship among all indicators of park design, and regarded as medium relationship with coefficient correlation of 0.437. Moreover, variation in activities is also significantly correlated with social networks. It is true that the more variety of activities in the green space gives better and more social interactions among friends, family members, and acquaintances.

The physical activity is positively correlated with social networks. It has the coefficient correlation of 0.374, and considered medium. All the indicator for physical activities were

positively related with social networks, except for walking a dog. The socializing in the green space has the highest coefficient with regards to social relations. It has a coefficient correlation of 0.429, and considered medium relationship. Refer to Table 50 of Annex 7

4.3.1.2. Trust

Only the safety aspect is significantly positively correlated with trust. The safety and trust have the correlation coefficient of 0.208, which is considered small. This implies that a safer green space would establish trust among other people.

The park design is positively correlated with trust, with a coefficient correlation of 0.246 and considered small. The likeability of the park designs mostly influence trust. The other factors of park design that are significantly related with trust are shared activities, maintenance and cleanliness, shaded areas supporting relaxing environments, and availability of organized activities. These aforementioned factors have small relationship with trust.

The physical activities in green space has small positive relationship with trust and has correlation coefficient of 0.224. The socializing in green space has the most influence with trust having a correlation coefficient of 0.274, and considered small. The other aspects that affects trust are taking a walk, playing with children, and gardening. Refer to Table 51 of Annex 7

4.3.1.3. Mutual Tolerance/Acceptance of Diversity

In terms of accessibility, only the safety is significantly relating to mutual tolerance/acceptance of diversity. It has small relationship with correlation coefficient of 0.255.

The park design is positively correlated with mutual tolerance/acceptance of diversity with coefficient correlation of 0.257, considered as small relationship. All the aspects of park significantly correlated with mutual tolerance/acceptance of diversity except for maintenance and cleanliness. The likeability of park designs mostly influence mutual tolerance/acceptance of diversity.

It is positively correlated with mutual tolerance acceptance of diversity with respect to physical activity, with a correlation coefficient of 0.280. It is considered small relationship between the two variables. All the factors of physical activities are significantly relating with mutual tolerance/acceptance of diversity except walking a dog. Socializing in urban green space significantly influence mutual tolerance/acceptance of diversity among other factors. Refer to Table 52 of Annex 7

4.3.1.4. Participation or civic engagement

It is found that there is no aspect of accessibility that are significantly related with participation or civic engagement. The process of participation and civic engagement within the neighbourhoods seems to happen randomly.

The park design is positively correlated with participation or civic engagement. It has a small positive relationship with a correlation coefficient of 0.231. Among the aspects of park design, shared activities, availability or organized activities, likeability of the park design, and likelihood of providing suggestions for improvements about the park significantly correlates with participation or civic engagement. The likelihood of providing suggestions for improvements about the park gives more degree of relationship with participation or civic engagement having a small positive relationship of 0.235 correlation coefficient.

The physical activity is not positively correlated with participation or civic engagement. Only the aspect of doing sports/exercise is significantly related with participation or civic engagement. The relationship is considered small since the correlation coefficient is only 0.238. Refer to Table 53 of Annex 7

4.3.2. Attachment/Belonging (Place Attachment)

4.3.2.1. Place Dependence (Functional Attachment)

In relation with accessibility, only the safety is positively correlated with place dependence. By having a correlation coefficient of 0.323 and regarded as small relationship.

The park design is positively correlated with place dependence with a correlation coefficient of 0.516. This is regarded as large relationship. All the aspects of park design significantly correlates with place dependence, except likelihood of providing suggestions for improvements about the park. The likeability of the park design is the highly influential to place dependence among the other aspects of park design, followed by variation in facilities. It has a correlation coefficient of 0.457 and 0.431, respectively, and both considered as medium relationship.

The physical activity is positively correlated with place dependence, having a correlation coefficient of 0.306, and regarded as small relationship. The socializing in urban green space were considered as most influential with regards to place dependence. It has a correlation coefficient of 0.294, considered as small relationship. The other aspects of physical activities that are also positively related to place dependence are doing sports/exercise, playing with children, and gardening. Refer to Table 54 of Annex 7

4.3.2.2. Place Identity (Emotional Attachment)

Only the safety is positively correlated with place identity in relation to accessibility. It has a small positive relationship, which comprise of 0.183 correlation coefficient.

While park design is also positively correlated with place identity by having a correlation coefficient of 0.465 and considered as medium relationship. All the aspects of park design are positively correlated with place identity. The shaded areas supporting relaxing environments

and shared activities mostly influence the place design. These aspects have a correlation coefficient of 0.393 and 0.392, respectively, and both are medium relationship.

The physical activity in green space is significantly correlated with place identity. It has a correlation coefficient of 0.289, which considered as small relationship. The aspects that also significantly relates with physical activity are doing sports/exercise, socializing, playing with children, and gardening. Among these aspects, the socializing has the most influence to place identity among the others with a correlation coefficient of 0.238, and considered small relationship. Refer to Table 55 of Annex 7

4.3.3. Orientation Towards the Common Good

4.3.3.1. Solidarity

Among the aspects of accessibility, it is found that no aspects of accessibility significantly relate with solidarity.

The park design is significantly correlated with solidarity, with a correlation coefficient of 0.392 and it is considered as medium relationship. Almost majority of the park design factors significantly relates with solidarity, except for variation in facilities and availability of sidewalks. The shared activities and availability of organized activities are the most influential factors that influence solidarity with a correlation coefficient of 0.335 and 0.333, and both considered medium relationship.

In terms of physical activity, it does not correlate with solidarity. Among the factors of physical activity, only the doing of sports/exercise that significantly relates with solidarity. It has a small relationship and consist of 0.197 correlation coefficient. Refer to Table 56 of Annex 7

4.3.3.2. Acceptance of and compliance of the social order and social rules

In relation with accessibility variable, only safety is significantly correlated with acceptance of and compliance to the social order and social rules. It considered as a small relationship with correlation coefficient of 0.431.

In terms of the park design, it is significantly correlated with acceptance of and compliance of the social order and social rules. By having a correlation coefficient of 0.365, it is considered as a small relationship. Almost all of the factors of park design significantly relates with acceptance of and compliance of the social order and social rules, except for the availability of sidewalks as well as availability of organized activities. The variation in facilities is the most influential aspect that significantly relates with acceptance of and compliance of the social order and social rules.

In terms physical activity, it is significantly correlated with acceptance of and compliance of the social order and rules. Doing sports/exercise gives more degree of relationship with acceptance of and compliance of the social order and social rules. It has the highest coefficient of relationship among all factors (0.289), and considered as small relationship. Refer to Table 57 of Annex 7

Chapter 5: Conclusions and recommendations

5.1. Conclusion

The research determined the influence of green spaces in an urban area on the social cohesion of ethnically diverse residents in selected neighbourhoods in the city of Rotterdam. The conditions of the urban green spaces and the social cohesion framework were adopted in the conceptual framework to guide the study. According to the literature review, urban green spaces in socially excluded areas can enhance community cohesion and individuals' inclusion in society in different ways. These ways were considered as the conditions of the urban green spaces that influence social cohesion. The research used descriptive statistics and an inferential statistic such as T-test to identify the conditions of green space in the selected neighbourhoods. A correlation analysis was also used to explain which of these conditions of urban green spaces in selected neighbourhoods supports or hinders social cohesion.

Based on the conceptual framework, the research has main hypothesis that were tested and are answered in the conclusion:

Ho: The conditions of urban green space in terms of free and accessible public amenity, place for social interaction, and stress reliever hinders social cohesion.

Ha: The conditions of urban green space in terms of free and accessible public amenity, place for social interaction, and stress reliever supports social cohesion.

The concept of social cohesion itself and its domains are described: social relations, attachment/belonging (place attachment), and orientation towards the common good.

5.1.1. The Conditions of the Urban Green Space in the city of Rotterdam

This section attempted to answer the first sub question: what are the conditions of urban green spaces in Feijenoord District, Rotterdam in terms of free and accessible public amenity, providing space for social interaction, and relieving stress and mental fatigue? The question was aimed to identify the aforementioned conditions of urban green space in the selected neighbourhoods.

5.1.1.1. Green Spaces: Free and accessible public amenity

In terms of the accessibility, the availability of green spaces in the proximity, walkability, and safety of respondents' neighbourhood was investigated. The results of these factors are brought together in order to answer the functioning of green spaces in Rotterdam as free and accessible public amenity.

