

A level playing field

Improving social inclusion of public outdoor sports facilities for girls aged nine to twelve from a municipal point of view

Else Tiggelman, 5283442
TU Delft, MBE, Graduation Lab, theme: Inclusive Communities
11-06-2025
First mentor: Yawei Chen
Second mentor: Tong Wang
Internship mentor: Kevin Krieger
Graduation organisation: Municipality of Amsterdam



Abstract

In the Netherlands, approximately 700,000 individuals do not feel socially included in the sports sector (Ministerie van Algemene Zaken, 2014). Sports participation offers physical, mental and social health benefits (Vuori, 1987). Public sports facilities, defined as publicly available built facilities or areas designed to encourage physical activity (Limstrand, 2008), should enable everyone to participate. However, a significant gap exists between ideal utilisation and actual utilisation, where certain groups are underrepresented (Gao et al., 2022). Girls aged nine to twelve are particularly underrepresented in sports (Collins & Kay, 2014) and more likely to be socially excluded from public spaces (Zimm, 2019). This suggests a mismatch between public outdoor sports facilities and the needs of this group. This research aims to address this mismatch by answering the following research question: ‘What measures can municipalities take to make public outdoor sporting facilities more socially inclusive for girls aged nine to twelve?’. A literature review will identify factors influencing social inclusion of public sports facilities. After identification of factors, Beweegpark Kraaiennest is introduced and assessed through observations and discussions with girls aged nine to twelve based on the photovoice technique to evaluate the current level of social inclusion and utilisation, highlighting areas of improvement of the public sports facility. These insights inform a focus group and interviews, where professionals share their perspectives on the topics to create concrete and actionable measures. Ultimately, this research aims to provide municipalities with practical measures to enhance the social inclusion of public outdoor sports facilities for girls aged nine to twelve, offering valuable guidance for municipal policymakers in the sports sector and addressing a gap in literature about increasing social inclusion of sports facilities.

Keywords: social inclusion, public sports facilities, sports participation, public space, girls

Personal motivation

Throughout my education, both in my bachelor's and master's programs, I have been interested in promoting inclusion. In my bachelor's, I focussed on wheelchair accessibility in my design projects and wrote a paper on accessibility in the design of public buildings. This curiosity continued into my master's, where there was more freedom to choose research themes based on my own interest. One project involved developing design strategies to improve elderly's mental health through urban design, and another focused on creating accessible housing for individuals needing home-based care. In short, improving social inclusion has always been a central interest in my academic work.

In this research, I combined my academic interest with my passion for sports. I have always been an athlete, interested in a broad range of sports and actively participating in multiple sports. I have always felt like I had the opportunity to participate, but as the only girl playing on my local football field, I did experience exclusionary dynamics in sports. In practice, this meant initially not being picked for teams or hearing comments like 'you play pretty well for a girl'. These experiences have been important for my passion about increasing social inclusion in the sports sector, ultimately leading to this research.

While conducting this master thesis, I got to experience working with an organisation, which I previously did not have any experience in. Seeing how the theory I have learned in the past applies to practice was very insightful. In terms of academic growth, I gained experience in conducting a diverse array of qualitative research methods.

Having successfully conducted my research, I am pleased to have reached this final step in obtaining my master's degree this year. While I recognized my tendency to be easily satisfied in academic settings, my strong interest in this topic ensured that I remained committed to achieving high standards. I am satisfied with the practical contributions that I was able to make. Moreover, I am proud to have upheld a healthy balance between my academic ambitions and personal time, allowing me to continue pursuing my passion for sports, along with my other interests, while reaching my study goals.

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1

INTRODUCTION

1

1.1. Research background

Public space can be defined as ‘all places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive’ (UN-Habitat, 2018). However, currently, not everyone can access and enjoy public space, particularly public sports facilities (Collins & Kay, 2014; Haselbacher et al., 2024). Public space can encompass various typologies, which are categorized by UN-Habitat (2018) as streets, open public spaces, public facilities and markets. There is a clear relationship between individuals and their environment (Bronfenbrenner, 1986), suggesting that the design and structure of public spaces significantly influence people who inhabit them. According to Prins et al. (2021), this connection is also present in the domain of physical activity. Their research demonstrates that an individual’s physical activity level are influenced by their immediate physical and social environment, as well as by social, political, and economic circumstances and the interplay of these factors (Prins et al., 2021).

The research conducted by Prins et al. (2021) resonates well with the concept of urban health. This concept highlights how urban characteristics influence health and disease in the urban context (Ompad et al., 2008). Galea & Vlahov (2005) expand on the concept of urban health, identifying three categories through which the urban environment impacts health: the physical environment, the social environment and the availability of and access to health and social services. This research focuses on the physical environment, particularly the built environment, a subcategory of the physical environment as identified by Galea & Vlahov (2005). The built environment has a significant impact on both physical and mental health (Galea & Vlahov, 2005). Features of the built environment, such as density of development, mixed land use, street scale, aesthetic qualities, and connectivity of street networks, therefore, have a direct relation on physical activity levels of individuals living in the built environment (Handy et al., 2002).

Certain aspects of public space are specifically designed to encourage physical activity. Ruetten et al. (2011) identified three types of environments relevant to sports behaviour. These provide a framework for categorising environments by settings. The first category includes sport facilities, such as swimming pools, gyms, fitness centres and sports fields. The second category includes infrastructure which enables recreational physical activity, such as parks, playgrounds and cycling paths. The last category consists of urban and green areas which are suitable for sports and physical activities and include streets, public spaces, forests and sand dunes. This research primarily focuses on the first category; sports facilities, but will also touch upon the second, as it examines public outdoor sports facilities.

Public sports facilities located in the public space are places that host sports training, sports competition and physical activity (Gao et al., 2022). Examples include public soccer fields, basketball courts, (beach)volleyball courts, fitness parks or skate parks (see figures 1 and 2). These public spaces are an important part of the public space in which physical and exercise activities are promoted for all people, regardless of age, background, etc. (Gao et al., 2022).



Figure 1. Roel Langerakpark in Rotterdam (De Havenloods, 2023)

The importance of exercising is widely known, as sport has a lot of benefits on one's physical, mental and social health (Vuori, 1987). Physical benefits include, among other things, improved endurance, enhanced immunity and reduced cholesterol levels. There are also psychological effects of physical activity, as it improves mood, reduces depression and boosts self-esteem (Vuori, 1987). Desai et al. (2023) underscore these findings, additionally noting that individuals who engage in regular exercise report higher levels of life satisfaction. Liu (2009) underscores the fact that physical activity is beneficial in terms of the development of primary group relationships and opportunities to acquire leadership skills.

Even though the benefits of sports are clear, public sports facilities currently face underutilisation (Liu, 2009). Gao et al. (2022) identify various barriers that people experience, which lead to this underutilisation. Research by Lee et al. (2016) identified the following characteristics; age, perceived health, quality of life, urban density and regional income levels, which have a significant influence on facility usage rates. This implies that certain groups of people are more likely to use public sports facilities, whereas others are not currently using public sports facilities. Groups that are more likely to be socially excluded from physical activity include, among others, physically disabled individuals (J. Kim et al., 2021), the elderly, individuals with poor health, drug dependent people, immigrants, homeless, women, inmates and youth (Vuori, 1987; Fernandez et al., 2017). Exclusion in sports is particularly harming for these groups, as physical activity offers unique benefits for their health and social integration (Vuori, 1987).



Figure 2. Urban Sports Zone Zeeburgereiland in Amsterdam (Landezine, n.d.)

It is important to address the underutilisation of sports facilities, as sports facilities provide individuals with an opportunity to promote health by participating in physical activity, the benefits of which have been explained in a previous paragraph. Multiple reasons are proposed by academic research which limit the ideal utilisation of public sports facilities. One of the reasons that certain groups of people are underrepresented in the utilisation rates of public sports facilities is the unequal distribution of sports facilities, both across a country (Wang & Wang, 2020) and within cities (Chen et al., 2016), which limits access for certain groups. Furthermore, the quality

and range of services provided by public outdoor sports facilities can vary significantly, and may be too limited to attract users (Chen et al., 2016). Limstrand & Rehrer (2008) underscore the facilities characteristics as a factor in utilisation rate; specialised sports facilities such as ski or snowboard resorts and fitness facilities lack diverse and engaging options for the general public, thereby appealing to only a specific demographic. Liu et al. (2009) also point out facility type and location as significant factors influencing the utilisation of public sports facilities. Additionally, size and management model are mentioned as significant factors (Liu et al., 2009).

It is evident that the current availability of public sports facilities does not sufficiently provide everyone with the opportunity to participate in physical activity. The reasons for this underrepresentation may vary across different facilities, but it is clear that it exists. To tackle this issue, the development of new facilities and the renovation of existing ones present a valuable opportunity. As a consequence of the national housing crisis, one million new homes need to be built in the Netherlands between 2020 and 2030 (Aedes, n.d.). This, combined with ongoing urbanisation, suggests that new neighbourhoods will need public outdoor sports facilities to meet community needs (Ministerie van Algemene Zaken, 2019). Additionally, many existing public outdoor sports facilities are aging (Ministerie van Algemene Zaken, 2019). Both renovated and newly built sports facilities should align with user preferences and be designed for the long term (Ministerie van Algemene Zaken, 2019). Renovating existing, or building new public outdoor sports facilities therefore serves as an opportunity to adhere to current standards of technical condition, economic efficiency, multifunctional usability and sustainability (Hudec & Rollová, 2014).

1.2. Problem statement

Physical activity provides numerous benefits, including physical, psychological and social advantages. Despite these well-known benefits, certain groups remain underrepresented in physical activity and sports participation. In the Netherlands, approximately 700.000 people do not feel socially included in the sports sector (Ministerie van Algemene Zaken, 2014). An important subgroup within this category includes girls, specifically those from ages nine to twelve.

The decision to focus on girls aged nine to twelve is grounded in gender disparities in participation statistics of sports and other forms of physical activity such as play. The Woman's Sports Foundation (2020) researched sports participation in the US and found that girls were more likely than boys to have never participated in sports (43.1% vs. 34.5%) and less likely to be currently active in sports (36.4% vs. 45.6%). Additionally, drop-out rates from sport were notably higher among girls (36%) than boys (30%). These figures highlight a growing gender gap in sports participation. On a national scale, Helleman (2021) researched physical activity levels for kids in the Netherlands. Observational research points out discrepancies between genders, as two-thirds of the recorded kids doing physical activity were boys. While physical activity levels between boys and girls are relatively balanced during early childhood (ages 0–8), this balance begins to shift at around age nine, with girls becoming significantly less active than their male peers (Helleman, 2021). Additionally, ages nine to twelve represents a critical window for developing lasting physical activity habits. Research shows that persistent participation in sport during late childhood and early adolescence significantly increases the likelihood of maintaining higher physical activity levels into adulthood (Ekblom-Bak et al., 2018; Logan et al., 2020; Telama et al., 1997). Additionally, around the age of twelve, many children transition to secondary school, which typically leads to reduced leisure time and a decrease in outdoor play and physical activity. In fact, observations show that children aged thirteen and older are encountered far less frequently in outdoor play areas, appearing in only 17% of such instances (Helleman, 2021). Research highlights additional benefits of sports participation for girls, such as a positive correlation between physical activity and academic achievement (Staurowsky & Women's Sports Foundation, 2009). Targeting girls aged 9 to 12 is therefore not only relevant due to declining activity rates at this age, but also strategically important to influence their future health trajectories.

Public outdoor sports facilities often fail to meet the needs of specific groups, resulting in underutilisation by certain groups, like girls aged nine to twelve. This mismatch suggest that public outdoor sports facilities do not adequately meet the needs and wishes or address the barriers faced by these groups.

The need for new public sports facilities and the renovation of existing ones presents an opportunity to address the mismatch between public outdoor sports facilities and wishes of the girls from the age of nine. This research aims to investigate strategies to improve social inclusion for girls from the age of nine within public outdoor sports facilities in the Netherlands. While literature on social inclusion in sports is expanding internationally, research specific to the Dutch context remains limited. Additionally, there is a lack of concrete measures for Dutch municipalities on how to design and implement inclusive sports facilities. This research seeks to address this gap, to make public outdoor sports facilities more socially inclusive for girls aged nine to twelve, thereby increasing their sports participation.

1.3. Research question

The previously described problem is addressed in this research based on the following research question:

‘What measures can municipalities take to make public outdoor sports facilities more socially inclusive for girls aged nine to twelve?’

This research aims to improve the social inclusion of public outdoor sports facilities for girls aged nine to twelve by identifying actionable measures that municipalities can implement. The research is structured by three subquestions:

1. What factors influence social inclusion of a public outdoor sports facility for girls aged nine to twelve?

This subquestion will be answered by conducting a literature study. This will lead to a list of categorised aspects that influence the social inclusion of facilities, which are validated in expert interviews, thereby offering a theoretical background for analysing the social inclusion in a specific public outdoor sports facility.

2. To what extent is Beweegpark Kraaiennest socially inclusive for girls aged nine to twelve?

This subquestion describes the current state of utilisation of Beweegpark Kraaiennest. This includes an analysis of utilisation by people, who are categorised by characteristics. These characteristics could include, for example, age and gender. The subquestion also delves into the current state of social inclusion. It should lead to insights into aspects that are contributing to social inclusion of Beweegpark Kraaiennest and insights into aspects that negatively impact the social inclusion of Beweegpark Kraaiennest.

3. What improvements could be made to make Beweegpark Kraaiennest more socially inclusive for girls aged nine to twelve?

Subquestion two identifies potential barriers to the social inclusion of Beweegpark Kraaiennest. This question then examines whether these barriers fall within the municipality's playing field and how they could be addressed through specific measures.

1.4. Relevance

1.4.1. Societal relevance

This research aims at increasing the social inclusion, or stated differently; reducing the social exclusion of public outdoor sports facilities. The reduction of social exclusion is an important topic, as social exclusion prevents particular groups of the population from accessing activities or other things (Avramov, 2002). Those socially excluded people can experience deprivation because of the social exclusion. This exclusion often leads to social stigma, blame, and isolation, resulting in low self-esteem, a sense of not belonging, and feeling like they haven't been given a fair chance to be part of society (Avramov, 2002). By implementing measures to promote social inclusion, mental and physical health of individuals will be improved. Apart from these individual benefits, participation in sports can contribute to wider societal objectives, such as building safer, more cohesive communities, strengthening the economy, improving local skills, supporting children's development and delivering health advantages for the wider community (Waring & Mason, 2010).

Beyond its social benefits, social inclusion also has significant economic advantages. Onagoruwa et al. (2020) estimate the global loss in human capital wealth due to gender inequality alone to be 160 trillion US dollars. Moreover, social exclusion can lead to greater social tensions and increase the risks of violence and conflict, resulting in substantial long-term social and economic costs (World Bank Group, n.d.).

The concept of inclusion, particularly social inclusion, is gaining global significance in policy making. The United Nations (n.d.) Sustainable Development Goals (2015) underscore this significance. Goal 11: 'Make cities and human settlements inclusive, safe, resilient and sustainable' resonates particularly well with the concept of social inclusion. However, as stated by United Nations Department of Economic and Social Affairs (2016), the goal-setting of the UN alone is insufficient in addressing social exclusion. At a national level, the Sportakkoord II is an important document, outlining ambitions and frameworks for the continuation of the original Sportakkoord. One of the primary ambitions of Sportakkoord II is to ensure that sports are accessible and safe for everyone. This goal aligns with one of the document's six central themes: inclusion and diversity. This policy document emphasises the importance of social inclusion as a fundamental aspect of sports policy in the Netherlands.

This research is meant to provide municipalities with concrete measures which they can implement to increase the social inclusion of public outdoor sport facilities. This should provide more people, specifically girls aged nine to twelve, with the opportunity to exercise, thereby improving mental and physical health of society. Additionally, increasing the social inclusion of public outdoor sports facilities improves social inclusion, which has significant economic advantages.

1.4.2. Scientific relevance

Current literature about social inclusion in the sports sector is growing (Fernandez et al., 2017; Liu, 2009; Spaaij et al., 2014, 2023). The importance of providing the target group with the opportunity to participate in physical activities is clear, but limited research is available on enhancing social inclusion of public outdoor sporting facilities.

Within this research, public outdoor sports facilities are explicitly referred to as part of the public space. The public character of sports facilities is underexposed in the current literature, which tends to focus on either private sports facilities or the public space as a space to exercise. This research aims to address the position of sports facilities as an integral part of public space. Naturally, as the public space is a vital concept in this research, the municipality is an important stakeholder. The research aims to provide municipalities with measures to improve social inclusion of public outdoor sports facilities, which is a viewpoint that is also underexposed in literature. The bit of literature about social inclusion in public sports facilities is limited to other countries, such as the UK (Liu, 2009), China (Gao et al., 2022) and Australia (Spaaij et al., 2023). These researches identify factors influencing social inclusion and provide useful insights into the improvement of social inclusion. However, it is important to keep in mind the distinct context of a country, as each country has specific social, cultural and policy contexts. This research aims to bring the Dutch perspective on the increase of social inclusion in public outdoor sports facilities.

2

LITERATURE

2

2.1. Social inclusion and social exclusion

2.1.1. Definitions

To get a better understanding of the concept of social inclusion and what improving social inclusion could encompass, an overview of important literature regarding social inclusion and social exclusion is provided, followed by definitions.

The World Bank Group (n.d.) defines social inclusion as ‘the process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity’. This definition articulates the fact that social inclusion is a process requiring dynamic and constant effort, rather than a static goal.

After thorough literature review, Oxoby (2009, p.1137) came up with the following definition of social inclusion: ‘Inclusion is an aspect of how one perceives her access to institutions and resources in the decision making environment. As such, inclusion affects the way individuals perceive the returns of investing in various forms of capital (e.g. human and social)’. This definition places emphasis on the perception of the individual; it is not about the actual accessibility to institutions and resources, but about what an individual believes their access to opportunities to be (Oxoby, 2009).

To define social inclusion, Kelly (2011) focusses on the emerge and usage of the concept in the broader political context. They accentuate the fact that social inclusion in policy making is particularly evident in policies of New Labour. In those policies, the traditional pursuit of ‘equality’ through a redistribution of wealth shifted towards the redistribution of ‘opportunity’ (Kelly, 2011). This definition is relevant within the broader context of neoliberal economics.

Atkinson (1998) describes (social) exclusion using three elements; relativity, agency and dynamics. The first element, relativity, describes exclusion determined relative to the standards of a society. Second, exclusion is influenced by agency, referring to the fact that exclusion is always achieved because of the principal-agent dynamic. For example, an insurance company, the principal in this instance, may treat policyholders (the agents) differently on the basis of their gender. The third element of exclusion is dynamics, emphasising the aforementioned fact that exclusion is a process; an individual may be included in the current state, but excluded because of their future prospects that are present because of the current conditions.

Social exclusion, as defined by Townsend (1979), refers to, but is not limited to, the inability to meet basic needs, but also the lack of access to the standard living conditions and services that are common in the society to which individuals or groups belong. Social exclusion is driven by multiple dynamic and multidimensional causes. It is characterised by unequal power relations across economic, political, social and cultural dimensions, thereby impacting society on various levels (Mirzoev et al., 2021). Importantly, social exclusion manifests not only through low income; poverty may be a result of exclusion, exclusion is not simply poverty (Oxoby, 2009). Social exclusion also manifests itself through educational disadvantages, poor health, inadequate housing, or living in poor areas (Brady, 2002).

Avramov (2002) describes the experience of social exclusion as the overlapping of two factors: objective deprivation, which is the measurable lack of essential resources or conditions for well-being, and subjective dissatisfaction, where individuals are unsatisfied with their life opportunities. This dissatisfaction stems from having inadequate resources and limited access or participation in key areas of human activity. Social exclusion is also described as a social process, involving the denial of access to opportunities and social rights for particular individuals or groups.

An overview of the definitions of the aforementioned concepts provided by different authors is given in the following table.

Table 1. Definitions of social inclusion and (social) exclusion (own work)

Author	Concept	Definition	Focus
Townsend (1979)	Social exclusion	‘the inability to meet basic needs but also the lack of access to the standard living conditions and services that are common in the society to which individuals or groups belong’	Society to which individuals or groups belong
Atkinson (1998)	(social) exclusion	‘People may be excluded from participation in today’s society’	Relativity, agency and dynamics as elements of exclusion
Avramov (2002)	Social exclusion	‘objective deprivation, which is the measurable lack of essential resources or conditions for well-being, and subjective dissatisfaction, where individuals are unsatisfied with their life opportunities’	Exclusion as a social process
Oxoby (2009)	Social inclusion	‘Inclusion is an aspect of how one perceives her access to institutions and resources in the decision making environment. As such, inclusion affects the way individuals perceive the returns of investing in various forms of capital (e.g. human and social).’	Perception of individual in opportunities
Kelly (2011)	Social inclusion	‘the redistribution of opportunity’	
World Bank Group (n.d.)	Social inclusion	‘the process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity’	Social inclusion as a process

After reviewing these definitions, a clear definition of social inclusion can be drawn up in the context of this research. Social inclusion encompasses three important aspects. First, it is a dynamic process rather than a static state. Second, it is relative, meaning it is dependent on the society to which individuals or groups belong. Third, it involves individuals’ perceptions of opportunities; actual participation is not required, but people should feel that they have the opportunity to participate. These aspects lead to the following definition: social inclusion is a process that ensures every individual or group perceives equitable access to opportunities for full participation and engagement in society, regardless of their background or abilities. This definition will be used throughout the remainder of this report.

While assessing social inclusion, as the concept is relative, it is essential to compare the level of social inclusion of a particular group to a population that is similar to the target group. For this research, this means that social inclusion of the target group should be compared to that of the general population of Amsterdam. The individual nature of social inclusion should be assessed by research methods focused on an individual, rather than a group.

2.1.2. Social exclusion, characteristics and the process

The definitions of the concepts of social inclusion and exclusion suggest that certain individuals or groups are more likely to experience social inclusion or exclusion than others. Knowing which groups are more likely to experience social exclusion can increase the effectiveness of measures to increase social inclusion. It is important to note that groups prone to social exclusion are dependent on the context, making it difficult to generalise which groups are most likely to be excluded (Pattnaik & Mohanty, 2014).