The various aspects of accessibility related to green spaces were examined using the results from the survey questionnaire. The majority of the respondents among the neighbourhoods lived within a walking distance (proximity) from a green space. Moreover, most of the respondents often lived within a walkable green space. Finally, most of the respondents often stayed in a safe green space. These three variables of accessibility such as proximity, walkability, and safety are not significantly different among the two selected neighbourhoods. The accessibility process within the neighbourhoods seems to occur by random chances.

5.1.1.2. Green Space: Place for social interaction

In terms of the park design, as green spaces' place for social interaction, the result of the of the study shows that there are shared activities among the neighbourhoods' green spaces. It also includes variety in activities, variation in facilities, open park design encouraging active recreational activities, green space maintenance and cleanliness, availability of sidewalks in green space, shaded areas supporting relaxing environments, likeability of the park design, and likelihood of providing suggestions for improvement about the park. Only the availability of organized activities in green space is lacking among the neighbourhoods. It is found that the level of park design among the neighbourhoods are significantly different. The level of park design within each neighbourhood can be regards as having a moderate level. The open park design encouraging active recreational activities and likeability of the park design seems the cause beyond this changes or differences between park design of the neighbourhoods' green spaces. Jennings and Bamkole in Peters (2010) have identified open park design to encourage active recreational activities are the factors that may relate urban green spaces to social interactions. Moreover, with regards to the likeability of the park design, the presence of trees, shrubs, grasses seem to cause the park design differences among the neighbourhoods.

5.1.1.3. Green Space: Relieve Stress and Mental Fatigue

Based on the result of the study, most of the respondents never undertake physical activities in the green space such as doing sports/exercise, taking a walk, walking a dog, socializing, playing with children, and gardening. Having these conditions, it is found the physical activities among the neighbourhoods is significantly different. However, the level of physical activities within each neighbourhood is considered low. The taking a walk in the park, and socializing in the urban space seems the cause beyond the changes or differences between the physical activities of the neighbourhoods' green spaces.

5.1.2. The Relationship of the conditions of green spaces to social cohesion

This section attempted to answer the second sub research question: how do these conditions of urban green spaces support or hinder social cohesion? The question was aimed to explain which of these conditions of urban green spaces in selected neighbourhoods supports or hinders social cohesion.

The result of the study shows that accessibility significantly relate with social relations. Only the safety significantly correlated with social relations. Safety has medium and positive relationship with social relations. This implies that positive relationship between safety and social relations shows that an increasing level of safety in the green space will increase social relations, and vice versa. It is true that safety determine whether an environment will effectively be visited by individuals (Van Herzele and Wiedemann, 2003).

Aside from accessibility, park design is also significantly correlated with social relations having a medium relationship. The positive relationship between park design and social relations, indicates that increasing value of park design will increase social relations. It also means that a better park design shall encourage interaction among groups.

With regards to the stress reliever condition of the green space, the physical activity is also correlated with social relations and considered medium relationship. This implies that frequent physical activity in the park will establish social relations. All the factors of physical activity in urban green space significantly relate social relations, except for walking a dog in the park. The physical activity through socializing in the green space gives more degree of relationship with place attachment. Socializing has the highest coefficient of relationship among the other factors. This is implied that the more socialization in the green space, the more social relations shall establish.

In relation with accessibility of the green space, safety is significantly correlated with place dependence. A safer green space is related with place dependence. The park design is positively correlated with place dependence. Having a high value of park design have a large, positive and significant relationship with place dependence. The physical activity is positively correlated with place dependence. The socializing in urban green space were considered as most influential with regards to place dependence. With socialization happening in the green space is significantly related with place dependence.

In terms of place identity, safety has small, positive significant relationship. It implies that a safer green space brings identification to the specific neighbourhood. Park design is also significantly positive relationship with place identity. A green space defined with having shared activities is related with place identity. In relation with physical activities, it also significantly relates with place identity. A green space with high level of socialization bring place identity in the neighbourhoods.

No aspect of accessibility is significantly related with solidarity. It seems the process of accessibility in the neighbourhood happened by any chances. Park design is significantly related with solidarity. A high level of shared activities in the green space relates with solidarity. In terms of physical activity, only doing the sports/exercise relates with solidarity.

Safety significantly relates with acceptance and compliance to the social order and social rules.

Park design also significantly relates with acceptance and compliance to the social order and social rules. Physical activity significantly relates with acceptance and compliance to the social order and social rules.

5.2. Recommendations for policy

Since safety was the only significant accessibility variable that significantly relates with several domains of social cohesion, improvements of safety should be targeted. Install CCTV cameras and the presence of park warden is needed to monitor the security of the green space.

Based on the aspects of park design which are most significant to the social cohesion domains, improving the social interactions with the residents can be increased by shared activities, variation in activities and facilities, open park design encouraging active recreational activities, improve maintenance and cleanliness, and availability of park design.

For the physical activity in the green space, improve the venue for doing sports/exercise, for walking and socializing. These were the activities in the green space that significantly relates with social cohesion.

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Annex 1: Research Instruments and Time schedule

A. Survey Questionnaire for Hillesluis Neighbourhood (English)

Survey Questionnaire for the Residents in Hillesluis Neighbourhood (English Version)

Introduction and Informed Consent

Dear Madam/Sir,

Good day! I am Adrian P. De Jesus from the Institute for Housing and Urban Development Studies (IHS) - Erasmus University Rotterdam (EUR). As part of our requirement in MSc. Master Course in Urban Management and Development – I am now conducting a research study on the urban green space and social cohesion in Rotterdam entitled "Urban Green Space and Social Cohesion in Highly Diverse Neighbourhood."

In line with this, I would like to ask any member of your household, 18 years old and above to completely fill-in this questionnaire. You may also find the questionnaire by following the link below or scanning the code. It should take no longer than 10 minutes to complete. Please feel free to contact me on 0687014674 or apdejesus1@gmail.com should you have questions about the questionnaire.

Rest assured that your answers and all the information will be used only in the study and will remain confidential.

Thank you very much for your time and cooperation.

About You

Instructions: Please answer the questions by ticking the correct box or by providing the information requested.

1. What is your sex? Please tick (✓) one box.

   ☐ Male ☐ Female

2. What is your age? Please tick (✓) one box.

   ☐ 18 - 24
   ☐ 25 - 34
   ☐ 35 - 44

☐	45 - 54
☐	55 - 64
☐	65 and over

3. Which Ethnic group do you originate from? Please tick (✓) one box.

☐	Netherlands	☐	Morocco
☐	Netherlands Antilles/Aruba	☐	Cape Verde
☐	Suriname	☐	Western
☐	Turkey	☐	Non-western

Others (please specify): _____

4. What is your highest level of education attained? Please tick (✓) one box.

☐	No studies
☐	Primary education
☐	Primary professional or preparatory professional
☐	Secondary education (HAVO)
☐	Secondary education (VWO)
☐	HBS, lyceum, athenaeum
☐	HBO or university

Others (please specify): _____

5. What is your employment status? Please tick (✓) one box.

☐	Unemployed
☐	With temporary job
☐	With permanent job
☐	Housewife
☐	Student
☐	Unable to work due to illness
☐	Retired
☐	Self-employed

6. How long have you been living in your current neighbourhood?

☐	Less than 1 year
☐	1 - 10 years
☐	11 – 20 years
☐	21 – 30 years
☐	31 – 40 years
☐	41 – 50 years
☐	51 – 60 years
☐	61 and over

7. How many years have you lived in the city of Rotterdam?

	Less than 1 year
	1 - 10 years
	11 – 20 years
	21 – 30 years
	31 – 40 years
	41 – 50 years
	51 – 60 years
	61 and over

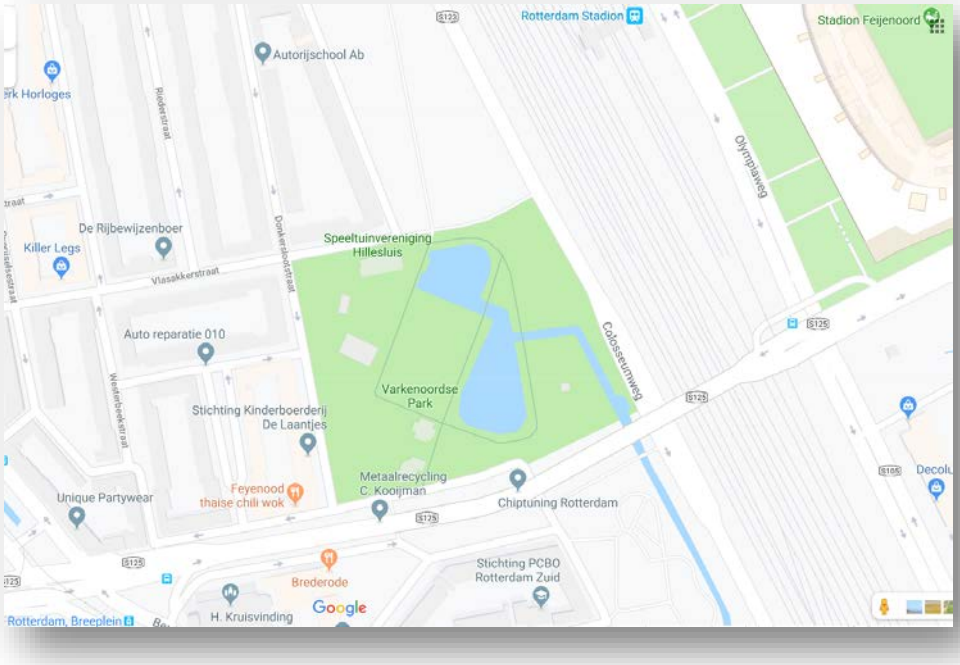
About Varkenoordse Park

Please tell us about the conditions of **Varkenoordse Park** in your neighbourhood. A map of the **Varkenoordse Park** in your neighbourhood is provided.

Urban green spaces, such as **Varkenoordse Park** can influence social cohesion in neighbourhoods. I would like to know your opinion about the conditions of your local park through this survey form.

The answers to the questions will remain anonymous so your honest opinions will be appreciated.

Map of Varkenoordse Park located in Hillesluis neighbourhood



Instructions: Please answer the questions by ticking the correct box on the information requested.

8. How **frequently** do you use Varkenoordse Park in your neighbourhood? Please tick (✓) one box.

☐	Never
☐	Seldom (Not every month but at least once a year)
☐	Occasionally (Every month but not every week)
☐	Frequently (At least one time a week)
☐	Always (More than 3 times a week)

Which of the following activities do you undertake in the park?	***Survey Scale**: 1 = Never; 2 = Almost Never; 3 = Occasionally/Sometimes; 4 = Almost Everytime; 5 = Everytime*				
	Never	**Almost Never**	**Occasionally/ Sometimes**	**Almost Everytime**	**Everytime**
Example: Please encircle one.	**1**	**2**	**3**	**4**	**(5)**
9. Doing sports/exercise	1	2	3	4	5
10. Taking a walk	1	2	3	4	5
11. Walking a dog	1	2	3	4	5
12. Socializing	1	2	3	4	5
13. Playing with my children	1	2	3	4	5
14. Gardening	1	2	3	4	5

15. How long do you stay in Varkenoordse Park? Please tick (✓) one box.

☐	Less than 30 minutes
☐	30 minutes – 1 hour
☐	Between 1-3 hours
☐	More than 2 hours

Instructions: Do you ***AGREE*** or ***DISAGREE*** with the following statements? On a scale of **1** (***Strongly Disagree***) to **5** (***Strongly Agree***), indicate the extent to which each statement applies to your situation. Encircle (O) the correct numeric response that best describes your opinion on each statement below.

	***Survey Scale**: 1 = Strongly Disagree; 2 = Disagree; 3 = Neither agree or disagree; 4 = Agree; 5 = Strongly Agree*				
	Strongly Disagree	***Disagree***	***Neither agree or disagree***	***Agree***	***Strongly Agree***
About your local park					
16. This park is close to where I live.	1	2	3	4	5
17. I can easily walk to this park.	1	2	3	4	5
18. I feel safe in this park in any time of the day and night.	1	2	3	4	5
19. This park is attractive to me because I can do my favourite activities with other people of shared interest (e.g. soccer, football, basketball, etc.)	1	2	3	4	5
20. This park is pleasant for me because it offers variety of leisure activities (e.g. walking, cycling, meeting other people, etc.).	1	2	3	4	5
21. This park is enticing for me because it has range of facilities available (e.g. bikeways, dog areas, sports facilities, playgrounds, toilets, and picnic areas).	1	2	3	4	5
22. This park has an open character that stimulates active leisure activities (e.g. football, skating, etc.).	1	2	3	4	5
23. This park is pleasant for me because it is well-maintained and clean.	1	2	3	4	5
24. This park has available sidewalks that encourage leisure activities.	1	2	3	4	5

25. This park is attractive to me because there are shaded areas of the trees where I can spend my time with family and friends.	1	2	3	4	5
26. There are free of charge activities held in this park bringing people together to meet and socialize (e.g. free concerts, movies, yoga class, etc.).	1	2	3	4	5
27. In general, I like the park design (e.g. variety and number of trees, shrubs, grass, paths, etc.)	1	2	3	4	5
28. I provide suggestions on how to further improve the park design.	1	2	3	4	5
About your local area and your neighbours					
29. I enjoy talking about the weather, entertainment, sports, dogs, and current events with other people in this neighbourhood.	1	2	3	4	5
30. I frequently go in the park with my family, friends or acquaintances.	1	2	3	4	5
31. I frequently receive phone calls or messages from my family, friends or acquaintances (e.g. visiting home/parks, birthdays, events, etc.).	1	2	3	4	5
32. I have a trust among my neighbours (e.g. having a spare key to the house, and to baby sit my children)	1	2	3	4	5
33. I like the diversity of my neighbourhood because it gives me the opportunity to learn from them (e.g. cooking), the liveliness and businesses on the streets, and the diversity of local facilities (e.g. shops).	1	2	3	4	5
34. I am willing to join in sports club, cultural associations or voluntary work in this neighbourhood (e.g. socio-cultural participation).	1	2	3	4	5
35. Given the things I like to do, I could not imagine anything better than the setting and	1	2	3	4	5

facilities provided by this park in my neighbourhood.					
36. I have a strong emotional attachment to this park in my neighbourhood as I have lots of fond memories here with my friends or family.	1	2	3	4	5
37. I am willing to give or help other people in my neighbourhood (e.g. bike repair, share food, charity, etc.).	1	2	3	4	5
38. I feel that this neighbourhood is generally peaceful and not marked by violence and conflict (e.g. people obey traffic rules).	1	2	3	4	5

End of questionnaire. Thank you! ☺

B. Survey Questionnaire for Hillesluis Neighbourhood (Dutch)

Enquete voor de inwoners van Hillesluis (Nederlands)

Introductie en informant consent

Geachte meneer/mevrouw,

Goedendag! Zal me even voorstellen. Ik ben Adrian P. de Jesus en ik volg een masterstudie richting Institute for Housing and Urban Development Studies (IHS) aan de Eramusmus Universiteit van Rotterdam (EUR).

In het kader van mijn masterstudie ga ik een onderzoek doen over "**Urban Green Space and Social Cohesion in Highly Diverse Neighbourhood**." Oftwel, de groenvoorzieningen in de samenleving in een multiculturele omgeving.

Graag verzoek ik een lid van jullie familie, boven 18 jaar oud, om dit formulier volledig in te vullen. Het formulier is zowel in het engels als in het nederlands te lezen. Het beantwoorden van de vragen kost slechts 5 minuten.

Neem gerust contact met mij op via **0687014674** or **apdejesus1@gmail.com** als u vragen heft over de enquête.

Alle informatie die verstrekt wordt, wordt strikt vertrouwelijk behandeld. Bovendien wordt deze informatie alleen gebruikt voor het onderzoek.

Hartelijk dank voor uw tijd en samenwerking.

Over jou

Instructie: Kies het juiste antwoord in het juiste vak of vul aanvullende informatie aan.