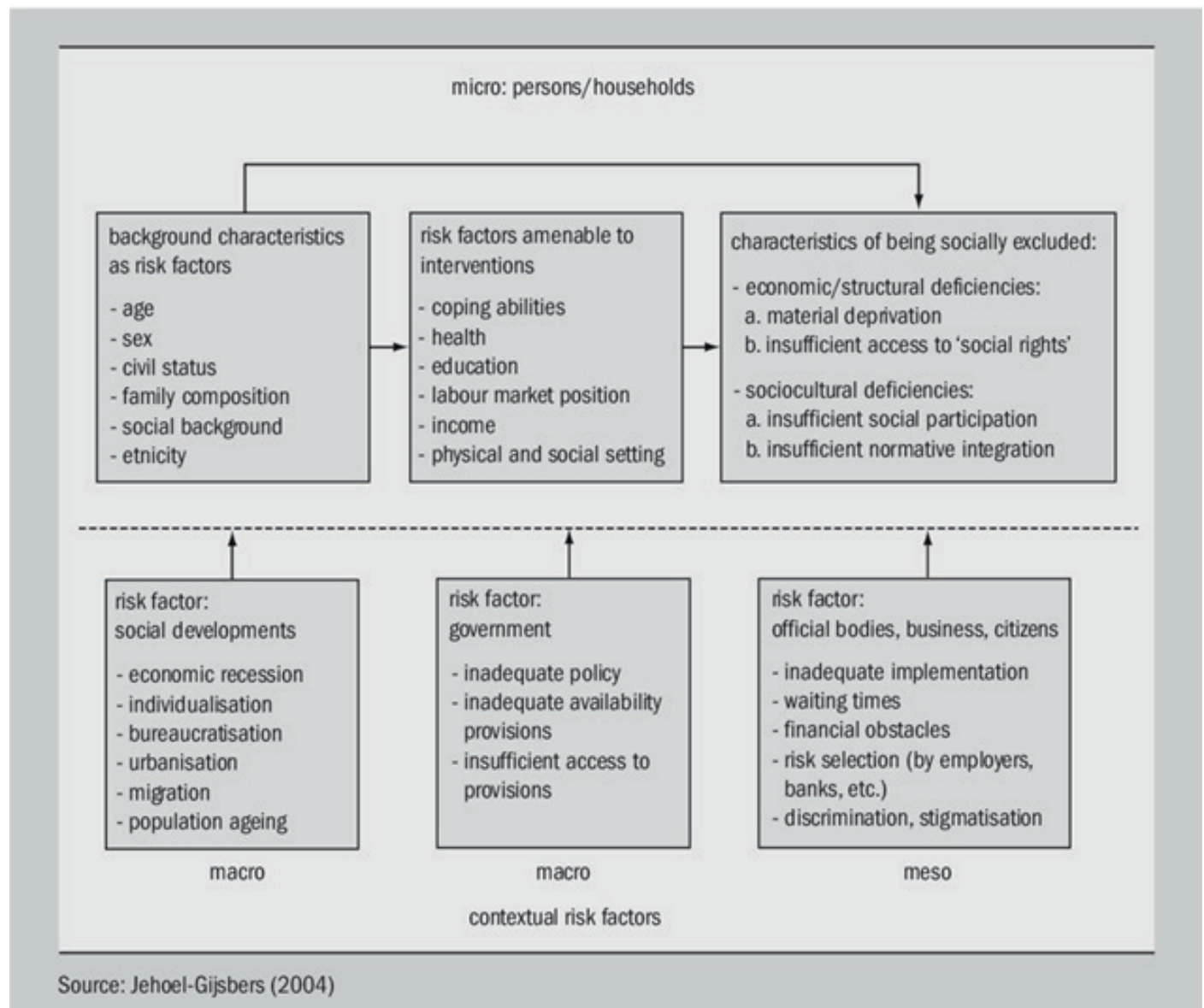


Figure 3. Conceptual model : risk factors and characteristics of social exclusion (Coumans & Schmeets, 2015)

To identify groups likely to be socially excluded, it is important to differentiate between the causes of exclusion and its manifestations (Jehoel-Gijsbers & Vrooman, 2007). Jehoel-Gijsbers & Vrooman (2007) propose a framework (figure 3) in which the relation between 1) background factors as risks factors, 2) risk factors amenable to interventions and 3) characteristics of being excluded are elucidated. Risk factors are seen as factors increasing the likelihood of social exclusion. However, it is important to note that the relation between the variables can be reciprocal. For instance, poor health can lead to social exclusion, but social exclusion can also negatively affect an individual's physical or mental well-being (Jehoel-Gijsbers & Vrooman, 2007). A distinction is made between background characteristics as risks factors and risk factors amenable to interventions. The difference between those concepts is that background characteristics are more rigid, and influenced on macro level by social developments. Risk factors amenable to interventions, on the other hand, can be influenced by the government, with the right policies and accessible and available provisions (Jehoel-Gijsbers & Vrooman, 2007).

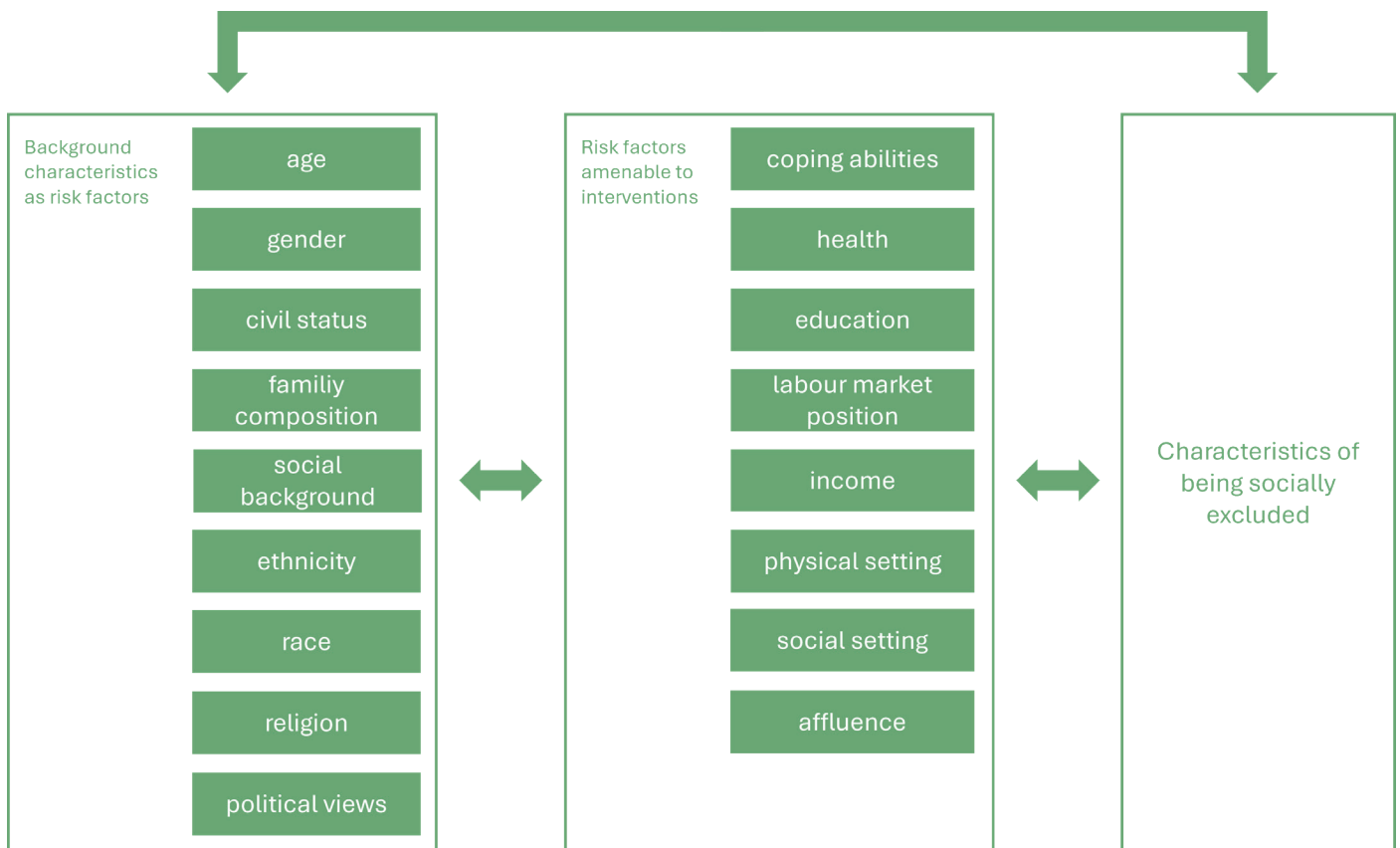


Figure 4. Risk factors and characteristics of social exclusion overview (own work, from Jehoel-Gijsbers & Vrooman, 2007)

Figure 4 shows an adapted framework of the factors influencing the level of social exclusion based on the framework of Jehoel-Gijsbers & Vrooman (2007). The list of risk factors for social exclusion are completed by adding the factors proposed by Hagen-Zanker & Babajanian (2014), Pattnaik & Mohanty (2014) and Stewart et al. (2006). However, it is important to recognise that the characteristics influence the level of social exclusion in varying degrees. Certain factors, such as belonging to an ethnic minority, being part of a lone-parent family, or household income, have a main casual effect on social exclusion, while others have a more indirect effect (Jehoel-Gijsbers & Vrooman, 2007). This effect is dependent on the context; in public space, age and gender has a direct effect on social exclusion, whereas in sports, perceived health has a direct effect on social exclusion. In the remainder of the literature, these relations will receive more attention.

The framework enables one to identify groups vulnerable to social exclusion based on risk factors and characteristics, which is important in defining the groups that are vulnerable to social exclusion in public space, sports, or sports facilities. For this research, certain background characteristics are predetermined; gender and age.

2.1.3. Groups more likely to be socially excluded

Coumans and Schmeets (2015) identified several groups in the Netherlands as being especially vulnerable to social exclusion, including non-western immigrants, individuals who are divorced or have never been married, the least educated and the lowest income quartile. According to Jehoel-Gijsbers and Vrooman (2007), additional risk factors for social exclusion include reliance on social benefits, limited proficiency in the Dutch language, and living in single-parent households. Additionally, social exclusion and (self-reported) health status are related to the level of social exclusion (Coumans & Schmeets, 2015).

2.1.4. Assessing social inclusion and exclusion

Indicators

Indicators of social exclusion are the measurable factors or criteria used to identify and assess the presence, extent, and impact of social exclusion within a society. Defining indicators of social exclusion is valuable to international agencies, national and subnational governments, researchers, members of civil society organisations, and practitioners (A. Atkinson & Marlier, 2010).

Atkinson and Marlier (2010) proposed principles for defining indicators, both individually and collectively as a portfolio. These principles ensure that indicators are fit for purpose, meaning they are specifically tailored to address the questions they aim to answer. As a consequence, indicators are not universal but are instead designed to align with the context and objectives of the analysis they support.

The principles are as follows (A. Atkinson & Marlier, 2010, pp.45-46):

Principles per indicator:

- *An indicator should identify the essence of the problem and have an agreed normative interpretation*
- *An indicator should be robust and statistically validated*
- *An indicator should be interpretable in an international context*
- *An indicator should reflect the direction of change and be susceptible to revision as improved methods become available*
- *The measurement of an indicator should not impose too large a burden on countries, on enterprises nor on citizens*

Principles for portfolio:

- *The portfolio of indicators should be balanced across the different dimensions*
- *The indicators should be mutually consistent and the weight of single indicators in the portfolio should be proportionate*
- *The portfolio of indicators should be as transparent and accessible as possible to citizens*

Dimensions

Social inclusion can be assessed across different domains of life, each with specific indicators to measure social inclusion (UNECE, 2022). Poverty has traditionally been a key domain for measurement (Atkinson & Marlier, 2010). However, it is not the only risk factor or characteristic of social inclusion, as can be observed from figure 4. Economic resources should always be understood within the context of an individual's environment (Atkinson & Marlier, 2010), thereby linking poverty to the broader concept of social inclusion. To validate the measurement of social inclusion, a multidimensional approach is required. This includes assessing a combination of the domains of material living conditions, labour market participation, access to education and skill-building opportunities, health and disability considerations, access to healthcare, public services, and essential infrastructure like transportation, as well as access to social, political, and civic engagement (Social Watch, 2010; UNECE, 2022).

Catchment area

Social exclusion cannot effectively be assessed with random samples. This research concentrates on Beweegpark Kraaiennest (which will be elaborated upon in section 4.2.), aiming to assess social exclusion of this sports facility. Liu (2009), in their study on the performance of public leisure facilities, a category that includes sports facilities, introduces and employs the concept of a facility's catchment area. This area refers to the geographical area from which a facility draws its users. Identifying this catchment area is important for assessing social exclusion among the right population. To define the catchment area, a 'distance decay' model can be used, which assumes that the likelihood of people using a facility decreases as the distance to the facility increases (Liu, 2009). The model also considers natural barriers (like rivers or mountains) and possible competition from other nearby facilities. This ensures that the defined catchment area reflects realistic usage patterns. To correctly assess the catchment area, Beweegpark Kraaiennest and its surroundings are analysed in section 4.2. For example, the spatial analysis highlights the (public) facilities located close to the park, along with the transportation possibilities. These directly influence the catchment area for Beweegpark Kraaiennest, which is elaborated upon in section 4.2.4.

Threshold approach

There are three basic approaches as to defining whether an individual or group is more or less socially included compared to others in that society (UNECE, 2022). The first approach is a single threshold approach which defines social exclusion using a set threshold of deprivations, beyond which individuals are considered socially excluded, without accounting for relative positions within a broader distribution. Second is a multiple threshold approach which recognises varying degrees of inclusion or exclusion, with different thresholds for defining these states, allowing for a spectrum of social inclusion and exclusion. Lastly a no threshold approach can be adapted. This focuses on related concepts like well-being or social cohesion, incorporating social exclusion indicators without explicitly defining thresholds for exclusion. As this research is focused on the improvement of social inclusion, a no threshold approach seems the most appropriate. This approach does not focus on meeting criteria, but on a general goal of increasing social inclusion.

As this research is focused on the improvement of social inclusion, a no threshold approach seems the most appropriate. Rather than evaluating whether fixed criteria are met, this approach focuses on the broader objective of promoting social inclusion. It aligns well with the second subquestion, which examines the current level of social inclusion at Beweegpark Kraaiennest. This evaluation builds on the indicators identified in the first subquestion. As such, the current state of social inclusion is understood as the combined effect of various factors that either support or hinder inclusion, as described in section 5.2.

Examples of assessment social inclusion or exclusion

As has become clear from the previous sections, there are different ways in which social inclusion or exclusion can be measured. A few examples of measurement structures or indicators will be discussed here to provide insight into how social exclusion is assessed and how it is approached in the context relevant to this research. The UNECE (2022) provides examples of frameworks used to assess social inclusion in different contexts. Given that this research is situated in the Dutch context, it makes sense to take a look at the ‘Netherlands Social Exclusion Framework’, developed by Jehoel-Gijsbers and Vrooman (2007), as introduced in the previous paragraph. In this section, the operationalisation of the framework will be discussed.

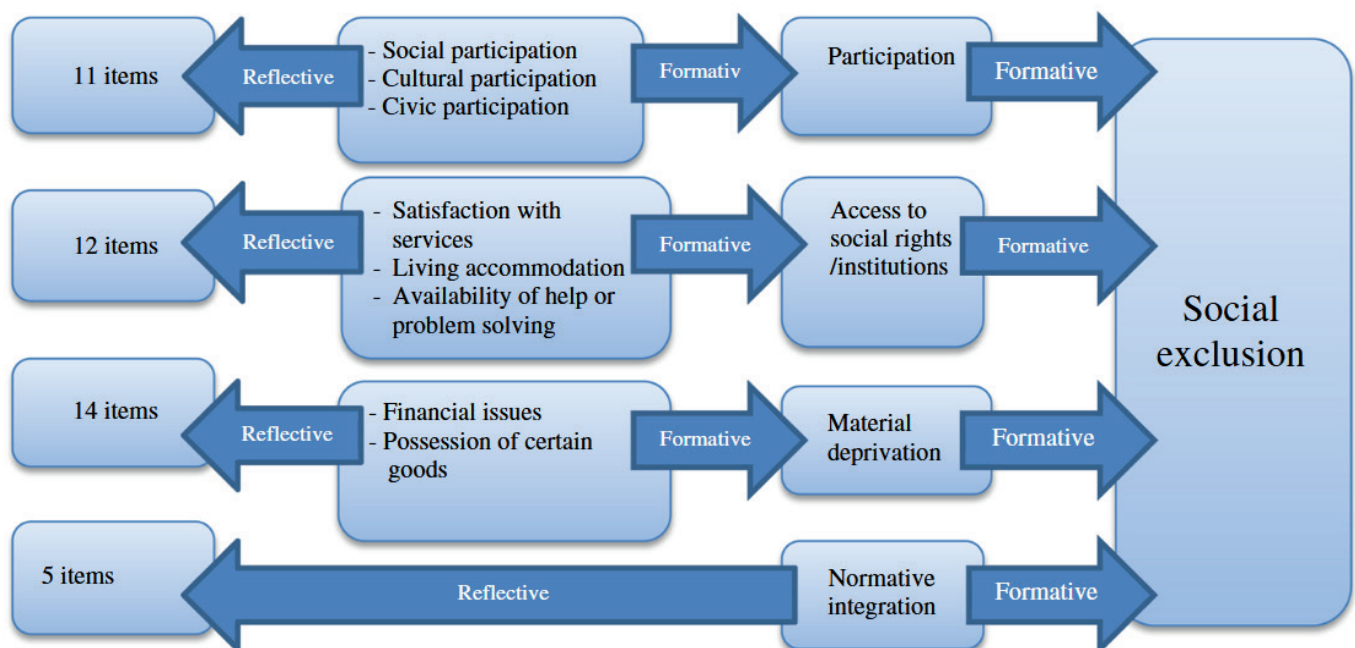


Figure 5. Theoretical framework of social exclusion (Coumans & Schmeets, 2015)

Jehoel-Gijsbers and Vrooman (2007) identified four dimensions of social exclusion (figure 5): material deprivation, social participation, access to social rights, and cultural/normative integration. Within those dimensions, different items are measured. For example, within the dimension of access to social rights, measured items include experiences of mistreatment by public agencies, frequent disturbances in neighbourhoods, low social cohesion, and feelings of insecurity in one's neighbourhood. For social participation specifically, components include feelings of exclusion from society, a lack of social connections, minimal social support, limited membership in clubs or societies, and the impact of health issues on social interactions (Jehoel-Gijsbers & Vrooman, 2007).

Building on to the framework established by Jehoel-Gijsbers and Vrooman (2007), Coumans & Schmeets (2015) adopt the same dimensions, but further refine them by identifying several sub-dimensions, such as social relationships and political and cultural participation within the participation dimension (figure 5). These sub-dimensions, like the primary dimensions, can be regarded as indicators that help predict social exclusion. The Ministry of Social Affairs and Employment (2009) developed a set of indicators to measure social inclusion, intended to serve as a baseline before implementing policy interventions aimed at reducing the number of children who do not participate in sports, cultural activities or other leisure activities. The indicators target social inclusion among children and include the following (Ministry of Social Affairs and Employment, 2009):

- a. Share of children that do not participate in sports, scouting, cultural activity or hobby club.*
- b. Share of children that do not participate in activities mentioned under a nor in activities organised by district, municipality or out of school activities.*
- c. Share of children that do not participate in activities mentioned under a + b nor in activities organised by church or mosque.*
- d. Share of children that do not participate in activities mentioned under a, b and c because of financial reasons.*

Conclusion

Measuring social inclusion and exclusion is a complex process requiring targeted and context-specific indicators, as social inclusion is dependent on a variety of factors. This indicates that a multidimensional approach is essential to capture the complexity of social inclusion or exclusion. Indicators to measure social inclusion or exclusion should be carefully designed, both individually and as a cohesive set. A one size-fits-all approach is not appropriate for measuring social inclusion. Instead, indicators should align with the specific context and purpose of the research.

2.2. Public space

2.2.1. Perceptions of public space

As argued in the previous paragraphs, the concepts of social inclusion and exclusion are inherently subjective, shaped by individual perceptions and experiences. Social inclusion in public spaces is not limited to the design and physical form of space (Zhou, 2019). Individuals attach meanings and emotions to spaces, which are derived from their interactions with them. This leads to a duality between tangible and abstract facets of space. This duality, combined with an awareness of how one's positionality and personal experiences influence interactions with public space is important in evaluating the social inclusion of a public space. Numerous scholars, including philosophers, geographers, political ecologists, sociologists, and urban studies experts, have explored the complex relationship between physical spaces and human perceptions of them. These perspectives will be explored in the following sections.

Henri Lefebvre's work is foundational in the discussion about the perception of space. Most influential is his book 'The Production of Space' (Lefebvre, 1974). In this text, he introduces the 'spatial triad', a framework consisting of spatial practice, representations of space and representational space.

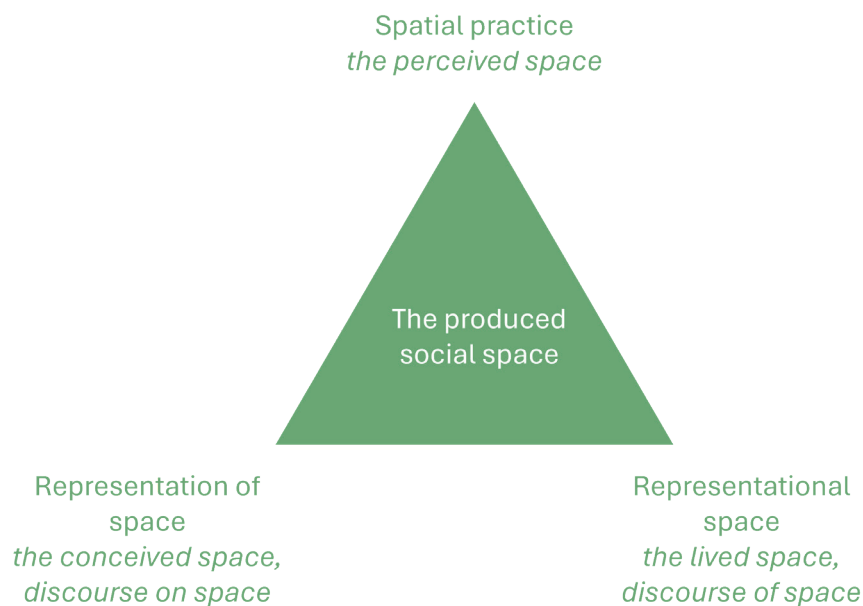


Figure 6. Spatial triad of Lefebvre (own work, based on Lefebvre, 1974)

The first concept, spatial practice, highlights the role of society in shaping a place. This refers to the everyday ways in which people use, organise, and navigate spaces. This emphasises the fact that space is not neutral or static. Instead, space is actively generated through societal practices. At the same time, space influences society and is shaped by the conditions it inherits or exists within. Additionally, Lefebvre introduces the dimension of time, noting that space is produced incrementally over time through mastery and appropriation by society.