1. Wat is uw geslacht? Aub een vakje kiezen met een (✓).

☐	Man	☐	Vrouw

2. Wat is uw leeftijd? Aub een vakje kiezen met een (✓).

☐	18 - 24
☐	25 - 34
☐	35 - 44
☐	45 - 54
☐	55 - 64
☐	65 en ouder

3. Waar komt u oorspronkelijk vandaan? kies aub een vakje met een (✓).

☐	Nederland	☐	Marocco
☐	Nederlandse Antilles/Aruba	☐	Cape Verde
☐	Suriname	☐	Europe
☐	Turkije	☐	Buiten Europe

Overige: _____

4. Wat is uw hoogste genoten opleiding? kies aub een vakje met een (✓).

☐	Geen
☐	Basisonderwijs
☐	MBO
☐	Hoger algemeen voorgezet onderwijs (HAVO)
☐	Voortgezet onderwijs (VWO)
☐	HBS, lyceum, athenaeum
☐	Hoger beroepsonderwijs (HBO of Universiteit (WO)

Overige: _____

5. Wat is uw beroep? kies aub een vakje met een (✓).

☐	Werkloos
☐	Geen vaste baan
☐	Vaste baan
☐	Huisvrouw
☐	Student
☐	Afgekeurd om te werken i.v.m. ziekte
☐	Met pensioen
☐	Zelfstandig

6. Hoe lang woont u al in uw huidige woonplaats? kies aub een vakje met een (✓).

☐	Korter dan 1 jaar
☐	1 - 10 years
☐	11 – 20 years

	21 – 30 years
	31 – 40 years
	41 – 50 years
	51 – 60 years
	61 en ouder

7. Hoe lang heeft u gewoond in de stad Rotterdam? kies aub een vakje met een (✓).

	Korter dan 1 jaar
	1 - 10 years
	11 – 20 years
	21 – 30 years
	31 – 40 years
	41 – 50 years
	51 – 60 years
	61 en ouder

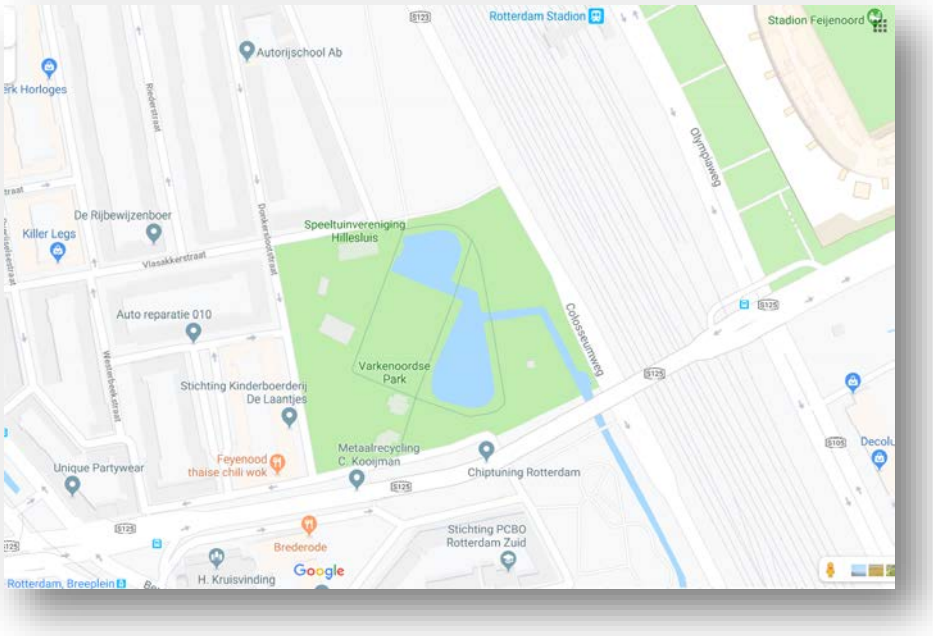
Over Varkenoordse Park

Ik zou graag uw mening willen horen over de huidige toestand van het **Varkenoordse Park** in uw buurt. De kaart van het park is in de bovenstaande foto weergegeven.

Een groenvoorziening zoals **Varkennoordse Park** kan invloed hebben op contact maken met de andere mede inwoners in de buurt.

De antwoorden zullen anoniem blijven en ik verzoek u graag om de vragen zo eerlijk mogelijk te beantwoorden.

Figure 5 Map van Varkenoordse Park bevestigd in Hillesluis



Instructie: Kies het juiste antwoord in het juiste vak of vul aanvullende informatie aan.

8. Hoe vaak maakt u gebruik van het **Varkenoordse Park**? kies aub een vakje met een (✓).

	Nooit
	Zelden (Niet elke maand maar minstens een keer per jaar)
	Soms (Elke maand maar niet elke week)
	Vaak (Minstens een keer per week)
	Altijd (meer dan drie keer per week)

Welke van de volgende activiteiten onderneemt u in het park?	***Survey Scale**: 1 = Nooit; 2 = Bina Nooit; 3 = Soms; 4 = Bina Altijd; 5 = Altijd*				
	Nooit	**Bijna Nooit**	**Soms**	**Bijna Altijd**	**Altijd**
Voorbeeld: Omcirkel er één	**1**	**2**	**3**	**4**	**(5)**
9. Sportactiviteiten/beweging	1	2	3	4	5
10. Wandelen	1	2	3	4	5
11. De hond uitlaten	1	2	3	4	5
12. Socialiseren	1	2	3	4	5
13. Met mijn kinderen spelen.	1	2	3	4	5
14. Tuineren	1	2	3	4	5

15. Hoe lang blijft u in het park? kies aub een vakje met een (✓).

	minder dan 30 minuten
	30 minuten- 1 uur
	tussen 1- 2 uur
	meer dan 2 uur

Instructie: Bent u eens of niet eens met de onderstaande bewering. 1 is helemaal oneens en 5 is helemaal eens. Markeer uw antwoord met een cirkel.

	Survey Scale**: 1 = **Helemaal oneens**; 2 = **Oneens**; 3 = **Neutraal**; 4 = **Eens**; 5 = **Helemaal eens				
	Helemaal oneens	***Oneens***	***Neutraal***	***Eens***	***Helemaal eens***

Over je buurtpark

16. Het Park is vlakbij waar ik woon.	1	2	3	4	5
17. Het is makkelijk om naar het Park te gaan	1	2	3	4	5
18. Ik voel me veilig elke tijd van de dag.	1	2	3	4	5
19. Het park is voor mij aantrekkelijk omdat ik mijn favoriete activiteiten kan doen zoals bv voetballen.	1	2	3	4	5
20. Dit Park is aantrekkelijk voor mij omdat ik daar veel activiteiten kan doen bv lopen, fietsen, andere mensen ontmoeten enzo.	1	2	3	4	5
21. Dit Park is aantrekkelijk omdat er veel voorzieningen zijn zoals fietspaden, plekken voor honden, sport faciliteiten, speeltuin, toiletten en ik kan daar picknieken.	1	2	3	4	5
22. Dit park heeft een open ontwerp om actieve recreatieve activiteiten te stimuleren (bijv. barbecueën, vliegeren, spelen met honden, etc.)	1	2	3	4	5
23. Het Park is goed voor mij omdat het goed bijgehouden word ten schoon.	1	2	3	4	5
24. Het park heeft looppaden wat stimuleert tot activiteiten.	1	2	3	4	5
25. Het park is aantrekkelijk voor mij vanwege de bomen waar ik en mijn familie en vrienden in de schaduw kunnen zitten.	1	2	3	4	5
26. Er worden gratis activiteiten in dit park gehouden waarin mensen graag bijeen komen bv gratis concerten, films, yoga lessen enzo.)	1	2	3	4	5
27. Over het algemeen vind ik de inrichting van het park leuk. Bv aantal bomen, gras, looppaden enzo.	1	2	3	4	5

28. Ik draag suggesties aan om het ontwerp van het park verder te verbeteren.	1	2	3	4	5

Over uw lokatie

29. Ik vind het leuk om met andere mensen in deze buurt te praten over het weer, vermaak, sport, honden en huidige gebeurtenissen.	1	2	3	4	5
30. I ga regelmatig naar het park toe samen met mijn familie, vrienden if kennissen.	1	2	3	4	5
31. Ik word regelmatig gebeld, bericht door mijn family, vrienden of kennissen om bv het huis/park te bezoeken, verjaardag, events enzo.	1	2	3	4	5
32. Ik vertrouw mijn buren (bijvoorbeeld; met mijn extra huissleutels en/of met het oppassen van mijn kinderen)	1	2	3	4	5
33. Ik vind de diversiteit van mijn omgeving juist heel goed om een kans te hebben om van hen te leren (bv koken), de levendige straten en de diversiteit van de straten.	1	2	3	4	5
34. Ik wil graag mee doe aan sportclub, culturele stichting of vrijwilligerswerk in mijn buurt.	1	2	3	4	5
35. Gezien de activiteiten die ik heel graag doe, vind ik dat de voorzieningen in het Park goed zijn.	1	2	3	4	5
36. Ik heb een sterke emotionele band met dit park in mijn buurt aangezien ik hier veel leuke herinneringen heb met mijn vrienden of familie.	1	2	3	4	5
37. Ik kan en wil hulp aanbieden in mijn omgeving bv fietsreparatie, eten delen enzo)	1	2	3	4	5
38. Ik vind dat mijn omgeving vredig is en er is geen conflict te zien is (bv aan de	1	2	3	4	5

regels houden)					

Einde vragen. Hartelijk dank!

C. Survey Questionnaire Letter (Online Survey) for Hillesluis Neighbourhood (Dutch Version)

Enquete voor de inwoners van Hillesluis (Nederlands)

Introductie en informant consent

Geachte meneer/mevrouw,

Goedendag! Zal me even voorstellen. Ik ben Adrian P. de Jesus en ik volg een masterstudie richting Institute for Housing and Urban Development Studies (IHS) aan de Eramusmus Universiteit van Rotterdam (EUR).

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Graag verzoek ik een lid van jullie familie, boven 18 jaar oud, om dit formulier volledig in te vullen. De enquete is ook te vinden via de onderstaande link of via het scannen van de code. Het beantwoorden van de vragen kost slechts 5 minuten.

Neem gerust contact met mij op via 0687014674 or apdejesus1@gmail.com als u vragen heft over de enquête.

Alle informatie die verstrekt wordt, wordt strikt vertrouwelijk behandeld. Bovendien wordt deze informatie alleen gebruikt voor het onderzoek.

Hartelijk dank voor uw tijd en samenwerking. Volg deze link → http://bit.ly/2LXE2WA

D. Time Schedule

No.		July		
		W1	W2	W3
1	Conduct Pre-Test questionnaires			
2	*Milestone: Conducted pre-test questionnaire*			
3	Conduct survey for the respondents			
4	*Milestone: Conducted field survey*			
5	Follow-up survey questionnaires to the respondents			
6	*Milestone: Completed sent questionnaire, conducted survey with respondents, completed field work data collection*			
7	Data Preparation, Data Organization, and Cleansing			
8	*Milestone: Completed Database*			

Annex 2: Demographic Data of the Survey Respondents

Table 5 Demographic Data of Survey Respondents

			Study Areas		Total
			Hillesluis	Vreewijk	
Sample Size			72	74	146
Gender	Male	Frequency	37	36	73
		Percentage	51.4%	48.6%	50.0%
	Female	Frequency	35	38	73
		Percentage	48.6%	51.4%	50.0%
Age	18 - 24	Frequency	16	21	37
		Percentage	22.2%	28.4%	25.3%
	25 - 34	Frequency	25	23	48
		Percentage	34.7%	31.1%	32.9%
	35 - 44	Frequency	19	14	33
		Percentage	26.4%	18.9%	22.6%
	45 - 54	Frequency	4	5	9
		Percentage	5.6%	6.8%	6.2%
	55 - 64	Frequency	5	10	15
		Percentage	6.9%	13.5%	10.3%
	65 and over	Frequency	3	1	4
		Percentage	4.2%	1.4%	2.7%
Ethnicity	Netherlands	Frequency	23	39	62
		Percentage	31.9%	52.7%	42.5%
	Netherlands Antilles/Aruba	Frequency	5	4	9
		Percentage	6.9%	5.4%	6.2%
	Suriname	Frequency	1	8	9
		Percentage	1.4%	10.8%	6.2%
	Turkey	Frequency	12	7	19
		Percentage	16.7%	9.5%	13.0%
	Morocco	Frequency	19	3	22
		Percentage	26.4%	4.1%	15.1%
	Cape Verde	Frequency	0	2	2
		Percentage	0%	2.70%	1.40%
	Western	Frequency	3	8	11
		Percentage	4.2%	10.8%	7.5%
	Non-Western	Frequency	9	3	12
		Percentage	12.5%	4.1%	8.2%
Education	No Studies	Frequency	2	2	4
		Percentage	2.8%	2.7%	2.7%
	Primary Education	Frequency	6	3	9

		Percentage	8.3%	4.1%	6.2%
	Primary professional or preparatory professional (MBO)	Frequency	38	34	72
		Percentage	52.8%	45.9%	49.3%
	Secondary Education (HAVO)	Frequency	6	3	9
		Percentage	8.3%	4.1%	6.2%
	Secondary Education (VWO)	Frequency	3	3	6
		Percentage	4.2%	4.1%	4.1%
	HBS, lyceum, atheneum	Frequency	2	1	3
		Percentage	2.8%	1.4%	2.1%
	HBO or University	Frequency	14	27	41
		Percentage	19.4%	36.5%	28.1%
	Others	Frequency	1	1	2
		Percentage	1.4%	1.4%	1.4%
Employment Status	Unemployed	Frequency	0	5	5
		Percentage	0%	6.8%	3.4%
	With temporary job	Frequency	6	11	17
		Percentage	8.3%	14.9%	11.6%
	With permanent job	Frequency	34	35	69
		Percentage	47.2%	47.3%	47.3%
	Housewife	Frequency	11	2	13
		Percentage	15.3%	2.7%	8.9%
	Student	Frequency	11	10	21
		Percentage	15.3%	13.5%	0.1
	Unable to work due to illness	Frequency	3	2	5
		Percentage	4.2%	2.7%	3.4%
	Retired	Frequency	2	1	3
		Percentage	2.8%	1.4%	2.1%
	Self-employed	Frequency	5	8	13
		Percentage	6.9%	10.8%	8.9%
Living in Current Neighbourhood	Less than a year	Frequency	7	5	12
		Percentage	9.7%	6.8%	8.2%

	1 - 10 years	Frequency	24	33	57
		Percentage	33.3%	44.6%	39.0%
	11 - 20 years	Frequency	13	14	27
		Percentage	18.1%	18.9%	18.5%
	21 - 30 years	Frequency	11	12	23
		Percentage	15.3%	16.2%	15.8%
	31 - 40 years	Frequency	10	4	14
		Percentage	13.9%	5.4%	9.6%
	41 - 50 years	Frequency	2	2	4
		Percentage	2.8%	2.7%	2.7%
	51 - 60 years	Frequency	3	1	4
		Percentage	4.2%	1.4%	2.7%
	61 and over	Frequency	2	3	5
		Percentage	2.8%	4.1%	3.4%
Living in Rotterdam	Less than a year	Frequency	3	0	3
		Percentage	4.2%	0.0%	2.1%
	1 - 10 years	Frequency	13	19	32
		Percentage	18.1%	25.7%	21.9%
	11 - 20 years	Frequency	13	18	31
		Percentage	18.1%	24.3%	21.2%
	21 - 30 years	Frequency	19	17	36
		Percentage	26.4%	23.0%	24.7%
	31 - 40 years	Frequency	14	7	21
		Percentage	19.4%	9.5%	14.4%
	41 - 50 years	Frequency	3	5	8
		Percentage	4.2%	6.8%	5.5%
	51 - 60 years	Frequency	2	4	6
		Percentage	2.8%	5.4%	4.1%
	61 and over	Frequency	5	4	9
		Percentage	6.9%	5.4%	6.2%
Frequency of use	Never	Frequency	6	7	13
		Percentage	8.3%	9.5%	8.9%
	Seldom (Not every month but at least once a year)	Frequency	14	11	25
		Percentage	19.4%	14.9%	17.1%
	Occasionally (Every month but not every week)	Frequency	23	20	43
		Percentage	31.9%	27.0%	29.5%
	Frequently (At least one time a week)	Frequency	18	17	35
		Percentage	25.0%	23.0%	24.0%

	Always (More than 3 times a week)	Frequency	11	19	30
		Percentage	15.3%	25.7%	20.5%
Duration of stay in the park	Less than 30 minutes	Frequency	26	13	39
		Percentage	36.1%	17.6%	26.7%
	30 minutes - 1 hour	Frequency	26	27	53
		Percentage	36.1%	36.5%	36.3%
	Between 1 - 2 hours	Frequency	10	23	33
		Percentage	13.9%	31.1%	22.6%
	More than 2 hours	Frequency	10	11	21
		Percentage	13.9%	14.9%	14.4%

Annex 3: Survey Responses of the Conditions of Urban Green Spaces

Table 6 Green Space Proximity

			Study Areas		Total
			Hillesluis	Vreewijk	
Distance from home to the park	Strongly disagree	Count	1	0	1
		Percentage	1.4%	0.0%	0.7%
	Disagree	Count	1	2	3
		Percentage	1.4%	2.7%	2.1%
	Neither agree or disagree	Count	8	11	19
		Percentage	11.1%	14.9%	13.0%
	Agree	Count	12	21	33
		Percentage	16.7%	28.4%	22.6%
	Strongly Agree	Count	50	40	90
		Percentage	69.4%	54.1%	61.6%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 7 Green Space Walkability

			Study Areas		
			Hillesluis	Vreewijk	Total
Pleasant or ease of walk experience	Strongly disagree	Count	1	0	1
		Percentage	1.4%	0.0%	0.7%
	Disagree	Count	1	1	2
		Percentage	1.4%	1.4%	1.4%
	Neither agree or disagree	Count	8	11	19
		Percentage	11.1%	14.9%	13.0%
	Agree	Count	12	21	33
		Percentage	16.7%	28.4%	22.6%
	Strongly Agree	Count	50	41	91
		Percentage	69.4%	55.4%	62.3%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 8 Green Space Safety