The second component consists of representation of space, which is tied to professionals in the field such as scientists, planners and engineers. These professionals conceptualise and abstract space aiming to impose order and improve understanding. While these representations are useful, they fail to capture people's lived and perceived experiences of space. This approach risks reducing space to a purely functional concept, neglecting its complex dynamic and human aspects.

The last element, representational space, refers to the lived space. This element emphasises how space is experienced and filled with emotional and symbolic meaning. This dimension focuses on how ordinary people interact with spaces in practical, personal and meaningful ways, contrasting with the aforementioned abstract perspective of professionals. Representational space also emphasises how space is often shaped and controlled by larger systems of power, such as governments, planners or corporations. This leaves individuals to experience space passively.

Soja (1996) elaborates on Lefebvre's work. He introduces the concept of 'real space', emphasising the geographical, physical context and the distribution of resources. This 'real space' consists of tangible, material forms that can be mapped, analysed, and understood. In contrast, the 'imagined' space refers to Lefebvre's idea of representational space, focusing on mental constructs, ideas, and the social significance of space as it is represented and perceived.

Soja's main argument is that spatial thinking has traditionally been limited to two dimensions: the real (physical) and the imagined (mental). Therefore, he introduces a third space, which integrates both the real and imagined into what he describes as a 'fully lived space'. This third space encompasses both the material and mental dimensions of spatiality while extending beyond them to embrace new and innovative ways of understanding and thinking about space. The key aspect of Soja's thinking is the interconnection between class and space, emphasising that social relations and structures and spatial relations and forms are mutually constructed. These dimensions influence and shape each other, but neither is taking precedence over the other (Borch, 2002).

Lefebvre and Soja's findings underscore that understanding social inclusion within public spaces is a complex and nuanced task. Cultural factors, personal identity, and lived experiences all influence how individuals perceive, construct, and engage with the physical environment. Public space is not merely defined by physical boundaries, but by the interactions of individual cultures and identities that extend beyond the static environment (Massey, 1993). Inclusive public spaces are therefore not only physically accessible, they also foster a sense of psychological welcoming. For instance, a public space may be designed to be universally accessible, yet if it is predominantly used by a certain group, it can become socially and emotionally exclusive to others who feel disconnected from the dominant group (Zhou, 2019).

2.2.2. Spatiality of social exclusion

Madanipour (2011), similar to Lefebvre and Soja, highlights the various ways in which public space could be perceived. Madanipour also introduces the concept of social inclusion in public space, which manifests itself in three distinct dimensions. According to Madanipour, both how public spaces are organised and an individual's understanding of it, shape the social inclusion of such spaces.

Firstly, the physical organisation of a space can impose visible and strict limitations on how it is used (Madanipour, 2011). This can for example involve topographical features, such as the ancient Greek and Mesopotamian practice of reserving hilltops as sacred spaces for their gods (Madanipour, 2011). It can also stem from social constructs or perceptions that certain places are meant for specific groups of people. These limitations might take the form of physical inaccessibility, like public spaces that are not designed to accommodate wheelchair users.

The mental space, or the perception of space, can be regulated by codes and signs (Madanipour, 2011), which may prevent or discourage individuals from entering or using certain areas. This regulation can occur through explicit warnings or more subtle deterrents. It also includes the fears and perceptions associated with activities in specific places. For instance, one might hesitate to enter an expensive-looking shopping centre if they feel they lack the resources to participate in its activities, even in the absence of any physical barriers preventing access (Madanipour, 2011).

Lastly, social control plays a crucial role in shaping social inclusion within public spaces. In this context, social control refers to both formal rules and regulations, informal codes and signs, as well as fears and desires that influence behaviour (Madanipour, 2011). These factors all influence an individual's behaviour and set boundaries on their actions. Social control determines whether we feel entitled to enter a space, welcomed within it, or excluded from it. For example, a dress code at an exclusive restaurant or a security presence at a gated community might subtly or explicitly signal who is welcome and who is not.

Public space and its management and design play a significant role in the inclusion of urban society (Madanipour, 2011). Therefore, social inclusion and public space are interconnected. The multidimensional nature of social exclusion can take spatial forms. This spatiality of social exclusion is shaped by the physical organisation of space but also by the social control of space, which operates through a combination of formal rules, regulations, and informal codes or signals.

2.2.3. Groups more likely to be socially excluded from public space

Haselbacher et al. (2024) identify young people and marginalised groups as being socially excluded from public spaces. In line with the previous research, Haselbacher attributes social exclusion to physical factors, the policing and regulation of 'appropriate' behaviour, and fears of violence or harassment.

Marginalised groups, such as individuals experiencing homelessness, substance abusers, or those who disrupt the perceived 'public order', are often subjected to control or displacement from public spaces (Haselbacher et al., 2024). Due to their limited access to commercialised areas and private spaces, these groups rely heavily on public spaces.

Similarly, young people depend on public spaces for daily activities and autonomous social interactions where they can connect with peers and escape the supervision of family or guardians (Litscher, 2013). However, they are frequently regarded as a 'nuisance' and removed from these areas. This issue is especially concerning for racialised youth, who may also face fears of violence (Haselbacher et al., 2024).

Additionally, there is a notable difference in how boys and girls experience social exclusion in public spaces. This disparity becomes more pronounced with age. By the age of eight, statistics reveal that 80% of the users of public spaces such as playgrounds are boys, as girls feel ten times more insecure in public places (Zimm, 2019).

2.3. Sports

2.3.1. Definitions

To explore the relationship between sports and social inclusion, it is essential to clarify what is being meant by ‘sports’ in the context of this research. Defining sports can be challenging, as the concept can refer to a wide range of activities, from cycling to work to playing professional football. To define the concept of sports for the purpose of this research, existing definitions have been analysed to derive a single, cohesive definition.

Table 2. Definitions of ‘sports’ (own work)

Author	Definition	Focus
Council of Europe’s European Sports Charter (1998)	<i>‘all forms of physical activity which, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels.’</i> (European Commission, 1998, p.5)	Sports as means to improve health, social function of sports, recreational function of sports
Parry (2019)	<i>‘institutionalised rule-governed contests of human physical skill’</i> (Parry, 2019, p.4)	Six criteria; sports should be human, physical, involve skill, contest, rule-governed and institutionalised
Borge (2021)	<i>‘an extra-ordinary, unnecessary, rule-based, competitive, skill-based physical activity or practice where there is cooperation to fulfil the prelusory goal of having a competition’</i> (Borge, 2021, p. 309)	Sports is autotelic, pursued for fun, rather than necessity or obligation
Lebed (2022)	<i>‘an unproductive and officially regulated game that is played by using, as well as possible, one’s special skills and mind-body abilities directed toward winning in purposive contests as well as to be the best in measured athletic or refereed aesthetic performances’</i> (Lebed, 2022, p.112)	Unproductiveness, attachment to competitive game, public status and functioning of game
Mareš & Novotný (2023) in response to Parry (2019)	<i>‘institutionalised, rule-governed, structurally game and play-like (non-necessary, non-ordinary, arbitrary, and gratuitous) encounters in various tests and contests of human physical skills’</i> (Mareš & Novotný, 2023, p.43)	Emphasis on game and play-like structures

Table 2 shows the diverse definitions of sports. For this research, an important element includes the autotelic nature, emphasising sports participation for enjoyment rather than obligation. This highlights the game- and play-like structures of sports. Another key aspect is the physical component of sports, viewing sports as a means to enhance health and well-being. Additionally, the social dimension of sports is important; sports are imbedded in society and can help form social relationships. While sports in this context do not necessarily need to be competitive, rule-governed, or performance-driven, they may still possess these characteristics. Concluding, in the context of this research, sports are voluntary physical activities undertaken for enjoyment, health improvement, and social engagement, which may or may not involve competition, structured rules, or performance objectives.

2.3.2. Sports and social inclusion

Sports can contribute to promoting social inclusion. For example, volunteering in sports often fosters ‘active citizenship’ by encouraging individuals to engage with and participate in their communities (Waring & Mason, 2010). Nonetheless, this research highlights how social exclusion manifests itself in the domain of sports. As Collins and Kay (2014) argue, the effects of social exclusion are as pervasive in sports as they are in other societal domains. Barry (1998) identifies three key reasons underlying social exclusion in sports:

1. Societal structures: these include societal attitudes and practices, such as the treatment of disabled individuals or ethnic minorities.
2. Institutional biases: this refers to the attitudes of decision-makers or gatekeepers, such as facility managers, who may hold unfavourable views of certain groups
3. Individual perceptions: people may exclude themselves by perceiving their bodies as unsuitable for sports.

This perspective aligns well with Madanipour's (2011) concept of the spatiality of social exclusion. It illustrates how, in both sports and public spaces, social exclusion is influenced by elements of social control, which encompass structural features of society, but also features of an individual. These institutional biases also shape the physical organisation of spaces, thereby influencing perceptions of how spaces should be utilised and by whom. This, in turn, can affect who feels welcome and socially included in the domain of sports. Additionally, mental control within physical spaces is shaped by fears and desires that guide behaviour, which is similar to an individual's perception of their suitability for participating in sports.

In the past decades, the concept of social inclusion has gained attention within policy development in the sports sector. Governments increasingly recognise the aforementioned benefits of physical activity on community and individuals and therefore see the need to promote inclusivity in their policies. The following table provides an overview of several policy examples.

Table 3. International social inclusion in sports policy examples (own work)

Policy	Country	Policy goal	Cause for policy	Relation to public space
<i>1997 National Neighbourhood Renewal Strategy</i>	United Kingdom	improving disadvantaged neighbourhoods by enhancing local facilities and amenities (Waring & Mason, 2010)	increased attention for social inclusion by Labour government	sports and leisure facilities were identified as essential tools for improving neighbourhoods and increasing participation rates (Waring & Mason, 2010)
<i>Sports Vision 2018</i>	Korea	promoting public health by expanding and upgrading sports facilities with a focus on underprivileged groups (Kim & Chang, 2018)	a National Survey on Physical Activity Participation revealed that there were limited opportunities for physical activity in public space (Kim & Chang, 2018)	public sports facilities were used for targeted interventions to promote public health
<i>Everyone Can Play (2018)</i>	Australia	creating play spaces where everyone can come together and play, no matter their age, ability or background (Everyone Can Play, 2021)	response to community feedback for the need for more high-quality play opportunities that are inclusive for people of all ages, abilities and backgrounds (Everyone Can Play, 2021)	public space, specifically play spaces are designed, planned and managed to be more inclusive

These examples reflect a growing global trend towards fostering equity and social inclusion in sports (policy), with a particular focus on socially vulnerable groups.

2.3.3. Socially excluded groups in sports

Collins and Kay (2014) identify multiple groups that are more likely to experience social exclusion broadly, and argue their exclusion from sports as well. Certain combinations of risks of exclusion, such as being an older person from an ethnic minority or an unemployed woman, can result in what is referred to as double deprivation.

One of the most obvious groups that is more likely to be socially excluded from sports is the poor or unemployed, as they often lack the resources needed to participate in sports. Financial constraints are cited as the most significant barrier to sports participation (Collins & Kay, 2014).

Children are another group more likely to be excluded from sports, with their level of exclusion largely influenced by parental factors such as social class, childhood poverty, and parental attitudes toward education (Collins & Kay, 2014). Play is crucial for children's development, helping them explore their environment, build relationships, and develop motor, cognitive, and emotional skills. However, concerns about 'stranger danger' and traffic risks have increasingly restricted children's play to home-centred activities since the 1950's, particularly for younger children and girls up to their mid-teens (MORI, 2000, as cited in Collins & Kay, 2014).

Women and girls face discrimination rooted in pervasive gender ideologies, which are also reflected in sports (Collins & Kay, 2014). In the realm of sports, traditional expectations of gender-appropriate behaviour are very influential, reinforcing broader gender ideologies. Sports play a distinct role in perpetuating the belief that women are less powerful and inferior to men, framing that these disparities are natural rather than outcomes of social constructs and processes.

Older people are another group frequently excluded from sports. Collins and Kay (2014) identify five key factors contributing to this exclusion: loneliness and lack of support, fear of the local area (particularly at night), low income, poor health, and limited access to facilities. This exclusion is even more pronounced for women, particularly those with low incomes, poor access to resources, living alone, lacking formal qualifications, or residing in urban areas, where they often face multiple layers of exclusion.

Ethnic minorities are often socially excluded from sports, driven by factors such as discrimination, racial stereotyping, and alienation from local communities (Collins & Kay, 2014). This exclusion can manifest in different ways, including the over-representation of certain ethnic groups in specific professional sports and under-representation in others. Another issue is 'stacking', where ethnic minority players are disproportionately placed in particular positions within a team. Addressing these challenges is complex, as multicultural societies encompass diverse ethnic groups, each facing unique issues.

In the context of sports and leisure, disabled persons often experience social exclusion for various reasons. Transportation is a critical concern for this group, as limited mobility and restricted access to leisure opportunities further exclude them. Collins & Kay (2014) name issues of empowerment, which manifests itself in bullying. Additionally, disabled people may feel hesitant to ask friends for frequent assistance, such as pushing their wheelchairs, which can create barriers to participation.

2.4. Sports facilities

2.4.1. Public sports facilities

After touching upon a short definition of public sports facilities in the introduction, the concept will be elaborated upon in a little more detail in this paragraph. This definition and the explanation will serve as a basis for understanding the boundaries of sports facilities for the rest of the research.

As referred to in the introduction, Ruetten et al. (2011) classify certain aspects of public space designed to encourage physical activity. This classification consists of, among other things, sports facilities and infrastructure which enables recreational physical activity. Limstrand (2008, p.276) defines sports facilities as ‘all built facilities and/or areas improved, with the main purpose of stimulating to physical activity’. The typological distinction is important; this research focusses not only on built facilities but also on the public space designed to stimulate physical activity.

Another important aspect is the public aspect of sports facilities. This refers to the facility being open for use by the general public without significant barriers to entry. For this context, it means that the facility should not require payment or a membership to enter or make use of. The facility does not necessarily have to be owned or managed by a government entity, but the primary aim should not be to make profit.

Limstrand, (2008) points out the variety of sizes of sports facilities, elaborating that sports facilities encompass both small multiuse facilities located in neighbourhoods as well as large regional, specialised facilities. Next to differences in scale, facilities can differ in functions. Some facilities are multifunctional and house different sports and physical activity opportunities, whereas others are specialised to accommodate a specific type of physical activity.

For this research, public sports facilities are defined as cost-free, publicly accessible spaces or built facilities designed to promote physical activity, varying in scale and purpose.

2.4.2. Socially inclusive design of sports facilities

As the results of the first subquestion will address the factors influencing the social inclusion of public outdoor sports facilities for girls aged nine to twelve, which design will ultimately be a part of, this section will concentrate on the designer’s perspective regarding social inclusion in such facilities.

Within the design of sports facilities, there is growing attention for the concept of universal design as a potential design approach enhancing social inclusion in the built environment (Sholanke & Eleagu, 2024). The concept of universal design focuses on the development of products, services, buildings and environments to be accessible and usable for all different groups (Sholanke & Eleagu, 2024). There are seven principles of universal design (Nurdiani et al., 2020):

1. Equitable use: designs should be usable and appealing to individuals with diverse abilities, ensuring accessibility for a broad range of users.
2. Flexibility in use: designs should accommodate a variety of preferences and capabilities, allowing users to interact with them in multiple ways.
3. Simple and intuitive use: the design should be easy to understand and use, regardless of a user’s background, experience, language, or focus.
4. Perceptible information: designs must convey critical information clearly, regardless of the user’s sensory abilities or the surrounding environment.
5. Tolerance for error: the design minimises risks and adverse outcomes by reducing the chances of errors or unintended actions.
6. Low physical effort: usability is optimised by limiting the physical effort required, ensuring comfort and preventing unnecessary weariness during engagement
7. Appropriate size and space for approach and use: the design should provide adequate space and proportions for users to approach, reach, and operate it comfortably, accommodating variations in body size, posture, and mobility.

These principles can serve as guidelines for shaping the design process of sports facilities. Examples of designing sports facilities with these principles in mind include a fitness park in which stations are designed for users of all abilities, including wheelchair-accessible equipment. Stations that are able to be adjusted to different resistance levels allow for flexibility in use. Another example is a multi-use sports field, with markings for different sports, clear signage and field marking and soft boundary fencing to reduce risk of injury.

Application of the principles of Universal Design should increase the social inclusion in the design and development of sports facilities (Sholanke & Eleagu, 2024). However, it is important to recognise that physical accessibility, as emphasised by Sholanke and Eleagu, represents only one aspect of social inclusion. This broader perspective is highlighted by the various layers of public space proposed by Lefebvre and Soja.

Assuming that, when providing individuals with the opportunity to participate in sports by increasing the accessibility of the design of the sports facility, makes those facilities socially inclusive, can be described as the concept of 'open access'. According to this concept social exclusion stems from a lack of opportunity to participate. Therefore, it is assumed that once opportunities are in place to facilitate participation, social inclusion will come naturally (Waring & Mason, 2010). This would mean that when quality sports facilities are developed, sports opportunities are freely available for local communities, which therefore would be more socially included in sports.

However, this 'open access' approach isn't shared by everyone, as Waring & Mason (2010) describe. It is questionable if providing new opportunities automatically leads to promotion of social inclusion, as the barriers preventing individuals from physical activity can be complex and multifaceted (Waring & Mason, 2010). This research will not follow the 'open access' approach, as social inclusion requires a more holistic approach and involves more than just accessibility.

2.5. Conceptual model

A conceptual model is designed based on the relationships between the concepts discussed in the previous sections. A short explanation is provided under the figure.

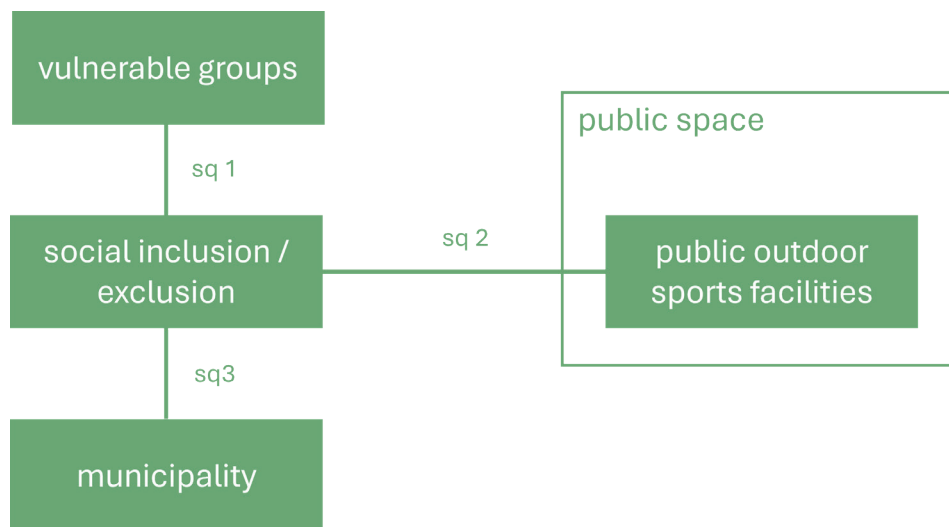


Figure 7. Conceptual model (own work)

Social inclusion remains difficult to represent in a conceptual model due to its subjective nature and its character as an ongoing process rather than a fixed state.

2.5.1. Concepts and relations

As described in section 2.1., the level of social inclusion relates to an individual perception. Additionally, it is seen as a continuum rather than a fixed condition. Therefore, the concept is visualised as social inclusion/exclusion. This also places the concept on a scale, reflecting the no-threshold approach adopted in this study, which values every step towards greater inclusion. As the literature highlights, different groups experience varying degrees of social exclusion across different domains. Groups who are more likely to be socially excluded are referred to as vulnerable groups. This is why a direct link is drawn between the concept of 'vulnerable groups' and 'social inclusion/exclusion'. The degree of social inclusion is influenced by the design and management of public space and public sports facilities. Therefore, the relation between vulnerable groups and social inclusion/exclusion extends to public space and public outdoor sports facilities. Within this framework, the municipality plays an important role. They are the primary actor responsible for shaping, managing and maintaining public spaces and facilities. As such, they have significant influence over the extent to which these environments promote or restrict social inclusion.

2.5.2. Subquestions

The subquestions are also represented in the conceptual model, with each focussing on a specific part of the overall model. The model should be interpreted as having continuous lines from each concept to the other, all coming together in 'social inclusion/exclusion', as this is the main topic of this research.

The first subquestion examines the factors that influence social inclusion of public outdoor sports facilities for a specific vulnerable group. It primarily focuses on the relationship between the vulnerable group and their level of social inclusion or exclusion. The second subquestion applies these insights to a specific case study, placing greater emphasis on the physical and spatial aspects of public outdoor sports facilities in relation to the current state of social inclusion. Lastly, the third subquestion shifts perspective to that of the municipality, exploring feasible and actionable measures to increase social inclusion, which align with existing policy and operational frameworks.

RESEARCH
DESIGN

3

3

3.1. Case requirements

This research involves different methods and techniques to answer the overarching research question and three subquestions, which will be elaborated upon in the next paragraph. In the second subquestion, a case is introduced. The choice for this case requires explanation before going into the research methods and techniques.

Several aspects of potential cases are considered when selecting a case to ensure relevance and impact. There are several requirements; the case should involve a multi-functional facility, allowing for various forms of physical activity. Physical activity should be the main purpose of the facility. Lastly, the sports facility should be located in public space and be cost-free for users. Along with these requirements, there are some preferred characteristics. This include the case being a renovation project, as this would offer the opportunity to analyse and improve upon an existing situation. To generate the greatest social impact, the case is ideally situated in a social-demographically challenging neighbourhood.

The Municipality of Amsterdam should be actively involved in the (re)development of the public outdoor sports facility, as this provides the opportunity to get an insight into the process of (re)developing and get the most current information. Ideally, the Municipality of Amsterdam has a clear ambition to increase the social inclusion of the sports facility.

The Municipality of Amsterdam proposed two possible cases which could serve as cases for this research; Sportpark Sportheldenbuurt and Beweegpark Kraaiennest. In the following table, they are compared on the basis of the aforementioned criteria.