			Study Areas		
			Hillesluis	Vreewijk	Total
Park user's approach and avoidance behaviours	Strongly disagree	Count	2	3	5
		Percentage	2.8%	4.1%	3.4%
	Disagree	Count	10	11	21
		Percentage	13.9%	14.9%	14.4%
	Neither agree or disagree	Count	13	22	35
		Percentage	18.1%	29.7%	24.0%
	Agree	Count	18	18	36
		Percentage	25.0%	24.3%	24.7%
	Strongly Agree	Count	29	20	49
		Percentage	40.3%	27.0%	33.6%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 9 Green Space Shared Activities

			Study Areas		
			Hillesluis	Vreewijk	Total
Shared activities in the park	Strongly disagree	Count	6	8	14
		Percentage	8.3%	10.8%	9.6%
	Disagree	Count	8	7	15
		Percentage	11.1%	9.5%	10.3%
	Neither agree or disagree	Count	21	29	50
		Percentage	29.2%	39.2%	34.2%
	Agree	Count	18	21	39
		Percentage	25.0%	28.4%	26.7%

	Strongly Agree	Count	19	9	28
		Percentage	26.4%	12.2%	19.2%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 10 Green Space Variation in Activities

			Study Areas		Total
			Hillesluis	Vreewijk	
Variation in facilities	Strongly disagree	Count	4	3	7
		Percentage	5.6%	4.1%	4.8%
	Disagree	Count	6	13	19
		Percentage	8.3%	17.6%	13.0%
	Neither agree or disagree	Count	24	18	42
		Percentage	33.3%	24.3%	28.8%
	Agree	Count	20	23	43
		Percentage	27.8%	31.1%	29.5%
	Strongly Agree	Count	18	17	35
		Percentage	25.0%	23.0%	24.0%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 11 Green Space Variation in Facilities

			Study Areas		Total
			Hillesluis	Vreewijk	
Variation in facilities	Strongly disagree	Count	4	3	7
		Percentage	5.6%	4.1%	4.8%
	Disagree	Count	6	13	19
		Percentage	8.3%	17.6%	13.0%
	Neither agree or disagree	Count	24	18	42
		Percentage	33.3%	24.30%	28.80%
	Agree	Count	20	23	43
		Percentage	27.8%	31.1%	29.5%
	Strongly Agree	Count	18	17	35
		Percentage	25.0%	23.0%	24.0%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 12 Green Open Park Design Encouraging Active Recreational Activities

			Study Areas		Total
			Hillesluis	Vreewijk	
	Strongly disagree	Count	3	7	10

		Percentage	4.2%	9.5%	6.8%
Open Park Design Encouraging Active Recreational Activities	Disagree	Count	4	13	17
		Percentage	5.6%	17.6%	11.6%
	Neither agree or disagree	Count	23	25	48
		Percentage	31.9%	33.8%	32.9%
	Agree	Count	19	19	38
		Percentage	26.4%	25.7%	26.0%
	Strongly Agree	Count	23	10	33
		Percentage	31.9%	13.5%	22.6%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 13 Green Space Maintenance and Cleanliness

			Study Areas		Total
			Hillesluis	Vreewijk	
Maintenance and Cleanliness	Strongly disagree	Count	5	3	8
		Percentage	6.9%	4.1%	5.5%
	Disagree	Count	11	13	24
		Percentage	15.3%	17.6%	16.4%
	Neither agree or disagree	Count	21	27	48
		Percentage	29.2%	36.5%	32.9%
	Agree	Count	21	21	42
		Percentage	29.2%	28.4%	28.8%
	Strongly Agree	Count	14	10	24
		Percentage	19.4%	13.5%	16.4%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 14 Green Space Available Sidewalks

			Study Areas		Total
			Hillesluis	Vreewijk	
Availability of sidewalks	Strongly disagree	Count	3	0	3
		Percentage	4.2%	0.0%	2.1%
	Disagree	Count	3	12	15
		Percentage	4.2%	16.2%	10.3%
	Neither agree or disagree	Count	23	26	49
		Percentage	31.9%	35.1%	33.6%
	Agree	Count	26	28	54
		Percentage	36.1%	37.8%	37.0%
	Strongly Agree	Count	17	8	25
		Percentage	23.6%	10.8%	17.1%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 15 Green Space Shaded Areas Supporting Relaxing Environment

			Study Areas		Total
			Hillesluis	Vreewijk	
Shaded Areas supporting relaxing environment	Strongly disagree	Count	3	3	6
		Percentage	4.2%	4.1%	4.1%
	Disagree	Count	5	9	14
		Percentage	6.9%	12.2%	9.6%
	Neither agree or disagree	Count	24	23	47
		Percentage	33.3%	31.1%	32.2%
	Agree	Count	22	32	54
		Percentage	30.6%	43.2%	37.0%
	Strongly Agree	Count	18	7	25
		Percentage	25.0%	9.5%	17.1%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 16 Green Space Availability of Organized Activities

			Study Areas		Total
			Hillesluis	Vreewijk	
Availability of Organized Activities	Strongly disagree	Count	20	22	42
		Percentage	27.8%	29.7%	28.8%
	Disagree	Count	13	14	27
		Percentage	18.1%	18.9%	18.5%
	Neither agree or disagree	Count	16	22	38
		Percentage	22.2%	29.7%	26.0%
	Agree	Count	11	13	24
		Percentage	15.3%	17.6%	16.4%
	Strongly Agree	Count	12	3	15
		Percentage	16.7%	4.1%	10.3%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 17 Green Space Likeability of Park Design

			Study Areas		Total
			Hillesluis	Vreewijk	
Likeability of Park Design	Strongly disagree	Count	2	1	3
		Percentage	2.8%	1.4%	2.1%

	Disagree	Count	4	13	17
		Percentage	5.6%	17.6%	11.6%
	Neither agree or disagree	Count	22	34	56
		Percentage	30.6%	45.9%	38.4%
	Agree	Count	27	20	47
		Percentage	37.5%	27.0%	32.2%
	Strongly Agree	Count	17	6	23
		Percentage	23.6%	8.1%	15.8%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 18 Green Space Likelihood of providing suggestions for improvements about the park

			Study Areas		Total
			Hillesluis	Vreewijk	
Likelihood of providing suggestions for improvements about the park	Strongly disagree	Count	12	16	28
		Percentage	16.7%	21.6%	19.2%
	Disagree	Count	6	15	21
		Percentage	8.3%	20.3%	14.4%
	Neither agree or disagree	Count	27	21	48
		Percentage	37.5%	28.4%	32.9%
	Agree	Count	9	10	19
		Percentage	12.5%	13.5%	13.0%
	Strongly Agree	Count	18	12	30
		Percentage	25.0%	16.2%	20.5%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 19 Frequency of doing sports/exercise in parks

			Study Areas		Total
			Hillesluis	Vreewijk	
Doing sports/exercise	Never	Count	24	35	59
		Percentage	33.3%	47.3%	40.4%
	Almost Never	Count	11	10	21
		Percentage	15.3%	13.5%	14.4%
	Occasionally / Sometimes	Count	22	14	36
		Percentage	30.6%	18.9%	24.7%
	Almost Everytime	Count	5	9	14
		Percentage	6.9%	12.2%	9.6%
	Everytime	Count	10	6	16
		Percentage	13.9%	8.1%	11.0%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 20 Frequency of taking a walk in the park

			Study Areas		Total
			Hillesluis	Vreewijk	
Taking a Walk	Never	Count	17	27	44
		Percentage	23.6%	36.5%	30.1%
	Almost Never	Count	8	8	16
		Percentage	11.1%	10.8%	11.0%
	Occasionally / Sometimes	Count	21	18	39
		Percentage	29.2%	24.3%	26.7%
	Almost Everytime	Count	10	15	25
		Percentage	13.9%	20.3%	17.1%
	Everytime	Count	16	6	22
		Percentage	22.2%	8.1%	15.1%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 21 Frequency of walking a dog in the park

			Study Areas		Total
			Hillesluis	Vreewijk	
Walking a Dog	Never	Count	52	58	110
		Percentage	72.2%	78.4%	75.3%
	Almost Never	Count	6	2	8
		Percentage	8.3%	2.7%	5.5%
	Occasionally / Sometimes	Count	7	4	11
		Percentage	9.7%	5.4%	7.5%
	Almost Everytime	Count	1	2	3
		Percentage	1.4%	2.7%	2.1%
	Everytime	Count	6	8	14
		Percentage	8.3%	10.8%	9.6%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 22 Frequency of socializing in the park

			Study Areas		Total
			Hillesluis	Vreewijk	
Socializing	Never	Count	22	37	59
		Percentage	30.6%	50.0%	40.4%