Table 4. Case comparison (own work)

Level	Sportpark Sportheldenbuurt.	Beweegpark Kraaiennest
Sports facilities	Korfbal field, hockey field, 3x3 basketball courts, padel courts, baseball5 field, batting cages, boulder wall, 100m sprint track, small football field, jeu de boules courts	Skate park, playground, basketball courts, street table tennis, outdoor fitness, small football field, playing area, tennis courts, running track
Approachable (not niche)	Yes, diverse approachable sports opportunities.	Yes, diverse approachable sports opportunities.
Sports as primary purpose	Yes	Yes
Phase	Delivered in 2021, very new	Delivery year unknown, but shows signs of deterioration
Located in public space	Yes	Yes
Cost-free	Yes	Yes
Social-demographically challenged neighbourhood	No	Yes
Municipality actively involved	Yes	Yes
Ambition for increasing social inclusion	Yes, but steps have already been taken	Yes, also on neighbourhood scale

After careful consideration, Beweegpark Kraaiennest scores best on the criteria and seems most fitting to continue the research with. Therefore, the case used will be Beweegpark Kraaiennest. This case will be explained in more detail in section 4.2.

3.2. Research method

This research adopts a qualitative approach, aligning well with the subjective nature of social inclusion. The selected methods are designed to amplify the voices of the girls, which is considered crucial in achieving socially inclusive outcomes, which is the end-goal of this study. By getting insights into girls' perceptions of the situation, barriers specific for the case and target group can be identified. The last of three subquestions revolves around coming up with measures to combat these barriers.

The following section will delve deeper into the research methodology, detailing the specific techniques. The case study as a research method is not included in the following table, as it is not a technique used to answer a separate research question, but rather an overarching method.

Table 5. Research methods overview (own work)

Sub-question	Type	Method	Technique	Why?	Outcome	Where to collect data
1	Qualitative	Literature review, combined with practical toolkits	Thematic literature review	To get general overview of factors influencing social inclusion	List of factors and examples how they can be present in public outdoor sports facilities	Scientific databases, practical toolkits
1	Qualitative	Interviews	Semi-structured interviews	To get new insights into factors influencing social inclusion in practice	Additions to list of factors and examples how they can be present in public outdoor sports facilities	Experts connected to Municipality
2	Qualitative	Observations	Non-participant, naturalistic	To assess the current state of utilisation of Beweegpark Kraaiennest	Analysis of Beweegpark Kraaiennest and context, combined with logs including number of users, characteristic of users and use patterns inclusion	Beweegpark Kraaiennest
2	Qualitative	Photovoice	Target group taking pictures (photos), followed by discussions (voice)	To assess the current state of utilisation and social inclusion of Beweegpark Kraaiennest from girls' perspective	Insights into what factors either positively (+) or negatively influence social inclusion for Beweegpark Kraaiennest for girls aged nine to twelve	Target group, reached through gatekeeper
3	Qualitative	Interviews	Semi-structured interviews	To get insights and new ideas in how to combat certain factors leading to social exclusion within the context and increase practical applicability of measures	Translation of factors into realistic, concrete, actionable measures.	Representatives from the target group, municipal policy makers, urban area developers, urban designers, social workers, community managers or facility managers.

3.2.1. Thematic literature review and interviews

The first research method, used to address the first subquestion, will be a thematic literature review. This literature review will explore factors influencing the social inclusion of a public space, and more specific, factors influencing the social inclusion of a public sports facility. Some of these factors are more pronounced for girls, others are equally influential for boys and girls. The age boundaries of the girls (9-12) are taken into account when considering what factors influence social inclusion. This means that, for example, the presence of a breastfeeding location does not directly influence social inclusion, but the presence of peers at a sports facility does influence the level of social inclusion.

Findings from the literature review are complemented by factors that are proposed by experts on inclusivity, playing and physical activity for children, during semi-structured interviews. Additionally, practical toolkits are used as an alternative source of information.

The literature review and interviews lead to a categorised list of all factors influencing social inclusion of a public outdoor sports facility for girls age nine to twelve, accompanied by a text with examples of how these factors refer to sports facilities. Providing examples should help recognising and applying these factors in the specific case study selected for this research.

3.2.2. Case study

In the second subquestion, a case study comes into the picture; Beweegpark Kraaiennest. Introducing a case allows for a focused examination of the key characteristics, lived experiences, and spatial dynamics of a particular site. This leads to an in-depth exploration of social inclusion within Beweegpark Kraaiennest. By selecting a realistic setting, the study provides a detailed understanding of the factors influencing social inclusion, as well as the unique challenges and opportunities for this facility.

The case study is integrated into the research to complement and build upon the theoretical framework established in subquestion one. Beweegpark Kraaiennest is selected as a case study to ground these theoretical insights in a real case. By applying the framework developed in subquestion one to the case study, it is possible to evaluate how well existing theories align with experiences from a specific target group, and identify additional context-specific factors influencing social inclusion.

Furthermore, by analysing the relationship between the facility's design, social dynamics, and usage patterns, the case study facilitates the development of practical, evidence-based recommendations for enhancing inclusivity in public sports spaces. The insights gained from Beweegpark Kraaiennest not only provide detailed findings about this particular location but also contribute to broader discussions on how municipalities can design and manage public sports facilities to be more socially inclusive.

3.2.3. Observations

Observations are conducted to measure the actual utilisation of the Beweegpark Kraaiennest. The observations take place with the researcher as a non-participant in a naturalistic setting. The facility is observed for a period of 45 minutes on multiple occasions (at least five times, at most ten times). These occasions include different weather conditions, different days of the week and different time stamps to get insights into the 'normal' usage of the sports facility. Measuring on different instances decreases the risk of measuring outliers.

The observations take on a direct approach; the researcher is present at the location, taking on a non-participative role, trying to blend in with the environment as much as possible. Because of the size of the facility, taking one viewing point does not provide a full overview of the park. Therefore, different viewpoints are alternated and followed by a leap around the park of the researcher.

The observations follow both a structured and unstructured approach. Beforehand, choices are made regarding what is observed. Six aspects of utilisation are taken into account. These are as follows:

- Number of users
- Location: which parts of the facility are being used, which equipment is interacted with
- Age: users or user groups fall into one of five categories, 0-4, 5-8, 9-12, 13-18 or adults
- Gender: male or female
- Supervision: are children accompanied by parents, coaches or other types of guardians?
- Activity: what users are doing, categorised into sports, play and social activities

One of the categories of the structured observations consists of the activity pursued by users. According to Meire (2020), this is hard to measure, as activities are alternated or take place simultaneously. Examples include talking while kicking a football around, or sitting on a swing but barely swinging. For this reason, only three categories are identified which any included activity should be part of. These categories are; sports, play and social activities. Sports follow predefined rules or guidelines, and are focused on deliberate physical activity. Play encompasses a more unstructured form of activity, which users are primarily engaged in for fun. Social activities are primarily focused on social interaction and connection, which does not necessarily involve physical movement.

There are several difficulties to be encountered when carrying out the observations as described. First of all, not all people are actively using the sports facility in a way that is relevant to this research. As it is part of the public space, some people are passing by and are not actively interacting with the public space. While it remains challenging to define if someone is on their way or taking a stroll in the park (Meire, 2020), these observations are targeted at utilisation of the sports facility with leisure as a primary purpose.

To leave room for unexpected insights, there is also a form of unstructured observation. This includes taking note of the behaviour of users. This is incorporated in fieldnotes, which are visualised on a map of the facility. This form of unstructured observation leaves more space for interesting information that is not related to the aspects of utilisation.

3.2.4. Photovoice

As highlighted in the discussion of scientific relevance, literature about social inclusion of public sports facilities in the Netherlands is lacking. Therefore, the list of factors influencing social inclusion, produced in the first subquestion, produces a list of general findings, not specifically tailored to the context of the case. To address this gap and get insight into the level of social inclusion of Beweegpark Kraaiennest for girls aged nine until twelve, a photovoice method will be used. Photovoice is a form of participatory action research with a focus on providing vulnerable groups with a voice to create social change (Tsang, 2020). Photovoice enables the perspective of vulnerable groups, like children, to be heard (Mannion et al., 2024). Participants are asked to take photographs of their environment, which are then analysed by them in a participant-led discussion. It provides participants with the opportunity to share their issues of concern, while simultaneously allowing researchers to take the perspective of vulnerable groups (Mannion et al., 2024).

The photovoice research method consists of four phases. A visual summary of the research method and the phases is depicted in figure 8. Additional information per phase is provided after the figure.

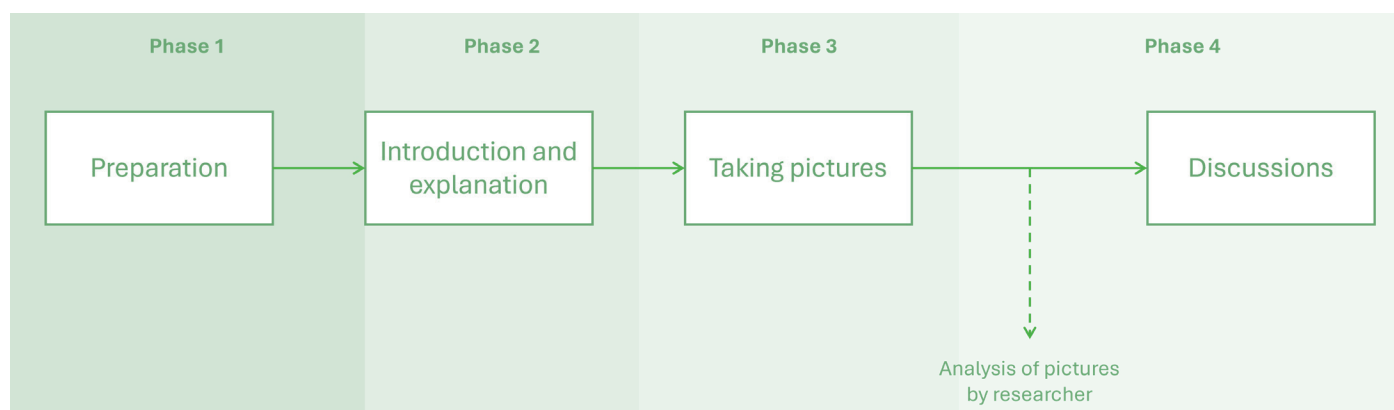


Figure 8. Photovoice phases (own work)

Preparation

Contacting participants

During this phase, 'gatekeepers' are contacted. Gatekeepers are people in close contact with potential participants, in this case because of their professional background. They are willing to help with the recruitment of research participants. In this case, teachers of primary schools and community coaches are considered gatekeepers. They are contacted by using the professional network of the internship mentor at the Municipality of Amsterdam.

As previously mentioned, the target group of this research entails girls aged nine to twelve. On average, children in primary school from sixth to eighth grade fall into this age requirement. These grades are considered seniors (bovenbouw) in the Dutch school structure. When dealing with schools, contact is targeted at these groups. Ideally, all participants are potential users of the sports facility. This can be either because they go to school and live close to the facility, or would like to use the sports facility. Next to these requirements, this research is targeted specifically at girls. However, for schools to join in, it might be necessary to include boys in the activities. If schools actively voice this as a requirement, the boys will also be included in the research, but their data will not be collected nor analysed.

This research aims to have 15 to 25 participants. If boys are also included, this means 30 to 50 people to perform the research methods with, but still only 15 to 25 participants of which the data will be used for further analysis.

Preparing research

As per usual, the research is prepared before it is conducted. This entails setting up the research in phases, thinking about which materials are needed and how they are obtained, setting up a protocol, writing consent forms and meeting the participants. In this phase of the research, it is important to keep in mind how the research affects the participants, and if the methods align with research purposes.

Introduction and explanation

Introduction of the project

Participants are introduced to the project by means of a form which is sent to them and their parents before the start of the project. The goal of the research is explained in this form. Emphasis should be on the fact that the participants are the experts on this sports facility, and that they are vital in conducting this research. Their opinion is very valuable. It should also be clear that, contrary to their usual school assignment, there is no such thing as good or bad pictures or answers. However, it is also important not to raise expectations (Wilderink, n.d.). Participants' perspectives and wishes can receive greater attention because of the research, but there is no guarantee in their wishes being fulfilled. Additionally, participants receive consent forms, meant for them and their parents, which explain the research, along with the potential risks and the rights of participants. Parents are asked to sign informed consent forms. Participants have to give formal assent.

Explanation of 'assignment'

Before taking the photos, the assignment is explained to potential participants. This explanation involves discussing the concepts that are important for this research; social inclusion is explained in clear language, along with the concept of a public sports facility. Clearly defining the concepts and exercises is important to avoid confusion with participants.

Participants are given the assignment of taking pictures. This is as follows; take pictures of places you like within Beweegpark Kraaiennest and in which you feel nice. Also take other pictures which you like less, or would like to see differently.

Participants receive the following guidelines, in understandable language for the target group:

- They cannot make mistakes; it is about their opinion
- It's not about aesthetically pleasing pictures, but about the story behind the pictures
- Guidelines on how to use the camera
- Don't take pictures of people (at least not recognisable)
- Try to take your own pictures
- Try to make the picture sharp

Making agreements

To keep participants in the lead, this phase also entails making agreements with participants. It should be very clear that they are always allowed to stop with the research. Other agreements include not taking pictures of others, respecting the people in Beweegpark Kraaiennest, their environment and the camera. In this phase, agreements are made between researcher and gatekeeper on how the data will be sent to the researcher.

Taking pictures

During this phase, participants are carrying out the 'assignment' they received during the previous phase. Depending on the wishes of the school, participants are sent to the sports facility with a camera. There will be no direct guidance from researchers or others, but they will be present when the pictures are taken, thereby trying to increase the feeling of safety of participants. By being at the facility on a central point, the researchers are approachable for questions and remarks, while not directly influencing the process of taking pictures, which could negatively influence the research outcomes (Abma et al., 2022).

Participants should have enough time to explore the facility (even though they can already be familiar with it), consider options and take their pictures. This should take around half an hour. It would be most convenient if taking the photos would take place during school times, because it is easier to make children participate during school hours, as they do not have other obligations.

Discussions

Photos are discussed in groups, with a maximum of ten people per group. In case boys take part in the research, they are separated from the girls. This distinction and group size is important, as it provides children with a feeling of safety and less peer pressure than in bigger groups (Wilderink, n.d.). However, it is important to discuss these issues in a group setting, to make sure there is a dialogue and participants can interact. If possible in terms of capacity, there will be two researchers for every group, so that one researcher can guide the conversation and the other one can focus on observing and asking deepening questions where needed.

The discussion session is located at the school of the participants, as they should feel safe and that they have the opportunity to discuss sensitive topics. Groups are composed based on categories that are yet to be determined.

The session starts with a categorisation of the pictures into which places represented on pictures they like and which places they do not like. This activity underpins the fact that participants are in the lead and is supposed to start the conversation. By asking short, open questions, the researcher is supposed to get an insight into the context of the picture (Wilderink, n.d.). Participants should have the opportunity to bring their own opinions to the table. In case the participants are not responding well, the researcher can ask short questions such as 'what is this?', 'why do you think so?' or 'what is happening in this picture?'. These questions are supposed to get the conversation started (Wilderink, n.d.) and can lead to unexpected, but very valuable, input from the participants.

The discussion should take 30 minutes at most. When the attention decreases significantly and the conversation falters consequently, the session will be concluded. The end of the discussion should leave space for the participants to provide their input; are there pictures 'missing' because they did not get the chance to take them, for example because they felt unsafe or influenced by others. If this is the case, the reasons for not taking them and contents of the potential picture will be discussed.

Pictures are printed and numbered before the discussions. Before discussing a specific picture, the number should be named. This is important, as the discussion sessions are voice-recorded. Therefore, non-verbal reactions of participants should also be named by the researchers.

3.2.5. Interviews

After answering the first two subquestions, the factors influencing the social inclusion of Beweegpark Kraaiennest for girls aged nine until twelve should be clear. Answering the third subquestion starts with an analysis of these factors.

To increase social inclusion in a possible redevelopment of Beweegpark Kraaiennest, the factors that influence social inclusion are taken into account in interviews with experts. In these conversations, possible measures to increase social inclusion will be discussed and tested on practicality, leaving space for initiatives from the participants. Participants can include municipal policy makers, urban area developers, urban designers, contractors, social workers, community managers or facility managers. Involving a multitude of professionals means that there will be different perspectives brought to the table. This should lead to insights into their perspective on proposed measures and possibly new ideas in how concrete measures can improve social inclusion of girls aged nine to twelve. Ideally, this leads to more feasible measures, with broader support among all stakeholders.

It is important that the measures developed are measures that the municipality can take. Involvement of the municipal policy makers is therefore essential; they are aware of the policy context in which will be operated. The measures will be made purposeful and actionable; they should be meaningful to increase social inclusion and controllable by municipal policy makers. This can involve all kinds of measures; from implementing design guidelines, enhancing participation in the design process to facility management changes.

3.3. Research plan

Below an overview of the research plan can be found, in which the main research methods and milestones are depicted. The methods have been elaborated upon in the methods section and do not require extra attention. It is important to see the interdependencies between the research parts; the case will only be introduced after the literature review is finished. This does not mean that preparations for answering the second subquestion cannot start, but the conducting of these methods will only be after completion of the theoretical framework. Observations and photovoice can take place simultaneously, but the conclusions of both should be drawn before moving on to the final interviews, as the conclusions serve as the basis for the interviews.

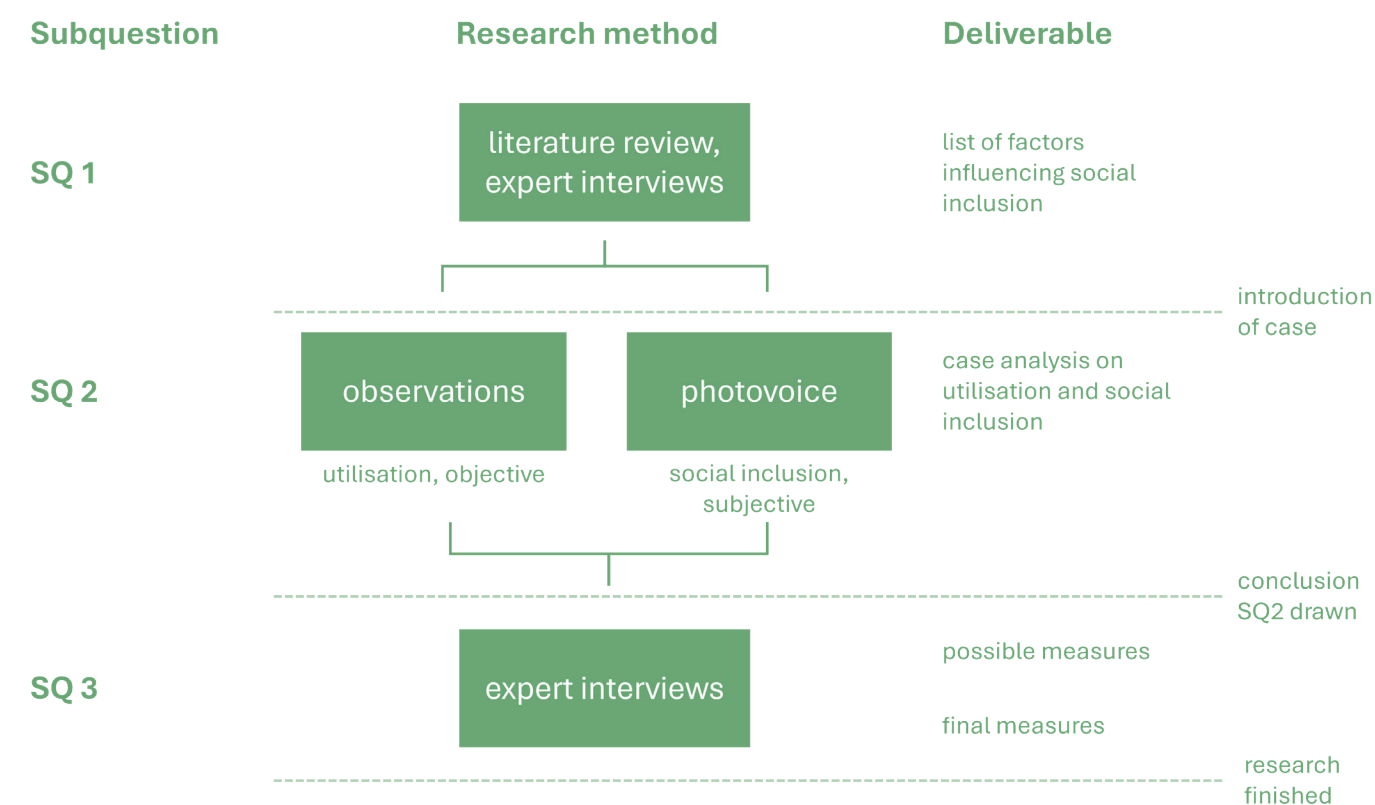


Figure 9. Research plan overview (own work)

3.4. Research output

3.4.1. Goals and objectives

The goal of this research is to enhance social inclusion in public outdoor sports facilities for girls aged nine to twelve. It does so by identifying measures to be taken by municipalities. The goal is to create more inclusive environments that encourage sports participation for all, but most specifically for girls aged nine to twelve. The numerous benefits of sports (Vuori, 1987) have been elaborated upon, and the need for allowing everyone with the opportunity to participate in physical activity is clear. Through its findings, this research aims to support the broader objective of empowering girls within society, promoting overall societal health, and fostering a more inclusive community where everyone feels welcomed and encouraged to engage in physical activity.

The research follows a structured approach, starting with establishing a theoretical foundation. The goal is to describe and categorise factors influencing social inclusion of public outdoor sports facilities for girls aged nine to twelve. Following this base, an assessment of the current state of social inclusion of Beweegpark Kraaiennest for girls aged nine to twelve will be conducted, identifying gaps and areas for improvement. The goal is to get insights in both objective utilisation and on the other hand, the subjective nature of social inclusion. The last subquestion aims to propose potential interventions and evaluate their effectiveness from professional perspectives.

3.4.2. Deliverables

This research has multiple deliverables, all leading up to the most important deliverable; measures to be taken by the municipality to improve social inclusion in public outdoor sports facilities for girls aged nine to twelve. These measures can be in either the physical, social or organisational domain. The domain of design interventions has received some attention already with the introduction of the concept of Universal Design (Sholanke & Eleagu, 2024) and among other things, a design-checklist involving criteria to make an environment accessible (Kenniscentrum Sport en Bewegen & SWECO, 2024). Therefore, it is interesting to research if there could be other possible measures to be implemented by the municipality. These could be focused on the process, for example incorporating a specific form or participation in the design process. A multitude of possible measures will be researched; both short and long term, direct and indirect. This will be a list of possible measures. It remains important to develop concrete and actionable measures which are useful in practice for municipalities.

To develop the final measures, several other deliverables are required. The first research question will result in a theoretical framework that identifies the factors influencing social inclusion in sports facilities for girls aged nine to twelve. The framework also categorises these factors and provides examples of how they might be present in public outdoor sports facilities. This serves as a basis for understanding and analysing social inclusion practices, thereby offering an academic base for answering the second part of the first subquestion, where the case is introduced. Introducing the case leads up to another deliverable; the analysis of Beweegpark Kraaiennest and its context. This analysis involves a spatial analysis of the Beweegpark and surrounding amenities. Facts and figures about the population surrounding the facility are described. Numbers on sports participation are also discussed, as is the redevelopment of the area surrounding the sports facility.