	Almost Never	Count	14	7	21
		Percentage	19.4%	9.5%	14.4%
	Occasionally / Sometimes	Count	14	16	30
		Percentage	19.4%	21.6%	20.5%
	Almost Everytime	Count	6	8	14
		Percentage	8.3%	10.8%	9.6%
	Everytime	Count	16	6	22
		Percentage	22.2%	8.1%	15.1%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 23 Frequency of playing with children in the park

			Study Areas		
			Hillesluis	Vreewijk	Total
Playing with children	Never	Count	33	38	71
		Percentage	45.8%	51.4%	48.6%
	Almost Never	Count	4	3	7
		Percentage	5.6%	4.1%	4.8%
	Occasionally / Sometimes	Count	11	13	24
		Percentage	15.3%	17.6%	16.4%
	Almost Everytime	Count	6	10	16
		Percentage	8.3%	13.5%	11.0%
	Everytime	Count	18	10	28
		Percentage	25.0%	13.5%	19.2%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Table 24 Frequency of Gardening in the park

			Study Areas		
			Hillesluis	Vreewijk	Total
Gardening	Never	Count	55	62	117
		Percentage	76.4%	83.8%	80.1%
	Almost Never	Count	4	2	6
		Percentage	5.6%	2.7%	4.1%
	Occasionally / Sometimes	Count	6	4	10
		Percentage	8.3%	5.4%	6.8%
	Almost Everytime	Count	2	5	7
		Percentage	2.8%	6.8%	4.8%
	Everytime	Count	5	1	6

		Percentage	6.9%	1.4%	4.1%
Total		Count	72	74	146
		Percentage	100%	100%	100%

Annex 4: Summary Statistics of Variables

Table 25 Statistics for Accessibility Variables

		Distance from home to the park (Proximity)	Pleasant or ease of walk experience (Walkability)	Park user's approach and avoidance behaviours (Safety)
N	**Valid**	146	146	146
	Missing	0	0	0
Mean		4.42	4.45	3.71
Std. Deviation		0.846	0.822	1.175
Minimum		1	1	1
Maximum		5	5	5

Table 26 Statistics for Park Design Variable (Part 1)

		Shared Activities in the park	Variation in activities	Variation in facilities	Open Park Design Encouraging Active Recreational Activities	Maintenance and Cleanliness
N	**Valid**	146	146	146	146	146
	Missing	0	0	0	0	0
Mean		3.36	3.63	3.55	3.46	3.34
Std. Deviation		1.185	1.057	1.133	1.063	1.104
Minimum		1	1	1	1	1
Maximum		5	5	5	5	5

Table 27 Statistics for Park Design Variable (Part 2)

		Available Sidewalks	Shaded Areas Supporting Relaxing Environment	Likeability of the Park Design	Likelihood of providing suggestions for improvements about the park
N	**Valid**	146	146	146	146
	Missing	0	0	0	0
Mean		3.57	3.53	2.61	3.01
Std. Deviation		0.961	1.018	1.331	1.370
Minimum		1	1	1	1
Maximum		5	5	5	5

Annex 5: Mean Scores Per Neighbourhoods (Derived from T-Test)

Table 28 Mean Scores of the green space conditions Variables

Variables	Study Areas	N	Mean	Std. Deviation	Std. Error Mean
Distance from home to the park (Proximity)	Hillesluis	72	4.51	0.856	0.101
	Vreewijk	74	4.34	0.832	0.097
Pleasant or ease of walk experience (Walkability)	Hillesluis	72	4.51	0.856	0.101
	Vreewijk	74	4.38	0.789	0.092
Park user's approach and avoidance behaviours (Safety)	Hillesluis	72	3.86	1.179	0.139
	Vreewijk	74	3.55	1.160	0.135
Park Design	Hillesluis	72	3.50	0.804	0.948
	Vreewijk	74	3.21	0.595	0.691
Physical Activities	Hillesluis	72	2.34	0.884	0.104
	Vreewijk	74	2.04	0.845	0.982
Social Networks	Hillesluis	72	3.17	0.102	0.121
	Vreewijk	74	3.84	1.006	0.117
Trust	Hillesluis	72	2.79	1.342	0.158
	Vreewijk	74	2.65	1.308	0.152
Mutual Tolerance/Acceptance of Diversity	Hillesluis	72	3.38	1.227	0.145
	Vreewijk	74	2.96	0.913	0.106
Participation/Civic Engagement	Hillesluis	72	3.21	1.162	0.137
	Vreewijk	74	3.18	1.232	0.143
Place Dependence	Hillesluis	72	3.47	1.113	0.131
	Vreewijk	74	3.12	0.950	0.110
Place Identity	Hillesluis	72	3.03	1.342	0.158

	Vreewijk	74	1.294	1.294	0.150
Solidarity	Hillesluis	72	3.03	1.295	0.153
	Vreewijk	74	2.68	1.203	0.140
Acceptance of and compliance of the social order and social rules	Hillesluis	72	3.29	1.215	0.143
	Vreewijk	74	3.09	1.241	0.144

Annex 6: T-Test Result of the Variables

Table 29 T-test result for proximity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Distance from home to the park	Equal variances assumed	.274	.602	1.260	144	.210	.176	.140	-.100	.452
	Equal variances not assumed			1.260	143.559	.210	.176	.140	-.100	.452

Table 30 T-test result for walkability

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pleasant or ease of walk experience	Equal variances assumed	.033	.855	.995	144	.321	.136	.136	-.134	.405

	Equal variances not assumed			.994	142.313	.322	.136	.136	-.134	.405

Table 31 T-test result for safety

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Park user's approach and avoidance behaviors	Equal variances assumed	.013	.908	1.586	144	.115	.307	.194	-.076	.690
	Equal variances not assumed			1.586	143.733	.115	.307	.194	-.076	.690

Table 32 T-test result for park design

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Park user's approach and avoidance behaviours	Equal variances assumed	.013	.908	1.586	144	.115	.307	.194	-.076	.690
	Equal variances not assumed			1.586	143.733	.115	.307	.194	-.076	.690

Table 33 T-test result for physical activity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Physical Activities	Equal variances assumed	.152	.697	2.112	144	.036	.30224	.14313	.01934	.58514
	Equal variances not assumed			2.110	143.242	.037	.30224	.14321	.01915	.58533

Table 34 T-Test result for social networks

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Social Networks	Equal variances assumed	.002	.964	1.984	144	.049	.33346	.16810	.00119	.66572
	Equal variances not assumed			1.983	143.681	.049	.33346	.16815	.00110	.66582

Table 35 T-test result for trust

	Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Trust in Neighbours	Equal variances assumed	.139	.709	.652	144	.515	.143	.219	-.290	.576
	Equal variances not assumed			.652	143.591	.516	.143	.219	-.291	.577

Table 36 T-test result for participation or civic engagement

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Membership in sports or cultural associations	Equal variances assumed	1.041	.309	.165	144	.869	.033	.198	-.359	.425
	Equal variances not assumed			.165	143.867	.869	.033	.198	-.359	.424

Table 37 T-test result for place dependence

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Place dependence	Equal variances assumed	2.183	.142	2.049	144	.042	.351	.171	.012	.689

	Equal variances not assumed			2.045	139.281	.043	.351	.171	.012	.690

Table 38 T-Test result for place identity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Place identity	Equal variances assumed	.135	.713	1.614	144	.109	.352	.218	-.079	.783
	Equal variances not assumed			1.613	143.406	.109	.352	.218	-.079	.784

Table 39 T-test result for solidarity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Solidarity	Equal variances assumed	.044	.834	1.714	144	.089	.354	.207	-.054	.763
	Equal variances not assumed			1.712	142.536	.089	.354	.207	-.055	.764

Table 40 T-test result for Acceptance of and compliance of the social order and social rules

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Acceptance of and compliance of the social order and social rules	Equal variances assumed	.043	.837	.969	144	.334	.197	.203	-.205	.599
	Equal variances not assumed			.970	143.993	.334	.197	.203	-.205	.599

Table 41 T-test result for Social Networks

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Social Networks	Equal variances assumed	.002	.964	1.984	144	.049	.33346	.16810	.00119	.66572
	Equal variances not assumed			1.983	143.681	.049	.33346	.16815	.00110	.66582

Table 42 T-test result for Trust

	Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Trust in Neighbours	Equal variances assumed	.139	.709	.652	144	.515	.143	.219	-.290	.576
	Equal variances not assumed			.652	143.591	.516	.143	.219	-.291	.577

Table 43 T-test result for mutual tolerance/acceptance of diversity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Diversity of the neighbourhood	Equal variances assumed	9.824	.002	2.326	144	.021	.416	.179	.062	.769
	Equal variances not assumed			2.317	131.119	.022	.416	.179	.061	.770