There are multiple deliverables from the observations. To start with, observation logs are drafted during the observation sessions and digitalised soon after. Observations logs consist of aerial views of the facility in which utilisation is mapped using icons for different measured aspects, such as gender or age category (figure 10). The observation log will also note the date, day of the week, time stamp, weather conditions and viewpoints from which the observations have been taken. Field notes made during the session highlight remarkable findings and can be supported by visual evidence. The observation logs and accompanying legends are based on examples of Helleman (2025).

Gender	Age	Activity	
 male	A 0-4 years	1 sport	★ accompanying parent / supervisor
 female	B 5-8 years	2 play	
	C 9-12 years	3 social	◁ viewpoint observer
	D 13-18 years		
	E adults		⋯ user moving within area

Figure 10. Legend observations (own work, based on Helleman, 2025)

The deliverables after observation consist of the data on utilisation in numbers and percentages, in some instances translated into maps. This provides information about user characteristics and the activities they participate in.

Part of the second subquestion is answered using the photovoice method. The direct deliverables of the photovoice method are photos taken by the girls and transcriptions of the discussions following the photos. The most important findings are summarised to show the girls' perspective on social inclusion of the Beweegpark Kraaiennest.

A deliverable of the last subquestion is measures to be taken by the municipality to increase social inclusion of Beweegpark Kraaiennest. These measures flow from discussions in which professionals debate what could be done to make Beweegpark Kraaiennest more socially inclusive. The audio-recording of these discussions are then analysed to identify proposed measures. As a last step, these measures are generalised to be applicable to public sports facilities in general, not only for Beweegpark Kraaiennest. An advisory report is prepared for practitioners to make sure important information is transferred.

3.4.3. Dissemination and audiences

The primary audience for this report is municipal policymakers in the field of sports and public space. The report will provide an evaluation of the current state of inclusion of Beweegpark Kraaiennest, identifying areas of success and highlighting specific aspects that require improvement. By offering concrete measures, the report serves as a practical guide for municipalities to adapt their facilities to meet social inclusion goals effectively.

The results of this study will also be valuable to stakeholders beyond direct municipal policymakers, as they might be active in the same fields, like inclusive design, or policy making aimed at increasing social inclusion. The findings could for example benefit community organisations, sports clubs and health departments. The advice will indirectly serve groups experiencing social exclusion, particularly those at higher risk of exclusion from public sports facilities. As this research focuses on girls aged nine to twelve, the gains for this target group will probably be biggest.

By providing municipalities with tools to make more socially inclusive public outdoor sports facilities, this report aims to facilitate broader participation in sports, which has been proven to offer significant mental and physical health benefits, foster community engagement, and strengthen social cohesion.

3.5. Risks

There are certain aspects of the aforementioned research methods and techniques that require some extra attention and are more likely to pose a risk. Full mitigation of these risks is not realistic, but in this section, some strategies to mitigate these risks are proposed.

3.5.1. Ethical considerations (HREC)

Since social inclusion is a central concept in this research, it is essential to give careful consideration to the ethical implications. Social inclusion is a sensitive topic, as the consequences of social exclusion can be significant and impactful. As mentioned previously, people who experience social exclusion may face deprivation, often accompanied by social stigma, blame, and isolation. These challenges can lead to low self-esteem, a lack of belonging, and the perception that they have been denied a fair opportunity to participate in society (Avramov, 2002). The vulnerability inherent in this concept is underscored as it relates to participants' personal perceptions and experiences. To address this, it is important to create a safe and supportive environment where participants feel comfortable expressing their thoughts and emotions, including negative ones. Furthermore, participants must be clearly informed of their right to withdraw from the research at any time or to decline to answer specific questions or parts of the research.

Next to addressing a sensitive topic, this research involves a vulnerable group, namely girls aged nine to twelve. Literature (Collins & Kay, 2014; Zimm, 2019) suggests that this group is more likely to experience social exclusion, both in public spaces and in sports, making it more probable that they associate the concepts discussed during the research with negative emotions or experiences. Additionally, girls aged nine to twelve have a status as minors, which introduces further ethical considerations. Minors are inherently more vulnerable as they may not yet possess the full capacity to make informed decisions, articulate their thoughts, or understand the implications of their participation in research. Their developmental stage can make them more susceptible to influence, stress, and discomfort, which increases the ethical responsibility of the researchers to safeguard their well-being and ensure their protection throughout the study.

To prioritise the well-being of participants and address relevant ethical considerations, discussions about social inclusion will be handled with sensitivity. Furthermore, language and methods will be tailored to the age group to ensure clear understanding and engagement. This means that participants receive other research information than their parents. Moreover, complex terminology or abstract concepts will be avoided, and communication will be adjusted to be relatable and accessible. Cultural norms, values, and expectations must also be taken into account when addressing the concepts of social exclusion and gender. It is important to recognise that individuals from diverse backgrounds may interpret and respond to these issues differently, and the research approach should remain inclusive and respectful of this diversity.

Parental consent will be obtained for the target group, while the girls themselves will be asked for their assent, as they are minors and cannot provide formal consent. Mannion et al. (2024) identify informed assent to be a complicated issue, as children may have cognitive difficulties in understanding the concept of consent in research, or might fail to see the consequences of participating in research. Therefore, it is very important to use communication techniques suitable for this target group and present information in an accessible manner (Mannion et al., 2024). Mannion et al. (2024) identify a couple of aspects which participants should be fully informed of before being able to give full consent. These include the nature of the research, expectations, possible risks of the research, their rights to withdraw at any time, what will happen to the data collected and who will use it.

Another risk in terms of ethical considerations is the involvement of the internship organisation; the Municipality of Amsterdam. The involvement of this party implies that more people have access to the (sensitive) data, which poses communication and coordination risks and a possible conflict of interest. Therefore, it is carefully considered with whom the data is shared. Where possible, data is anonymised upon sharing (i.e. audio-transcripts). According to the internship agreement, the student is responsible for the data.

Approval from the Human Research Ethics Committee is required for this research as it involves underage human participants. This ensures that the study is planned and conducted responsibly, avoiding undue harm or

excessive risks that could negatively affect participants, society, the environment, or the researchers themselves. The data collected in relation to human research subjects includes names and email addresses of participants of the interviews for administrative purposes, gender, age, photographs (of Beweegpark Kraaiennest, taken by participants), audio recordings (of photovoice and interviews) and proof of consent.

3.5.2. Difficulties accessing stakeholders

This problem is multidimensional, as there are different types of stakeholders involved in this research. Firstly, the problem of accessing the target group (girls aged nine to twelve) plays a big role. It is vital for the research to get into contact with this group, as their perception of a public outdoor sports facility is what makes, or does not make, the facility socially inclusive. As the target group are minors and the subject is sensitive because it involves personal perceptions, accessing the target group should be done carefully. Additionally, it is important to get answers from non-users, as increasing social inclusion can involve non-users becoming users.

The way in which the target group is reached in this study is through primary schools. Schools probably have a mix of users and non-users, which is beneficial for the research. Additionally, schools should provide the target group with a safe environment in which they feel comfortable, hopefully leading to them being able to share their personal opinion.

The other stakeholders involved would be community managers, facility manager(s), municipal policy makers, urban area developers, urban designers, contractors and social workers. These people are professionals and it is possible that they do not want to invest time in this research. Therefore it is important to have a convincing story and make use of the contacts of the municipality of Amsterdam and the university.

3.5.3. Biases

As the research encompasses qualitative research methods, it is important to be aware of the researcher's biases and try to eliminate them as much as possible. This will be especially important for the discussions with girls to assess the current state of social inclusion of Beweegpark Kraaiennest. During these discussions, it is important for the researcher to be aware of researcher bias, where the researchers beliefs or expectations are projected onto the research. The state of social inclusion should be formed from the perspective of girls, not that of the researcher. Therefore, the discussions (and interviews) should have well-defined, neutral questions which are tested beforehand.

Another bias is the sample bias, which represents the difficulty of finding a representative group of respondents. The previous paragraphs describe how respondents will be contacted, which aims to get a representative group of respondents. Attention should be given to make the research methods accessible.

3.5.4. Interpretation of concepts

This research involves a considerable theoretical background dedicated to the definition of key concepts. Some of the concepts, such as social inclusion and public outdoor sports facilities have vague and ambiguous definitions. This could lead to misinterpretation with other stakeholders. Therefore it is very important to clarify how concepts are defined beforehand. Additionally, the language and design of the interview or survey should be dependent on the target group, making sure that they are able to grasp the questions.

3.6. Data plan

As required for all research involving personal research data, a Data Management Plan (DMP) is created. The Data Management Plan describes how the data is collected, managed, stored, and made available during the research, as well as how it is shared after the research is completed. This will all be done using the FAIR-principles; findable, accessible, interoperable and reusable. The Data Management Plan is created using DMP online. The DMP can be found in appendix D.

As pointed out in the previous section, the most challenging aspect in terms of data collection in this research is the use of qualitative research techniques involving minors. The photovoice method deals with personal and sensitive data from this target group. This includes gender and age of participants, and the audio transcripts of the discussions of the photovoice. The recordings of the interviews is also considered personal data. In line with the HREC guidelines, all participants fill in consent (or assent) forms. Data is stored securely in the Project Data Storage (U:) drive. Data will also be backed up properly. Physical copies of filled in consent forms will be stored in a locked cabinet, in a locked office space.

To mitigate risks associated with personal data, this will be anonymised, thereby removing identifying information. This implies less risk of re-identification. However, it is important to keep in mind that full anonymity is hard to achieve, as there are infrequent combinations of identifiers, which make for a high risk of re-identification in certain cases.

The research involves a collaboration with the Municipality of Amsterdam, as the internship will be conducted there. Contractual agreements will be made between all parties, as the Municipality will also provide personal data for the research. The intellectual property rights are therefore framed by a graduation agreement between Delft University of Technology, the researcher and the Municipality of Amsterdam.

After finishing the research and the researcher leaving Delft University of Technology, the supervisor becomes owner of the data. Personal research data will be stored for ten years, in accordance with the TU Delft Research Data Framework Policy. Data will be stored using the 4TU.Research Data, which allows researchers to achieve 1TB of data per researcher per year, which will be sufficient in this case.

4

RESULTS

4

4.1. Factors influencing social inclusion

This subquestion aims to formulate a list of factors that influence the social inclusion of public outdoor sports facilities for girls aged nine to twelve. By conducting a literature review, consulting toolkits and publications and talking with professionals from the field, different factors influencing sports participation, inclusion in public space, social inclusion and social inclusion in sports have been identified. Some of these were identified specifically for woman, girls, or even girls aged nine to twelve. The relevance of this target group is elaborated upon in section 1.2. The factors are classified using the ecological model of health behaviour, which will be elaborated upon in the next paragraph.

4.1.1. Categorisation method

The factors in this research are categorised using an ecological model of health behaviour, which recognises that behaviour is shaped by multiple levels of influence (Sallis et al., 2008). These levels typically include intrapersonal (biological, psychological), interpersonal (social, cultural), organisational, community, physical environmental and policy level (Sallis et al., 2008). For this research, the levels involved are depicted in figure 11. This social-ecological model is an adaptation of Sallis et al.'s model (2008).

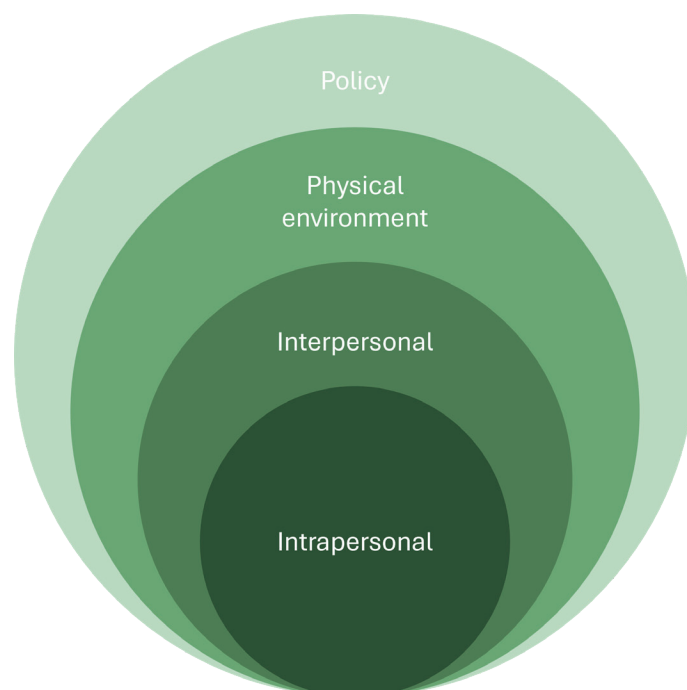


Figure 11. Ecological model of health behaviour (based on Sallis et al., 2008)

Ecological models are particularly useful for understanding the complex, interacting factors that influence social inclusion in sports (Kane et al., 2007). According to Sallis et al. (2008), single-level interventions are often less powerful and tend to benefit a specific population. Instead, multi-level approaches, addressing individual, social, and environmental influences, are more successful in changing behaviour.

While factors are classified by levels (such as intrapersonal) for clarity, certain factors may span multiple categories in practice. Visser and van Aalst (2022) note that the effects of physical environment factors vary across subgroups, such as age, gender, and ethnicity. This suggests that for girls aged nine to twelve, the impact of specific physical features is shaped by broader individual and social circumstances.

4.1.2. Specific for girls

Compared to boys, girls aged nine to twelve often experience a broader range of factors which influence the level of social inclusion of public outdoor sports facilities. Research shows that girls are more likely to report emotional, social, and environmental barriers that affect their sense of inclusion (Kane et al., 2007). These barriers include a lack of confidence, fear of judgement, limited social support, or feeling unwelcome in male-dominated spaces. The socio-ecological model (figure 11) highlights how these influences operate across multiple levels. It is important to note that girls are not only shaped by these factors, but also the interrelated dimensions.

An overview of the factors influencing social inclusion of public outdoor sports facilities for girls aged nine to twelve is provided below. This overview is followed by explanations of key factors per level, aimed to improve the understanding of underlying reasons.

Table 6. Factors influencing social inclusion of public outdoor sports facilities for girls aged nine to twelve (own work)

Level	Factor	Specific to children aged 9-12	Specific to girls
Intrapersonal	Lack of confidence (Cowley et al., 2021; Moreno-Vitoria et al., 2024; Vogel, 2018)		X
	Feeling unsafe (Zimm, 2019)		X
	Shift in priorities (Cowley et al., 2021; Moreno-Vitoria et al., 2024)	X	X
	Financial difficulties (Dopheide et al., 2023)		
Interpersonal	Parents' view on safety of facility and location (Boxberger & Reimers, 2019; Visser & van Aalst, 2022)	X	X
	Parents' encouragement and approval level (Coleman et al., 2008)	X	
	Presence of boys at sports facility (Reimers et al., 2018; Visser & van Aalst, 2022)		X
	Level of exclusionary dynamics by boys (Helleman, 2022)		X
	Presence of female role models (Dopheide et al., 2023; Moreno-Vitoria et al., 2024)		X
	Presence of peers (Cowley et al., 2021)	X	X
Physical environment	Number of sports facilities in proximity (Kostrzewska, 2017; Scott et al., 2007)	X	X
	Accessibility by public walking and cycling paths (Kenniscentrum Sport en Bewegen & SWECO, 2024)	X	
	Accessibility by public transport (Kenniscentrum Sport en Bewegen & SWECO, 2024)	X	
	Presence of amenities (Hoogendoorn & de Hollander, 2016)		X
	Quality of lighting (Kenniscentrum Sport en Bewegen & SWECO, 2024)		
	Balance between visibility and privacy (Kostrzewska, 2017; Vogel, 2018)		X
	Presence of resting and meeting spaces (Kenniscentrum Sport en Bewegen & SWECO, 2024; Kostrzewska, 2017)		X
	Presence of art, colour, tactility and aesthetics (Zimm, 2019)		X
	Level of protection from sun and rain (Kostrzewska, 2017; Zimm, 2019)		X
	Physical accessibility		
	Variety of sports equipment (Helleman, 2022; Karsten, 2003)		X
	Level of flexibility of sports equipment (Helleman, 2022)		X
	Supply of sports equipment (Helleman, 2022; Visser & van Aalst, 2022)		X
	Presence of litter, dog waste, graffiti or neglected green spaces (Karsten, 2003; Visser & van Aalst, 2022)		X
	Upkeep of equipment (Karsten, 2003)		X
Policy	Girls-only activities (Ekholm et al., 2019)		X

4.1.3. Intrapersonal factors

Feeling unsafe

The feeling of safety is closely related to social inclusion; when girls feel unsafe, they are less likely to feel welcome in sports facilities. This problem is more prominent than for boys. From the age of eight, girls report feeling ten times more unsafe in public spaces than boys, and this disparity increases with age (Zimm, 2019).

Lack of confidence

A lack of confidence, coming from a fear of judgement and a sense of not belonging, influence the level of social inclusion for girls aged nine to twelve (Kane et al., 2007). Societal myths and stereotypes reinforce the idea that physical activity masculinises women or that girls are naturally less interested in sports (Rodríguez & Miraflores, 2018 in Moreno-Vitoria et al., 2024). These perceptions contribute to feelings of not belonging and discourage participation (municipal expert, personal communications, March 12, 2025). Additionally, social sexism in sports education, where girls are often perceived as weaker or less skilled in sports, contributes to a lack of confidence and a sense of not belonging for girls (Moreno-Vitoria et al., 2024). For some girls, sport can feel conflicting with their personal or cultural identity. According to Allender et al. (2006), there is a belief among girls that athleticism conflicts with their female identity. Other sources of low confidence include a lack of confidence in their physical ability, being compared to others, issues of body image and a pressure to look good (Cowley et al., 2021).

Shift in priorities

On an individual level, a shift in priorities can lead to a drop in sports participation (Kane et al., 2007). The transition to secondary school is an important event in this process, since children entering secondary school indicate they lack free time to participate in physical activity (Cowley et al., 2021). Ekholm et al. (2019) argue that patriarchal norms in families with migrant backgrounds are evident. Girls are expected to help around the house, making participation in sports more challenging (Ekholm et al., 2019).

Financial difficulties

Financial difficulties are another constraint to making sports more socially inclusive. This can involve direct costs of fees, transport, clothing, and equipment, but also include challenges include logistical issues, reluctance to seek financial aid, and differing parental attitudes toward sports (Dopheide et al., 2023). The mental burden of weighing costs and financial uncertainty also discourages long-term commitments, making consistent participation even more challenging (Dopheide et al., 2023).

4.1.4. Interpersonal factors

Parents' view on safety of facility and location

Safety concerns are more pronounced for girls, as they are often subject to stricter parental restrictions than boys. Boys are typically allowed to stay outside longer and later (Helleman, 2022). Parents tend to be more fearful for their daughters, which is only increasing by the fear of 'stranger danger'. Research shows that these anxieties are projected onto girls more than boys (Boxberger & Reimers, 2019).

Visser & van Aalst (2022) point out that higher perceived traffic safety encourages physical activity in public spaces. Parental concerns about traffic safety influence children's independent outdoor play, but are also internalised by their children (Visser & van Aalst, 2022), thereby influencing the level of social inclusion for girls. However, it is important to note that parental concerns about traffic hazards and personal safety differ by socio-economic background.

Parents' encouragement and approval level

Parents or caretakers act as gatekeepers for the physical activity levels of their children as they can restrict or permit their children's outdoor activities (Boxberger & Reimers, 2019; municipal expert, personal communications, March 12, 2025). Social support from parents is an important requisite for physical activity. On the contrary, a lack of parental support is perceived as a barrier for physical activity (Coleman et al., 2008). This factor is important for both boys and girls. However, the belief that sports are not as important for females as for males, makes this factor even more important for girls (Kane et al., 2007).

Presence of boys and exclusion dynamics

As described, boys and girls have different preferences when it comes to physical activity in public space. As the design of most sports facilities is currently more suitable to boys' needs, this results in a disproportionate utilisation by boys compared to girls. The presence of opposite-sex children has been found to be a negative predictor in taking part in physical activity for girls, but not for boys (Reimers et al., 2018). Helleman (2022) names three important reasons for this cause. The first reason is cultural, as some girls, especially in certain cultures, are not allowed to go to places where a lot of boys are present. As described, boys take up more space for their activity. This leaves less space for the girls and creates a sense of dominance. Lastly, girls feel excluded as a result of rejection, bullying and competitive behaviour of boys.

Presence of female role models

Moreno-Vitoria et al. (2024) argue that there are a lack of role models for women, thereby reinforcing the idea that sports is for men. Gender stereotyping negatively effects girls' participation in sports (Allender et al., 2006). Increasing social inclusion for girls requires realistic role models for all body types and competency levels. Dopheide et al. (2023) argue that involving woman professionals, such as youth coaches and physical activity coaches, also increases social inclusion.

Presence of peers

Peers can enhance the enjoyment of physical activity by providing a supportive environment (municipal expert, personal communications, March 12, 2025). This positive impact of peer presence is biggest when peers share a similar skill level and can be trusted not to judge abilities or appearance. However, when surrounded by acquaintances outside their close friend group, girls often feel self-conscious and at risk of judgement or ridicule, which discourages participation in physical activity (Cowley et al., 2021).

4.1.5. Physical environment

Most of the factors influencing social inclusion of public outdoor sports facilities for girls aged nine to twelve belong to the category of the physical environment. This could result from the researcher's background and the focus of this research. The physical environment can refer to a broad range of scales and contexts, all influencing social inclusion in different ways. To get an overview of the scales on which the physical environment can be analysed and factors influencing social inclusion can be categorised, an overview is provided in figure 12. In the text below, the factors will be elaborated upon, categorised into the different scales.