Table 44 T-test result for participation or civic engagement

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

Membership in sports or cultural associations	Equal variances assumed	1.041	.309	.165	144	.869	.033	.198	-.359	.425
	Equal variances not assumed			.165	143.867	.869	.033	.198	-.359	.424

Table 45 T-test result for place dependence

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Place dependence	Equal variances assumed	2.183	.142	2.049	144	.042	.351	.171	.012	.689
	Equal variances not assumed			2.045	139.281	.043	.351	.171	.012	.690

Table 46 T-test result for place identity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Place identity	Equal variances assumed	.135	.713	1.614	144	.109	.352	.218	-.079	.783
	Equal variances not assumed			1.613	143.406	.109	.352	.218	-.079	.784

Table 47 T-test result for solidarity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Willingnes to give to others	Equal variances assumed	.044	.834	1.714	144	.089	.354	.207	-.054	.763
	Equal variances not assumed			1.712	142.536	.089	.354	.207	-.055	.764

Table 48 T-test result for acceptance of and compliance to social order

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Norm-violating behavior	Equal variances assumed	.043	.837	.969	144	.334	.197	.203	-.205	.599
	Equal variances not assumed			.970	143.993	.334	.197	.203	-.205	.599

Annex 7: Correlation Analysis

Table 49 Correlation Analysis for Social Relations

SOCIAL RELATIONS	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.098

Pleasant or ease of walk experience	0.086
Perceived safety	0.341**
Place for social interaction	
Park Design	0.494**
Shared Activities	0.408**
Variation in activities	0.320**
Variation in facilities	0.268**
Open park design	0.310**
Maintenance and cleanliness	0.264**
Availability of sidewalks	0.247**
Shaded areas supporting relaxing environments	0.286**
Availability of organized activities	0.312**
Likes about the park design	0.318**
Improvements about the park	0.433**
Stress Reliver	
Physical Activities	0.397**
Doing sports/exercise	0.282**
Taking a walk	0.245**
Walking a dog	-0.032
Socializing	0.424**
Playing with children	0.244**
Gardening	0.214**
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 50 Correlation Analysis for Social Networks

SOCIAL NETWORKS	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.114
Pleasant or ease of walk experience	0.055
Perceived safety	0.304**
Place for social interaction	
Park Design	
Shared Activities	0.397**
Variation in activities	0.403**
Variation in facilities	0.319**
Open park design	0.371**
Maintenance and cleanliness	0.299**
Availability of sidewalks	0.303**
Shaded areas supporting relaxing environments	0.327**

Availability of organized activities	0.258**
Likes about the park design	0.327**
Improvements about the park	0.437**
Stress Reliver	
Physical Activities	0.374**
Doing sports/exercise	0.268**
Taking a walk	0.245**
Walking a dog	0.016
Socializing	0.429**
Playing with children	0.196*
Gardening	0.210*
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 51 Correlation Analysis for Trust

TRUST	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.052
Pleasant or ease of walk experience	0.103
Perceived safety	0.208**
Place for social interaction	
Park Design	
Shared Activities	0.206*
Variation in activities	0.139
Variation in facilities	0.151
Open park design	0.122
Maintenance and cleanliness	0.188*
Availability of sidewalks	0.119
Shaded areas supporting relaxing environments	0.180*
Availability of organized activities	0.220**
Likes about the park design	0.217**
Improvements about the park	0.107
Stress Reliver	
Physical Activities	0.224**
Doing sports/exercise	0.126
Taking a walk	0.174*
Walking a dog	0.043
Socializing	0.274**
Playing with children	0.199*
Gardening	0.165*

** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 52 Correlation Analysis for Mutual Tolerance/Acceptance of Diversity

MUTUAL TOLERANCE/ACCEPTANCE OF DIVERSITY	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.070
Pleasant or ease of walk experience	0.124
Perceived safety	0.255**
Place for social interaction	
Park Design	
Shared Activities	0.235**
Variation in activities	0.207*
Variation in facilities	0.213**
Open park design	0.172*
Maintenance and cleanliness	0.079
Availability of sidewalks	0.169*
Shaded areas supporting relaxing environments	0.175*
Availability of organized activities	0.179*
Likes about the park design	0.241**
Improvements about the park	0.174*
Stress Reliver	
Physical Activities	0.257**
Doing sports/exercise	0.215**
Taking a walk	0.207*
Walking a dog	-0.005
Socializing	0.265**
Playing with children	0.243**
Gardening	0.240**
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 53 Correlation Analysis for Participation or Civic Engagement

PARTICIPATION OR CIVIC ENGAGEMENT	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.042
Pleasant or ease of walk experience	0.065

Perceived safety	0.108
Place for social interaction	
Park Design	0.231**
Shared Activities	0.235**
Variation in activities	0.037
Variation in facilities	0.059
Open park design	0.104
Maintenance and cleanliness	0.116
Availability of sidewalks	0.051
Shaded areas supporting relaxing environments	0.143
Availability of organized activities	0.239**
Likes about the park design	0.174*
Improvements about the park	0.334**
Stress Reliver	
Physical Activities	
Doing sports/exercise	0.238**
Taking a walk	0.008
Walking a dog	-0.131
Socializing	0.123
Playing with children	0.117
Gardening	0.102
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 54 Correlation Analysis for Place Dependence

PLACE DEPENDENCE	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	-0.029
Pleasant or ease of walk experience	0.117
Perceived safety	0.323**
Place for social interaction	
Park Design	0.516**
Shared Activities	0.333**
Variation in activities	0.204*
Variation in facilities	0.431**
Open park design	0.347**
Maintenance and cleanliness	0.397**
Availability of sidewalks	0.221**
Shaded areas supporting relaxing environments	0.395**

Availability of organized activities	0.348**
Likes about the park design	0.457**
Improvements about the park	0.132
Stress Reliver	
Physical Activities	0.306**
Doing sports/exercise	0.285**
Taking a walk	0.134
Walking a dog	0.095
Socializing	0.294**
Playing with children	0.210*
Gardening	0.202*
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 55 Correlation Analysis for Place Identity

PLACE IDENTITY	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.087
Pleasant or ease of walk experience	0.016
Perceived safety	0.183**
Place for social interaction	
Park Design	
Shared Activities	0.392**
Variation in activities	0.335**
Variation in facilities	0.200*
Open park design	0.256**
Maintenance and cleanliness	0.178*
Availability of sidewalks	0.173*
Shaded areas supporting relaxing environments	0.393**
Availability of organized activities	0.286**
Likes about the park design	0.335**
Improvements about the park	0.374**
Stress Reliver	
Physical Activities	0.465**
Doing sports/exercise	0.218**
Taking a walk	0.125
Walking a dog	0.039
Socializing	0.238**
Playing with children	0.176*
Gardening	0.207*

** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 56 Correlation Analysis for Solidarity

SOLIDARITY	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.077
Pleasant or ease of walk experience	0.023
Perceived safety	0.133
Place for social interaction	
Park Design	0.540**
Shared Activities	0.335**
Variation in activities	0.195*
Variation in facilities	0.133
Open park design	0.206*
Maintenance and cleanliness	0.260**
Availability of sidewalks	0.127
Shaded areas supporting relaxing environments	0.281**
Availability of organized activities	0.333**
Likes about the park design	0.260**
Improvements about the park	0.331**
Stress Reliver	
Physical Activities	0.374**
Doing sports/exercise	0.197*
Taking a walk	0.001
Walking a dog	-0.108
Socializing	0.199
Playing with children	0.055
Gardening	0.078
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

Table 57 Correlation Analysis for Acceptance of Social Order and Rules

ACCEPTANCE	
Items	**Correlation**
Free and Accessible Public Amenity	
Accessibility	
Distance from home to the park	0.014
Pleasant or ease of walk experience	0.003
Perceived safety	0.431**

Place for social interaction	
Park Design	
Shared Activities	0.322**
Variation in activities	0.240**
Variation in facilities	0.330**
Open park design	0.204*
Maintenance and cleanliness	0.229**
Availability of sidewalks	0.096
Shaded areas supporting relaxing environments	0.211**
Availability of organized activities	0.150
Likes about the park design	0.219**
Improvements about the park	0.207*
Stress Reliver	
Stress Reduction	
Doing sports/exercise	0.320**
Taking a walk	0.108
Walking a dog	0.017
Socializing	0.288**
Playing with children	0.161
Gardening	0.267**
** Correlation is significant at the 0.01 level (2-tailed)	
* Correlation is significant at the 0.05 level (2-tailed)	

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