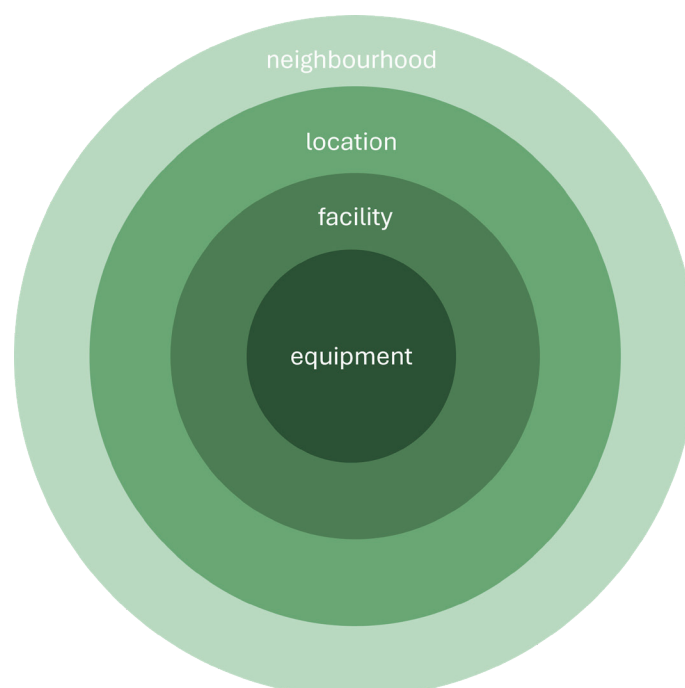


Figure 12. Scales of physical environment factors (own work)

Neighbourhood

Proximity of sports facilities

Research by Scott et al. (2007) and Kostrzewska (2017) highlight the importance of the proximity of sports facilities in the perceived accessibility, particularly for girls. The number of sports facilities within 800 metres of a girls' home directly influences how easily accessible she perceives them to be. Although this effect decreases for the distance between 800 and 1600 metres, it remains significant for certain types of facilities. For example, a girl with a swimming pool within 800 metres of her home, as well as another within 800-1600 metres, is 3,5 times more likely to consider the facilities easily accessible compared to a girl who does not have those facilities in a 1600 metres radius (Scott et al., 2007).

Accessibility by public transport and public walking and cycling paths

Location plays a crucial role in utilisation of public outdoor sports facilities and impacts social inclusion (Kenniscentrum Sport en Bewegen & SWEKO, 2024). For children aged nine to twelve, walking and cycling are the most common modes of transportation. Therefore, accessibility by bike and foot are essential factors influencing social inclusion of sports facilities. The presence of safe, high-quality cycling or walking paths relates to a more inclusive environment (Kenniscentrum Sport en Bewegen & SWEKO, 2024). Additionally, accessibility of sports facilities by public transport influences the level of social inclusion (Kenniscentrum Sport en Bewegen & SWEKO, 2024).

Location

Presence of amenities

The presence of (enough) public toilets in public space influences the level of social inclusion (Kenniscentrum Sport en Bewegen & SWEKO, 2024; municipal expert, personal communications, March 17, 2025). Other important amenities can include, for example, changing rooms and water tap stations.

Quality of lighting

Important factors influencing the (perceived) safety of public outdoor sports facilities include the lighting of a facility. Proper lighting enhances visibility and contributes to a greater sense of safety (Kenniscentrum Sport en Bewegen & SWEKO, 2024). Effective lighting illuminates both the facility and the routes leading to it. It provides uniform brightness to avoid overly dark or glaring areas. Direct exposure to light sources should be avoided when considering inclusion, as well as extreme contrasts between bright lights and dark shadows (Kenniscentrum Sport en Bewegen & SWEKO, 2024).

Balance between visibility and privacy

Women value privacy during physical activity and often avoid exercising in visible public spaces due to feelings of exposure or unwanted attention. This discourages them to use public space for physical activity (Kostrzewska, 2017).

Facility

Presence of resting and meeting spaces and protection against sun and rain

Research shows that girls, more than boys, are attracted to sports facilities and areas where they can meet and rest (Kostrzewska, 2017). Kenniscentrum Sport en Bewegen & SWEKO (2024) underscore this finding, stating that sports facilities become more inclusive when they serve as both social hubs and places for physical activity. Additionally, public spaces should offer shelter from sun and rain to increase their inclusiveness (Kostrzewska, 2017). While this benefits everyone, it has a particularly strong impact on girls' social inclusion (Zimm, 2019).

Design

Boys' preferences for sports facilities are different from girls'. Boys generally prefer active, high-energy, space-consuming and competitive team games, whereas girls tend to favour quieter, social play in smaller groups (Helleman, 2022; Reimers et al., 2018). As a result, it could be stated that most public space is currently tailored to boys' interests, as public sports facilities often encompass structured, standardised fields or playgrounds. Large, open areas with hard surfaces suit boys' preferences and thereby push girls to the sides (Helleman, 2022). Girls prefer more 'protected' places, which can be used in multiple ways.

Accessibility

Physically accessible design is essential for promoting social inclusion in general, not specifically for girls aged nine to twelve (municipal expert, personal communications, March 17, 2025). Ensuring wheelchair accessibility in public sports facilities is an important factor, but social inclusion spans beyond wheelchair accessibility. Design elements, such as high-contrast colour usage for individuals with visual impairments or colour blindness, enhance accessibility (Kenniscentrum Sport en Bewegen & SWEKO, 2024).

Maintenance

Well-maintained and regularly renovated playgrounds are essential for keeping children engaged (Karsten, 2003). In contrast, negative factors such as the presence of litter, dog waste, graffiti, neglected green spaces and broken equipment deter both parents and children from using certain playgrounds (Visser & van Aalst, 2022). Additionally, they actively avoid dirty or disorderly environments (Karsten, 2003).

Equipment

Diversity, variety and creativity of equipment

Research shows that girls enjoy diverse activities such as imaginative play, climbing, hiding, sliding and playing with natural elements, whereas boys primarily use sports equipment (Helleman, 2022). This implies that the quality, amount and variety of equipment of the sports facility influences the level of social inclusion. Visser & van Aalst (2022) underscore this statement by the finding that playgrounds with very few play objects did not appeal to girls. Girls are more attracted to sports equipment that is flexible in its use. A limited variety or only fixed play elements, lacking opportunities for creativity, imagination, and social interaction, do not suit girls' preferences (Fjeldsted, 1980; Hill, 1980, as cited in Helleman, 2022).

Maintenance

Observations and interviews conducted by Karsten (2003) indicate that girls, in particular, are selective about where they play. They are less likely to engage in spaces with poorly maintained play equipment and emphasise the importance of high-quality of equipment.

4.1.6. Policy factors

The policy perspective is often underrepresented in literature because policy measures tend to create indirect conditions for social inclusion. This is unlike interpersonal and intrapersonal factors, which directly influence how individuals interact and feel within a space, or the physical environment, which immediately affects social inclusion. Policies may set guidelines for funding, facility management, and programming, but their impact on social inclusion is not directly visible. Therefore, only one policy-like factor is identified and elaborated upon.

Girls-only activities

Ekholm et al. (2019) highlight that girls-only sports activities can play a crucial role in encouraging girls' participation in physical activity. These activities provide a safe and comfortable environment where girls can engage without fear of judgement from boys, thereby also making them more culturally appropriate.

4.2. Beweegpark Kraaiennest

In the second subquestion, Beweegpark Kraaiennest is introduced, the context of which is elaborated upon in this paragraph. This description highlights aspects of Beweegpark Kraaiennest which prove important in relation to other findings of the research. The description of the case also provides a contextual support for the measures described in subquestion three. These should fit within the redevelopment of Beweegpark Kraaiennest, which is described in the following text. The full description also involves a spatial analysis of (the area around) Beweegpark Kraaiennest and a socio-demographic description of the neighbourhood.

4.2.1. Redevelopment K-midden

Area redevelopment K-midden

Beweegpark Kraaiennest is part of the broader renewal of K-midden, a district within Amsterdam Zuidoost (figure 13). However, it is not the only development in the area. A key project is the OBA Next library. While the exact details of this building are still being determined, it is clear that the building will be located next to the sports facility and have a innovative character.

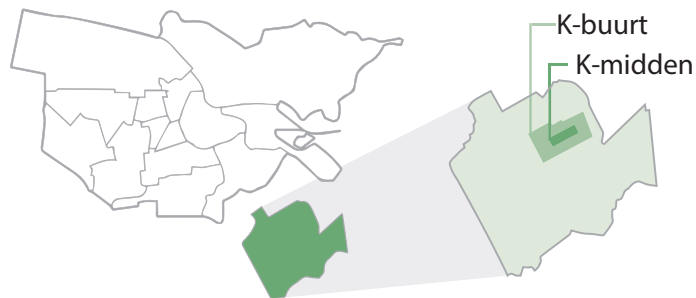


Figure 13. K-midden (own work)

As part of the K-midden redevelopment, 1,250 new homes will be built (Municipality of Amsterdam, n.d.). Of the first 750 homes, 40% will be designated for social housing, 40% for mid-range rentals, and 20% for the private sector. Additionally, 500 starter homes will be created, with priority given to local residents where possible to help maintain social networks. An increase in mid-rentals and the private sector will likely affect the population by increasing the number of residents with higher SES scores. Additionally, social housing and starter homes will likely attract the younger generation. This indicates that the group of girls aged nine to twelve will expand over the years, and that the demographics will be more diverse. Therefore, it makes sense that the redevelopment is focused on children these ages.

Participation in the redevelopment process of K-neighbourhood

To create a truly socially inclusive sports facility, it is important to incorporate the perspectives of the target group in the development process. Additionally, parents' perspectives of (safety of) the facility is a factor determining the social inclusion of the public sports facility. In this paragraph, the participation process in the redevelopment process of the K-neighbourhood is described, as it is important to be aware of the context one operates in, and the process is unique.

In 2018, a participatory strike took place due to dissatisfaction with previous participation methods. The neighbourhood successfully advocated for its own involvement in shaping the area's future. This led to a co-creation model where residents took the lead in designing the redevelopment plans. This process is covered in the 'cocreatie participatie K-midden' document (Gemeente Amsterdam & 1104 - Hart voor de K buurt, n.d.).

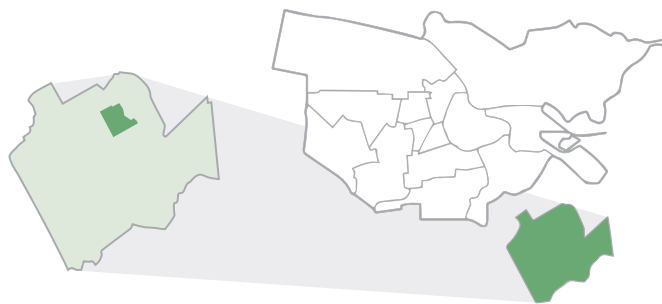
The participation process was built on inclusivity, with a focus on reaching all community members, including often-overlooked groups like youth, seniors, and non-Dutch speakers. The approach involved deep listening, outreach efforts, and creative engagement methods such as organising local events, workshops, and experiments like temporary skateparks and community gardens to test ideas in real-life settings. Ultimately, this bottom-up process resulted in a redevelopment plan that better reflected the neighbourhood's identity and needs. It is important to note that inhabitants are experienced in participation processes and voicing their opinions. Best practices could also be taken into account for future participation processes regarding Beweegpark Kraaiennest.

4.2.2. Facts and figures

Socio-demographic context Zuidoost

To get a better understanding of the current socio-demographic situation in Amsterdam Zuidoost, and more specifically the area surrounding the Kraaiennest in which Beweegpark Kraaiennest is situated (Bijlmermuseum), several statistics are depicted in the following figure. Data is measured for 2023 and 2024.

Facts & Figures Bijlmermuseum



residents

7770

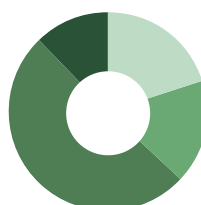
**migration
background**

86%

Bijlmermuseum

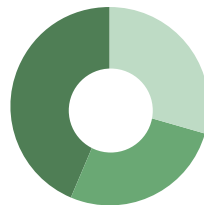
Amsterdam

age



0-17 y/o
18-26 y/o
27-65 y/o
66+ y/o

SES

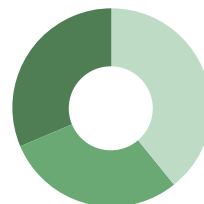
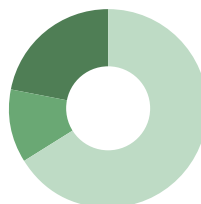


low
middle
high

Bijlmermuseum

Amsterdam

ownership



housing association
owner-occupied
private rentals

dwellings

3610

average price (€)

268.000

**neighbourhood
satisfaction**

5.9

7.6

Figure 14. Facts and figures Bijlmermuseum (own work, based on AlleCijfers.nl, 2016; Gemeente Amsterdam, n.d.-a; Wolf, 2022)

For the future redevelopment of Beweegpark Kraaiennest, it is important to consider the unique demographics of the area to ensure that the measures proposed at the end of this research effectively enhance social inclusion, particularly for girls aged nine to twelve.

The local population has a predominantly low socioeconomic status. For a socially inclusive facility, the absence of a financial barrier is very important. The facility should be free to use. Additionally, the level of social inclusion is higher if the materials needed to use the facility (such as football, tennis gear, etc.) are relatively cheap. Moreover, neighbourhood satisfaction in the Bijlmermuseum is notably low. This provides an opportunity for the redevelopment of the facility, as improvements can have a meaningful impact on a large number of people.

Sports in Zuidoost

The ‘Sportdeelname Index’ (NOC*NSF, 2024) measures the physical activity and sports participation of Amsterdam residents (figure 15). Independent of the generally below-average scores of Amsterdam Zuidoost, it can be observed that woman have lower sports participation than men. Additionally, the percentage of children aged five to twelve meeting recommended physical guidelines is below average. This data further proves the importance of increasing social inclusion for girls aged nine to twelve, which should, in turn, lead to increased sports participation.

Facts &
Figures
Sports and
physical activity

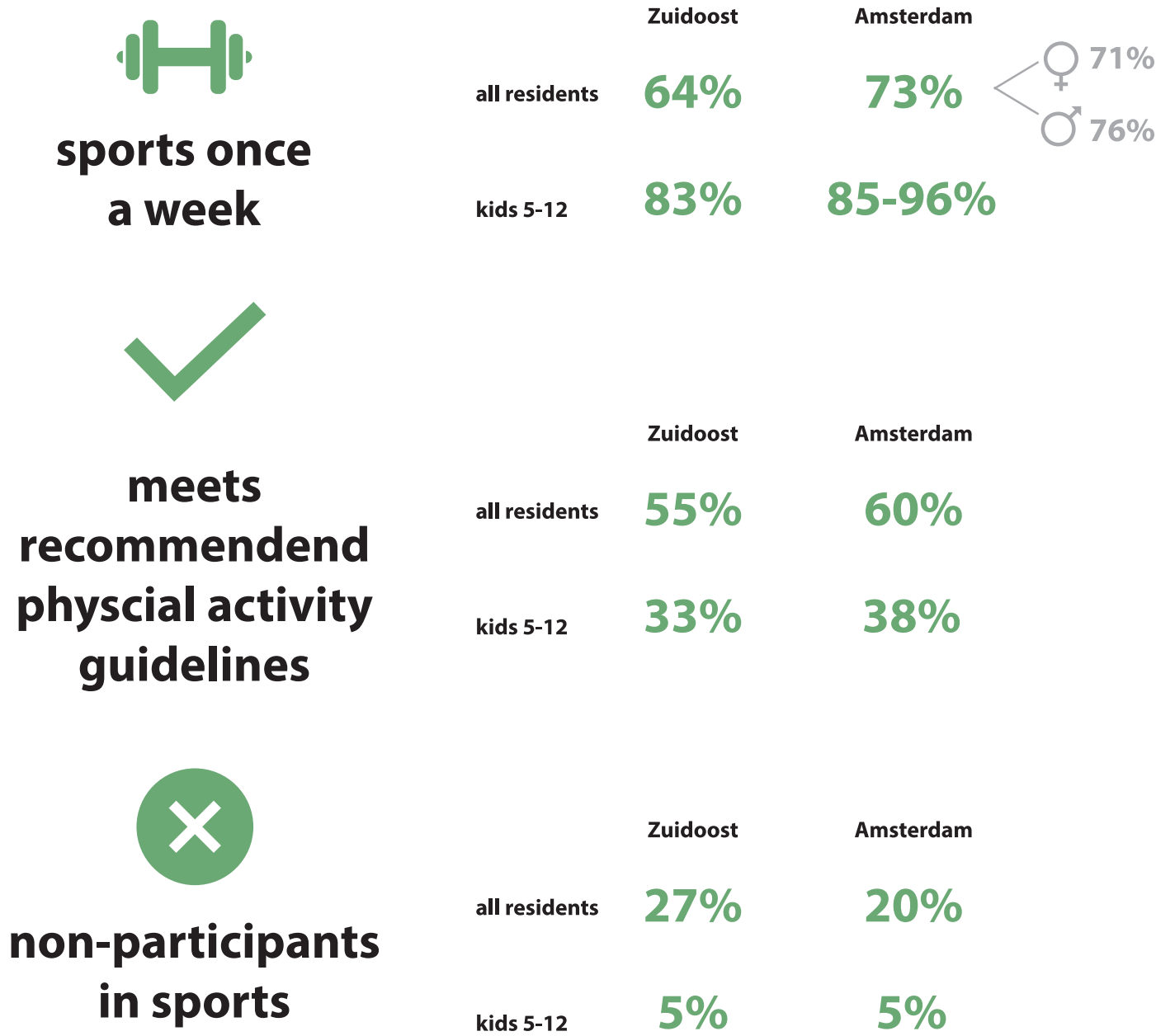
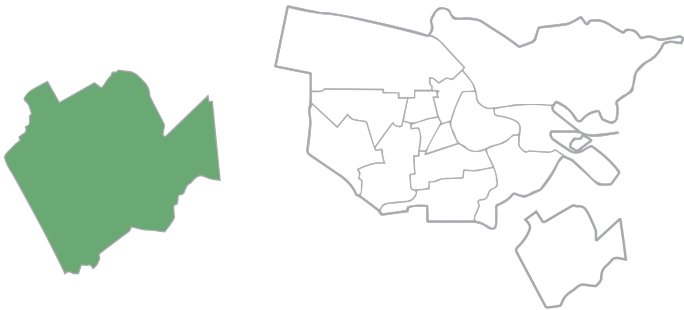


Figure 15. Facts and figures sports Zuidoost (own work, based on NOC*NSF, 2024)

4.2.3. Spatial analysis

As explained, Beweegpark Kraaiennest is situated in the Bijlmer area, located in Amsterdam-Zuidoost, one of the eight boroughs of Amsterdam. More specifically, it is part of the K-neighbourhood (figure 13). This part of the Bijlmer is known for its iconic ‘honingraatflats’, which are still in place in this part of the neighbourhood. The Bijlmer was a model for modern urban life, emphasising efficiency and functionality and deliberate separation of living, working, transportation and recreation. Aligning with this line of thought, Beweegpark Kraaiennest has a purely recreational function, located next to the honingraatflats’ focused at living. As this is one of the few recreational functions and a location in close proximity to residential buildings and with free entrance, Beweegpark Kraaiennest is relatively easily accessible to local residents, which can positively contribute to social inclusion. On the other hand, the monofunctional nature of the facility might result in a lack of oversight and surveillance from people engaging in other activities, thereby decreasing the feelings of safety. This could deter potential users, like girls, from using the facility.

The park is located next to metro stop Kraaiennest, which is an important feature of the Kraaiennest area. Along with the importance in terms of accessibility, which will be elaborated upon further on, the metro rails, located above ground level, plays an important role in defining the public space of Kraaiennest, as can be observed in figure 16.



Figure 16. Metro station Kraaiennest (own work)

Most elements of the Beweegpark are located on the eastern side of the metro line, but the athletics track runs under the metro line through the western side of the line. Shopping centre 'de Kameleon' can be found on the west side of the metro. This shopping centre was built in 2012 and combines retail and residential functions. On the south side, Beweegpark Kraaiennest is bordered by buildings with public functions, such as a medical centre and a neighbourhood community centre. Additionally, in 2030, the OBA Next library will open its doors on the south side of Kraaiennest, along the Karspeldreef. These buildings enhance social oversight in the area, as they attract people from the neighbourhood and contribute to a sense of activity. It is important to note that this activity can both positively and negatively affect social inclusion. The presence of a group boys at a facility can negatively influence girls' feeling of social inclusion (Helleman, 2022; Reimers et al., 2018). On the other hand, the presence of amenities in proximity to the sports facility fosters a sense of social inclusion for girls aged nine to twelve (Kenniscentrum Sport en Bewegen & SWECO, 2024).



Figure 17. Kraaiennest area (own work)

The space underneath the metro line and in front of the shopping centre is a relatively plain area. Therefore, it is often used for activities, like the weekly market, spontaneous music sessions or outdoor theatres. It is a meeting space for the community, thereby increasing social inclusion. Additionally, the space provides coverage from sun and rain, positively affecting social inclusion levels.



Figure 18. Market at Kraaiennest (Smilde, K.)



Figure 19. Open-air cinema Kraaiennest (Mooren, H.)

In terms of transportation, the most important aspect is the metro line and accompanying metro stop, connecting Kraaiennest to Amsterdam central station. Kraaiennest also houses a bus stop, thereby providing easier transportation to Bijlmer ArenA, Holendrecht, Weesp, and Amstel station. The cycling road on the Kantershofpad is an important east to west cycling connection in Zuidoost. Otherwise, there are chances to connect existing cycling roads, as most cycling roads abruptly stop and fail to connect to the centre of Amsterdam. Overall, the facility is well-accessible in terms of transportation. This makes the facility more socially inclusive.

Functions

Beweegpark Kraaiennest hosts a multitude of functions. A list of functions is provided below. The spatial distribution of functions can be observed in figure 20.

- basketball court
- tennis courts (4x small, lower steel 'nets')
- skating rink
- ping pong table (2x)
- football and basketball court (combined)
- interactive football wall (on football field)
- tennis courts (2x full size)
- calisthenics equipment
- fitness equipment
- athletics track (sprint track and oval track)
- tee box golf
- vegetable garden
- playground
 - o slide
 - o cableway
 - o gymnastics
 - o swings
 - o climbing net
 - o nest swing
 - o spring riders
 - o sandpit

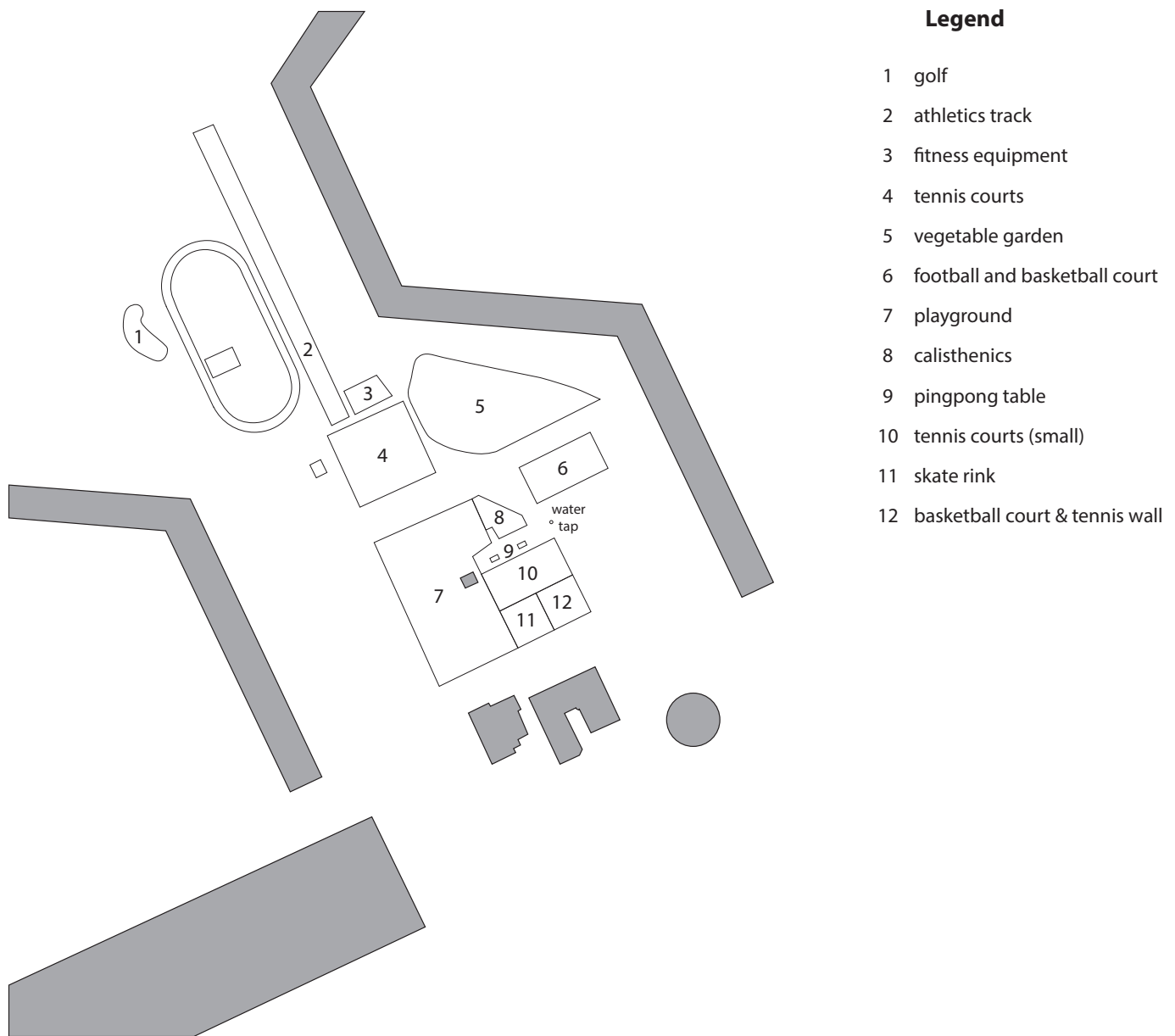


Figure 20. Functions Beweegpark Kraaiennest (own work)

Literature suggests that the variety of sports equipment, the level of flexibility and total supply of sports equipment influence the level of social inclusion of a sports facility for girls aged nine to twelve (Helleman, 2022; Visser & van Aalst, 2022). The list of functions available in Beweegpark Kraaiennest suggests that there is quite a variety of functions available. This wide range of functions increases the level of social inclusion for girls aged nine to twelve. However, it is important to note that the available functions include standardised spaces, with limited flexibility. Additionally, there are a lot of large, semi-open areas with hard surfaces in Beweegpark Kraaiennest, like the football court, basketball court, tennis courts and athletic court. The current functions are therefore better suited to boys' preferences, thereby having a negative effect on the social inclusion of girls aged nine to twelve.

Surface

In terms of surface, a big part of the park is paved, including multiple sports functions such as the tennis courts and the combined football and basketball field. An overview of the different surfaces is provided in figure 21. The playground and vegetable garden are unpaved, along with the grass surrounding the athletic tracks. Furthermore, the fact that the facility is located in a park makes for more unpaved surroundings. As Zimm (2019) state, tactility of the sports facility influences the level of social inclusion for girls aged nine to twelve. Hard surfaces do not appeal to girls those ages, whereas presence of colour and varied tactility increase social inclusion. When considering the surfaces of Beweegpark Kraaiennest, quite a lot of hard surfaces can be observed. Variation in surface material is lacking, thereby negatively influencing the social inclusion of Beweegpark Kraaiennest.



Figure 21. Surfaces Beweegpark Kraaiennest (own work)

Fences

An open and accessible design fosters social inclusion (Kenniscentrum Sport en Bewegen & SWEKO, 2024). The presence of fences can limit this sense of openness, as they create physical and psychological barriers, making people feel restricted or unwelcome. Enclosed spaces can create a sense of entrapment, especially high fences as used in the tennis court, basketball court or skate rink. In Beweegpark Kraaiennest, several areas are fenced, including the athletics track, tennis courts, football/basketball court, playground, basketball court, and skate rink (figure 22).



Figure 22. Fenced basketball area (own work)

Figure 23 illustrates the presence of fences in the whole of the facility, distinguishing between higher fences (over 1.5 meters) and lower fences (under 0.5 meters). The presence of these fences throughout the facility may contribute to a sense of restriction and enclosure, which can negatively impact the perceived level of social inclusion.



Figure 23. Fences Beweegpark Kraaiennest (own work)

4.2.4. Catchment area

Figure 24 illustrates the assumed catchment area for the Beweegpark Kraaiennest, representing the geographical region from which the facility attracts its users. Framing the analysis within this specific area therefore provides a more meaningful and coherent interpretation. This catchment area is determined using the principles of the distance decay model, which suggests that the likelihood of individuals utilising a facility decreases as their distance from it increases (Liu, 2009). The model also accounts for potential competition from nearby facilities and the presence of natural barriers.

The catchment area primarily encompasses the biggest part of the Bijlmermuseum neighbourhood. This area has good spatial access, and from most parts of the neighbourhood, a clear, unhindered path. As shown in figure 25, the neighbourhood contains only two other sports facilities, both of which are football fields. Since the Beweegpark Kraaiennest offers a wider variety of sports, it is reasonable to assume these do not pose significant competition. The catchment area extends slightly beyond the Bijlmermuseum neighbourhood to the east, reaching the 'S Gravendijkdreef; a major road with tram rails, acting as a border. In fact, all of the borders of the catchment area are defined by major roads, which can serve as natural barriers for children and create separations between neighbourhoods. The furthest distance from the sports park within this catchment area is approximately 600 meters. This is about a 6-8 minute walk, depending on the individual, which appears reasonable for accessibility.

The accessibility of the facility positively affects the level of social inclusion. Beweegpark Kraaiennest is located in proximity to a big number of dwellings, which are not located close to comparable facilities. The proximity, combined with the easy access by public transport, increases the level of social inclusion.

- ☒ Openbare sportplekken
- ☒ Skate
- ☒ Tennis
- ☒ Basketbal
- ☒ Voetbal
- ☒ Jeu de boules
- ☒ Fitness / Bootcamp
- ☒ Beachvolley
- ☒ Tafeltennis
- ☒ Overig



Figure 24. Catchment Area Beweegpark Kraaiennest (Google Maps, 2025)

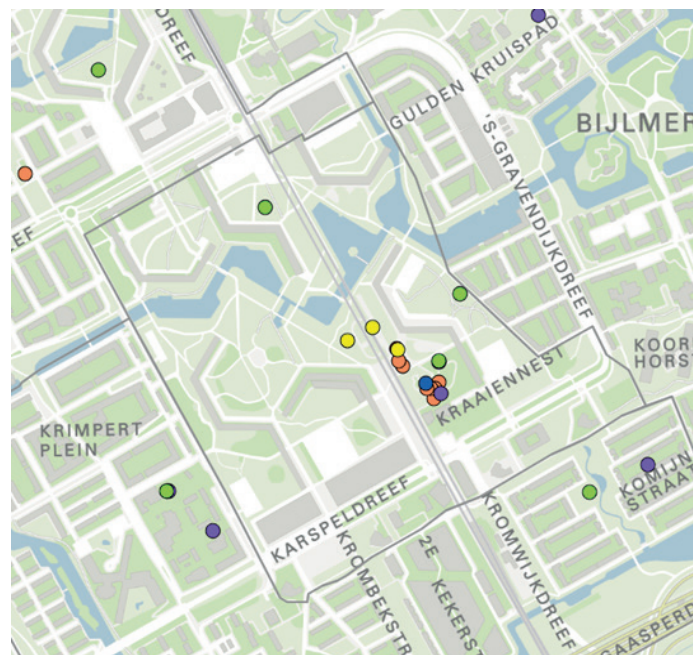


Figure 25. Outdoor sports facilities Bijlmer (Gemeente Amsterdam, n.d.)

4.3. Observations

The observations generated insightful results concerning actual utilisation of the sports facility. First of all, quantitative data on utilisation will be shared. This encompasses numbers on utilisation, categorised by gender, age, activity, supervision, location or a combination of these factors. This is followed by more qualitative data resulting from the observations. Explanations are sought for utilisation numbers, and related to factors influencing social inclusion.

Beweegpark Kraaiennest has been observed on eight separate occasions in the period between 11-03-2025 and 24-03-2025, a period outside school vacation periods. Observations took place on weekdays, in the afternoon. Most observations took place after regular school times (>15h). Observations took 45 minutes, in which the observer regularly changed viewpoints. Temperatures ranged from 5 to 18 degrees, with varying weather conditions, but no rainfall.

Observation	Date	Time span	13:00	14:00	15:00	16:00	17:00
#1	11-3-2025						
#2	13-3-2025						
#3	14-3-2025						
#4	17-3-2025						
#5	19-3-2025						
#6	20-3-2025 A						
#7	20-3-2025 B						
#8	24-3-2025						

Figure 26. Time stamps observations (own work)

4.3.1. Utilisation per observation

Beweegpark Kraaiennest consistently showed activity during the observation periods. In total, 227 users have been identified over eight occasions. Although the facility was in use during each instance of monitoring, utilisation levels varied significantly. On one occasion (11-03-2025), 5 users were recorded over a 45-minute period, whereas on another occasion (14-03-2025), 47 users were observed (figure 27).

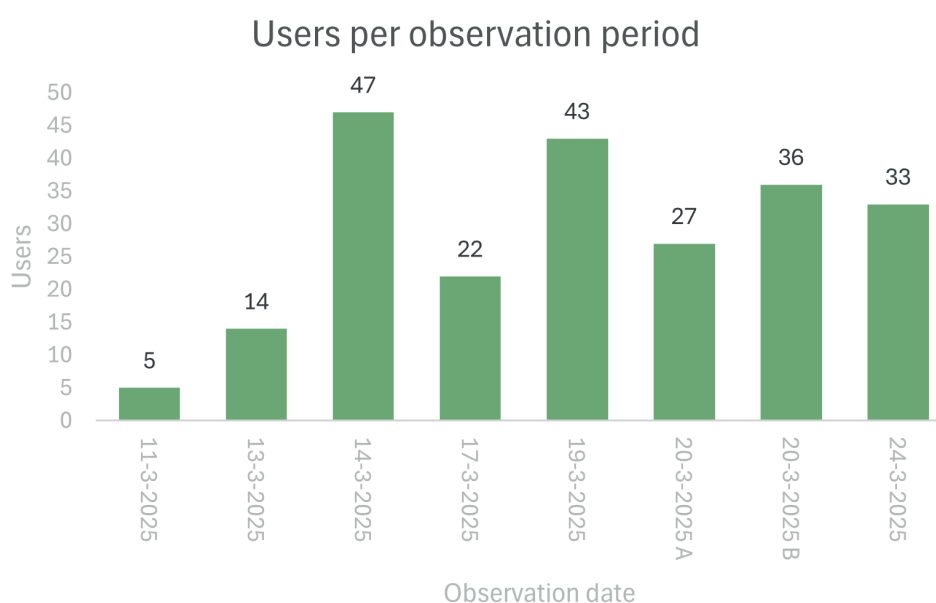


Figure 27. Total number of users per observation (own work)

4.3.2. Correlation utilisation, weather, time

The significant variations in utilisation numbers were analysed by comparing them with weather conditions and time stamps, revealing a correlation. This finding is important, since it suggests that utilisation numbers were influenced, at least partly, by these external factors rather than solely reflecting the level of social inclusion.

To analyse these aspects, weather conditions were assigned values based on the temperature (table 7) and presence of sunlight (+1 for sunny, -1 for cloudy). Time values were determined similarly (table 8). Wednesday afternoons were marked as +1, as multiple schools have the afternoon off.

*Table 7. Valuation system
weather (own work)*

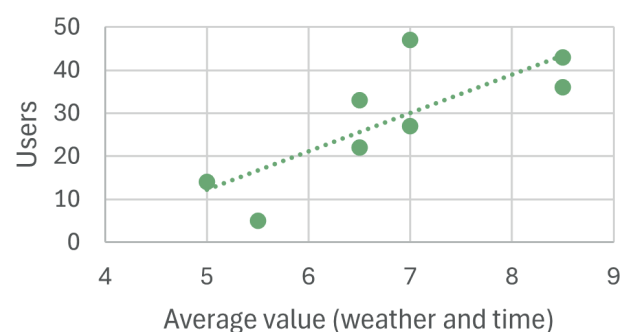
Temperature (°C)	Value
0-5	4
6-10	5
11-15	7
16-20	8

*Table 8. Valuation system time
(own work)*

Time	Value
Before 14h	5
14:00 – 15:00	6
15:00 – 16:00	8
After 16:00	7

Both weather and time show a positive correlation with utilisation rates. Better weather and favourable timing lead to higher usage. Combining both factors revealed an even more coherent pattern (figure 28). The average of the weather and time values are compared to utilisation numbers, reinforcing the trend that favourable conditions contribute to increased utilisation.

Utilisation - weather and time



*Figure 28. Utilisation and weather-time values combined
(own work)*

4.3.3. Utilisation in relation to age category and gender

In the number of total users, men are heavily overrepresented. Male users make up 78% of the total users (n=177), while female users make up 22% (n=50). These statistics underscore the need to make this facility more socially inclusive for girls, as the group of females is currently heavily underrepresented. Additionally, the level of social inclusion for girls is negatively related to the presence of boys (Reimers et al., 2018), emphasising the need for a more balanced distribution.

Categorising utilisation by perceived age groups and gender results in the following distribution (figure 30). The largest group of users consists of adults (E). Age category B is the second largest, noticeably larger than age groups A, C and D. This highlights the opportunity to increase utilisation for the target group of this research, girls aged nine to twelve (age category C), along with other underrepresented age categories. In regard to gender distribution, males significantly outnumber females in most categories, except for age category C (9-12). Notably, category C has the lowest overall representation, with 19 users, 11 of whom were female. The greatest gender disparity is observed in categories B and E, the two largest groups.

The age distribution is more balanced for females compared to males. Among male users, utilisation rates range from 5% to 45%, with a significant proportion falling into the 18+ category. In contrast, the distribution among females is more evenly spread, with age categories accounting for between 16% and 26% of total female users.

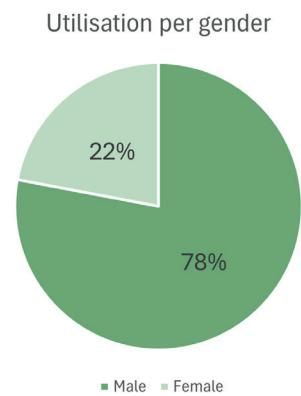


Figure 29. Utilisation per gender (own work)

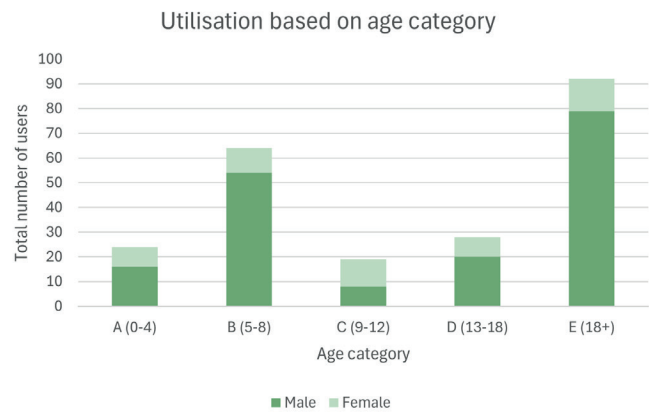


Figure 30. Utilisation based on age category and gender (own work)

Table 9. Age categories distribution based on gender (own work)

Age category	Male	Female
A (0-4)	9%	16%
B (5-8)	31%	20%
C (9-12)	5%	22%
D (13-18)	11%	16%
E (18+)	45%	26%

4.3.4. Utilisation in relation to activities and gender

Three main activity categories have been identified for this research: sport, play, and social. If a user engaged in multiple activities during the observation period, the one that occupied the most time was recorded. Sports are the most recorded activity, accounting for 56% of all observed utilisations. One quarter of all users participated in social activity. The remainder were observed doing activities which fall into the category of play. As shown in figure 31, males are significantly overrepresented in sports, with 115 males observed doing sports, compared to 14 females. As the aim is to make those numbers more balanced, there is a need for more sports participation for females. This need can be addressed by making sports facilities more socially inclusive. The other categories of activities show a more balanced distribution than sports.

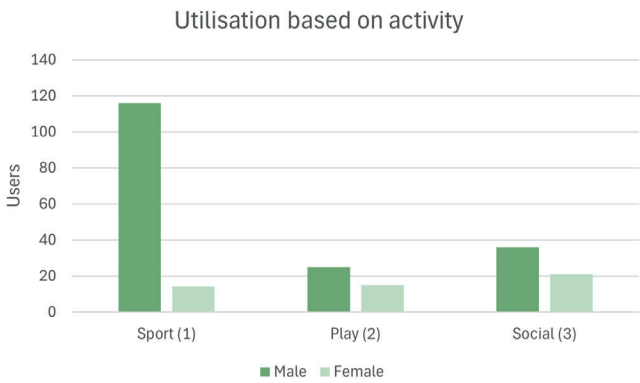


Figure 31. Utilisation based on activity and gender (own work)

In terms of gender distribution, sports is the most common activity for males, accounting for 65% of total male users, followed by social activities and play. For females, however, the pattern is notably different. Social activities are the most popular, followed by play and sports. This indicates that males and females engage with the facility in distinct ways. Additionally, these findings align with literature, which shows that girls prefer sports facilities and areas where they can meet and rest, which can be categorised as ‘social’. (Kostrzewska, 2017). Considering the fact that the three-quarters of the observed users were male and that the majority of functions are sports-related, it seems like the facility is most suited to the needs and wishes of males.

Table 10. Activities distribution based on gender (own work)

Activity	Male	Female
Sports	65%	28%
Play	15%	30%
Social	20%	42%

4.3.5. Supervision for kids until the age of twelve

The data on supervision is limited to age categories A, B and C (children aged 0 to 12), as older children typically gain more independence upon entering secondary school and adolescence. This assumption was reinforced by the observations in practice, as supervision was only observed for children in these age groups.

Overall, supervision was almost evenly split, with 54% of observed children aged 0 to 12 being supervised. Gender differences are small, 56% of boys had supervision compared to 48% of girls. This observation is contradictory to research by Helleman (2022) and Boxberger & Reimers (2019), which suggests that parents tend to be more protective of daughters.

4.3.6. Spatial division of utilisation

Certain areas of Beweegpark Kraaiennest are used more frequently than others. Four locations are especially popular, each attracting over 10% of the total number of recorded users. The most popular overall is the playground, which is very popular in the age group until four years, and also attracts users from other age categories. The second most utilised area consists of the regular tennis courts, accounting for 18% of recorded users. Notably, tennis court usage was exclusively male ($n=41$), with no female users observed during the study period. The football field ranks third, making up 15% of total usage, while the interactive football wall, recorded separately, accounts for an additional 2%. Finally, the calisthenics bars and area represent 12% of total usage.

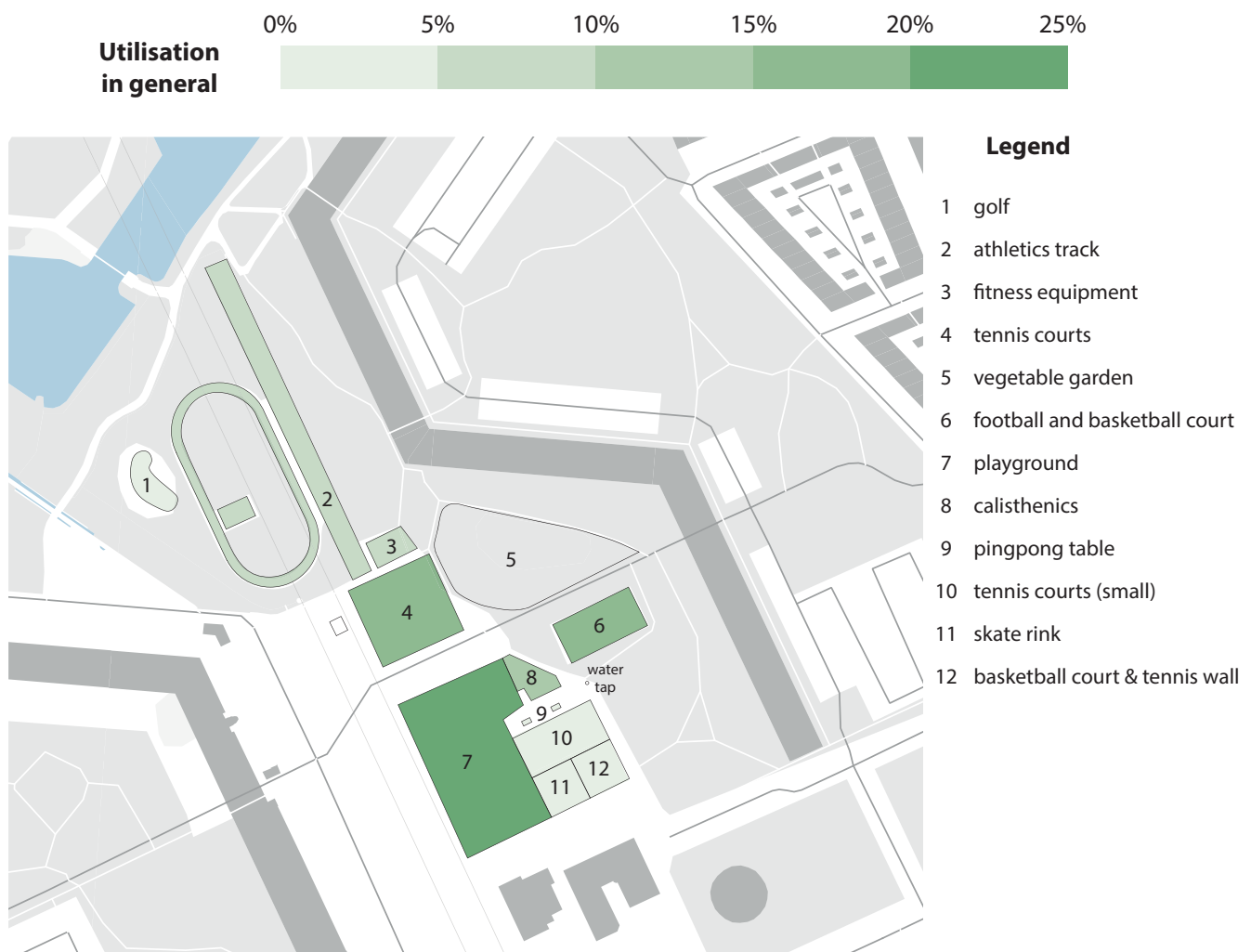


Figure 32. Utilisation per area (own work)

These objective utilisation figures per location do not fully capture the ways in which different groups use the facilities. To provide a more detailed understanding of utilisation per location, utilisation is analysed and visualised based on gender, age category and activity type.

Gender

Figures 33 and 34 illustrate the spatial distribution of facility usage by gender. Male users engage with all areas of the facility, with a strong emphasis on the normal sized tennis courts and football field. In contrast, female users do not utilise all parts of the facility and show a different focus, primarily on the playground and calisthenics area. These findings align well with the idea that boys take on activities that are space-consuming and competitive and involve sports equipment (Helleman, 2022; Reimers et al., 2018). The calisthenics area and playground have more room for creativity and a diverse set of activities (Fjeldsted, 1980; Hill, 1980, as cited in Helleman, 2022).

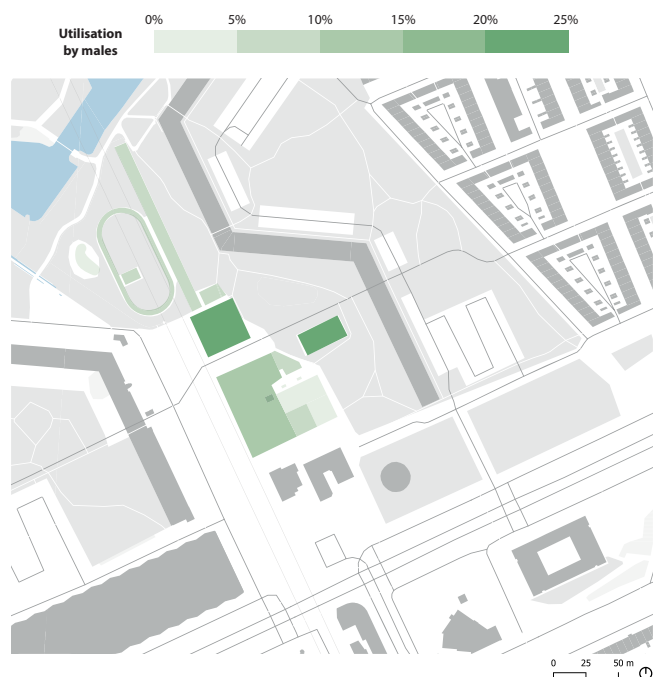


Figure 33. Utilisation by males (own work)

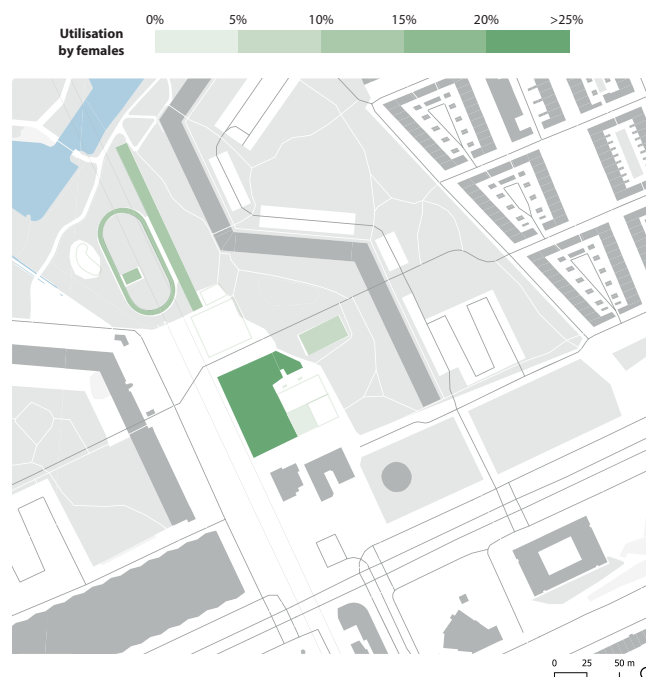


Figure 34. Utilisation by females (own work)

It is interesting to note that the calisthenics area is mainly used by females for social activities, serving as a popular meeting spot. During the instances observed, the sport use consisted of tumbling on the bars. Another important difference involves the tennis courts, which are the most frequently used area for male users. These are not used by females at all. Similarly, the golf court, fitness area, small tennis courts, and basketball field remain entirely unused by female users. This highlights the clear differences in how users of different genders engage with Beweegpark Kraaiennest.

Age category

Categorising the facility's usage by age category reveals that certain areas are predominantly used by specific age categories and that different age categories use different areas of Beweegpark Kraaiennest. These findings are shown in figure 35.

Age category A engages almost exclusively with the playground (88%), with only minimal use of the basketball court, skate rink, and calisthenics area (<5%). Compared to group A, age category B shows a broader distribution across the facility. Their most frequently used area is the football field, which accounts for 42% of their total usage. The playground remains relevant for this group (19%), and the calisthenics area is also popular (14%). Age category C utilises an even wider range of spaces, including the athletics track. Their top locations are the calisthenics area (42%) and the football field (21%). Age category D is most visible in the playground (46% of all accounted users of age category D), which may seem unexpected at first. However, they primarily use it as a social space. The football field is also popular, making up 25% of their usage, while the calisthenics area and basketball court each account for 11%. The adults show a distinctly different usage pattern. They are mainly found on the tennis court (45%), followed by the athletics track (16%). Unlike other age groups, they do not use the football field or playground at all.

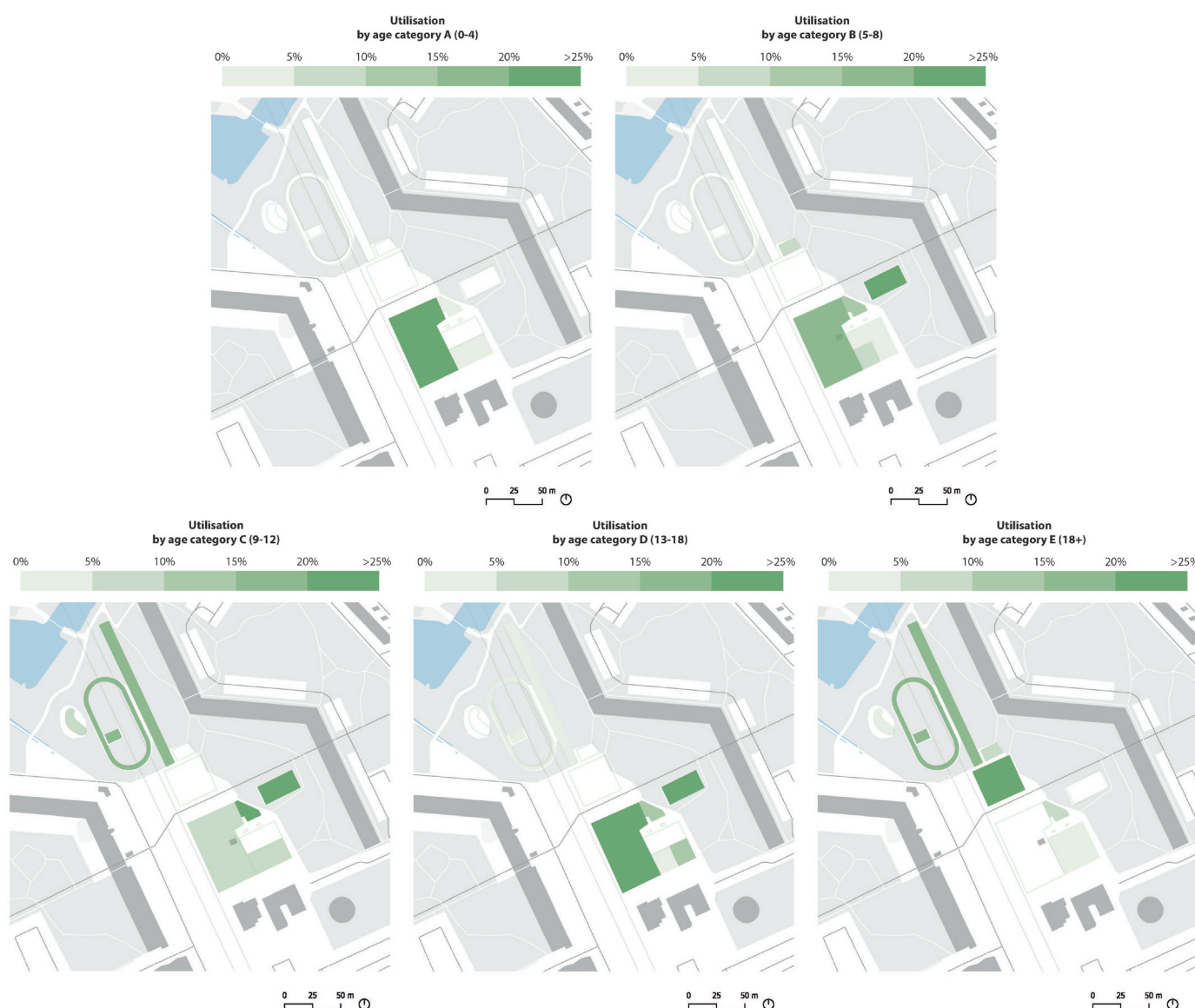


Figure 35. Utilisation based on age category (own work)

Categorising utilisation on the basis of age categories show that different age groups prefer different locations of Beweegpark Kraaiennest. This implies that for a socially inclusive sports facility, the wishes of different age categories should be included.

Activity

In figure 36, utilisation is visualised per activity type, where a darker shade of green indicates that the area is utilised more often for the depicted activity. As shown in figure 36, sports are the primary activity in most areas of Beweegpark Kraaiennest. This is expected, taking into account that most equipment is designed for sports. Similarly, the playground is predominantly used for play, aligning with its purpose. What is also prevailing is the fact that the 'play' activities are taking place in the facilities around the playground.

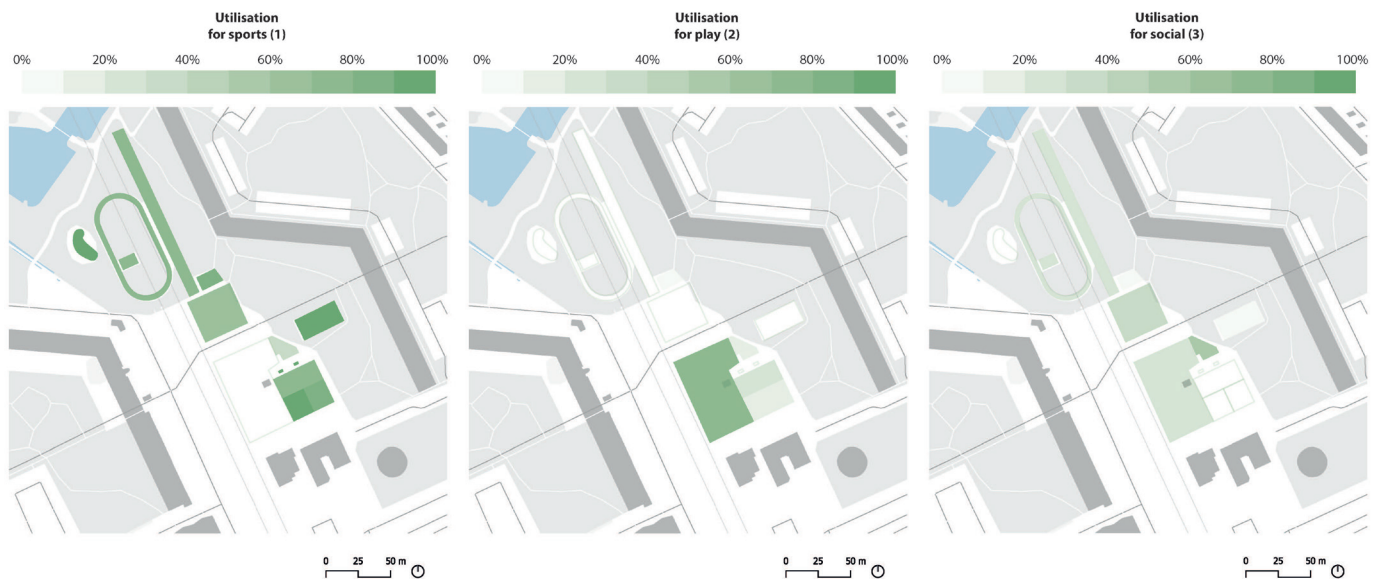


Figure 36. Utilisation per activity category (own work)

Noticeable is the distribution of activities in the calisthenics area. As noted earlier, female users primarily use this space as a spot for social activities. Several male users also use the spot for social activities. This results in a unique activity distribution of activities in the calisthenics area: 52% social activities, 33% sports and 11% play, as young children enjoy exploring the area and crawling on the grass. This could be related to the surface of the calisthenics area; artificial grass, which differs from the rest of the surfaces and is an attractive material to sit on.

4.3.7. Unstructured observation results

In the previous results, utilisation is visualised and explained in relation to the aspects measured in structured observations. However, these results do not paint the full picture, as in some cases, unstructured observations provided relevant insights.

Influence of external events and nearby facilities

A particularly interesting aspect is the connection between the use of different areas within the facility and the activities taking place in their surroundings. For instance, during the observations on March 14, 2025, a Holi celebration was taking place in the space beneath the metro line. Access to the event was limited, which resulted in a group of youth (age category D), utilising the Kraaiennest area, specifically the playground, as a space to observe the festivities from a distance.

Although not directly measurable in terms of utilisation, certain external factors influence the social context of Beweegpark Kraaiennest. For example, during the weekly market, many people pass through the facility on foot or by bike, thereby creating a more lively atmosphere, both on the market terrain and in the sports facility. While sometimes, these people stop to do some physical activity (i.e. parents letting kids play on the swings), most of the time, this does not directly impact utilisation rates. However, it increases visibility; there are more eyes on the street, which could influence the level of social inclusion both positively and negatively, as explained in section 4.1.

A similar dynamic is observed with the community centre, located at the south side of the facility. Adult visitors frequently gather outside, with a direct view of the basketball court and skate rink. There were instances observed where users walked from the community centre to the sports facility, often with their children. The lack of clear spatial boundaries between the community centre and the sports facility fosters interaction between both users.

Safety and disruptive behaviour

On one occasion (March 20, 2025), a group of young men on scooters were speeding through the space under the metro and behind the community centre, revving their engines. This created a traffic hazard, as they were moving at high speeds. The situation escalated when the police intervened with buses and motors to arrest one of them, causing noticeable commotion. Other observations related to the lack of public toilets. On multiple occasions, male users were observed peeing in the bushes of the facility. This can make users feel unwelcome and the facility less socially inclusive. Such incidents can negatively affect the perceived safety of the area, thereby negatively affecting social inclusion levels (Visser & van Aalst, 2022; Zimm, 2019).

Litter and maintenance issues

One recurring issue in the facility was the presence of litter. Trash cans were frequently open. During the first observation (March 11, 2025), litter was scattered all across the facility, as if strong winds had blown it all over (figure 37). This contributed to an untidy appearance, which negatively influences the level of social inclusion (Visser & van Aalst, 2022).

Lack of comfortable resting spaces and shelter

When observing the users that could be classified as doing 'social' activities, they were often found sitting on the benches in the facility. Further analysis of the benches revealed that their design is hostile (figure 38), and that they offered limited capacity (figure 39). Furthermore, the facility does not offer guidance from sun or rain. These aspects make the facility less socially inclusive for girls aged nine and above (Kostrzewska, 2017).

Community feeling and group activities

A sense of community was evident in Beweegpark Kraaiennest. People engaged in sports, play, and social activities together, sometimes joining groups they did not seem to know. There were also frequent friendly interactions, such as people greeting each other while walking or cycling past. This even occurred to the researcher as an observer. The positive atmosphere contributes to the feeling of safety. Along with the presence of peers, this factor contributes to the level of social inclusion.

The facility did attract multiple after-school groups during the observations. These were not included in the structured observations, as they are restricted in their activities by the presence of supervisors. It was assumed that the observed utilisation did not accurately reflect the utilisation of the facility without supervision, and the group size was too big for one researcher to measure.



Figure 37. Litter in playground Beweegpark Kraaiennest (own work)



Figure 38. Benches in Beweegpark Kraaiennest (Google Maps, 2023)

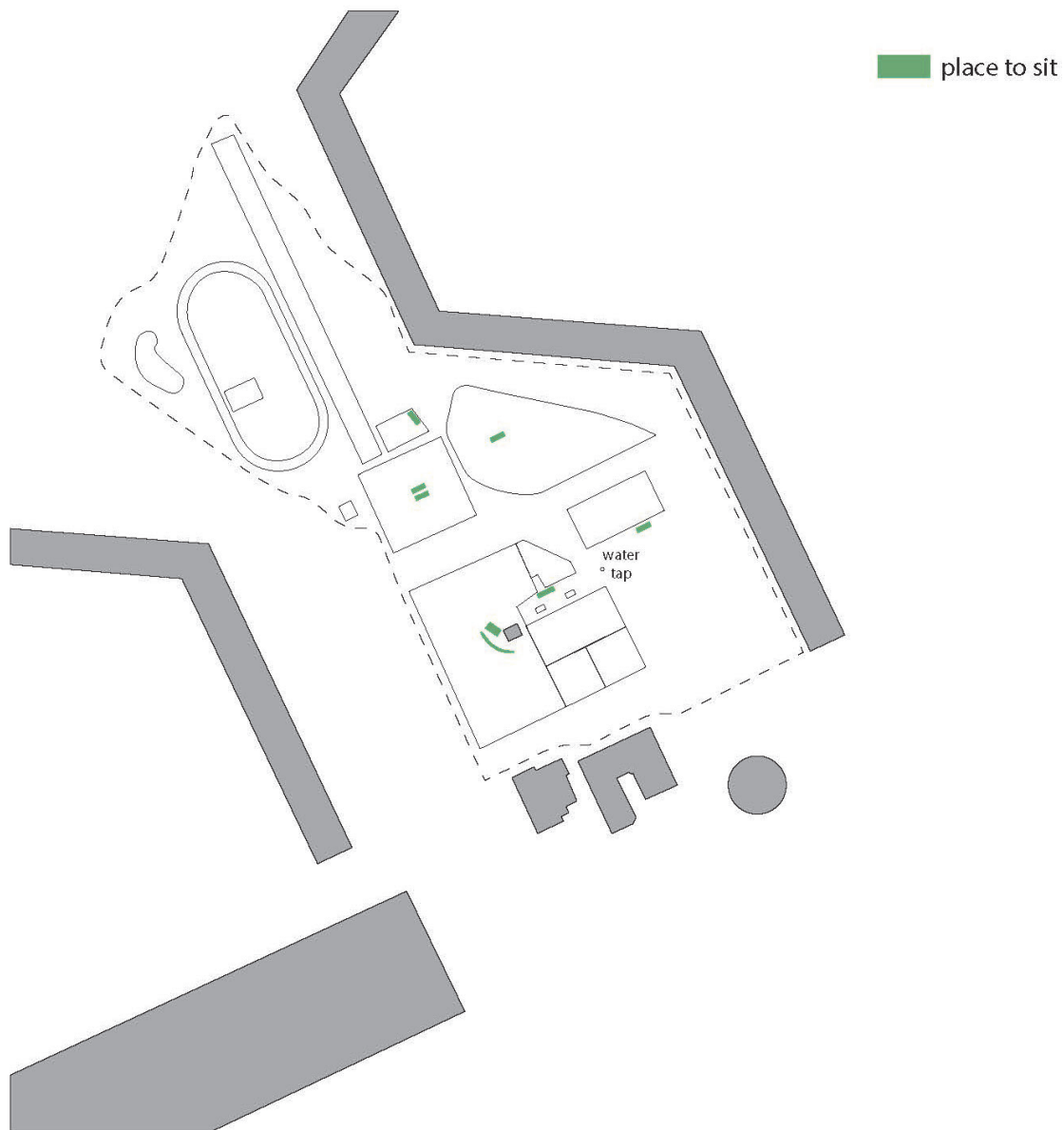


Figure 39. Overview of places to sit (own work)

4.4. Photovoice

4.4.1. Pictures taken (photo)

For the photovoice method, a total of 17 girls participated. The participants were reached through a gatekeeper; a physical activity teacher from a primary school located close to Kraaiennest who was willing to collaborate. Participants were selected by the physical activity teacher on the basis of grade and gender. The participants are girls enrolled in grade seven and eight (bovenbouw), thereby being part of the target group of this research.

Before taking the pictures, the participants were introduced to the research and the assignment in an understandable manner. They were given the task to take pictures of parts of the park they liked, feel nice in and other parts they did not like, or would like to change. The assignment had to be carried out in groups of 3 or 4 participants, as there were a total of five throw-away cameras provided. Researchers were present during the activity, but after introducing and explaining the assignment, their role was limited to answering questions if necessary, ensuring minimal intervention and allowing participants to capture their own perspectives.

The photovoice technique resulted in a total of 50 photographs taken by participants, of which 40 met the predefined guidelines and were considered useful for further analysis. 10 pictures did not meet guidelines, as they pictured recognisable people, but were considered potentially useful. Upon blurring the people depicted in these pictures, they were considered useful, leading to a total of 50 useful pictures.



Figure 40. Overview locations pictures photovoice (own work)



Figure 41. Example photovoice results (own work)

The images have been mapped to provide an overview of pictures and where they were taken (figure 40 and 41). As can be observed, most pictures were taken picturing the playground. This can be attributed to different influencing factors. Participants might be more familiar with the playground and therefore be more opinionated, both positively and negatively. Additionally, the positioning of the researchers and teacher in a central spot within the playground, may have implicitly encouraged participants to stay nearby, despite the assignment stating that they were allowed to explore the entire park. Third of all, peer behaviour could play a role. Since most participants chose to stay within the playground area, it's plausible that peer pressure discouraged groups or individuals from leaving this area, even if they were inclined to explore more freely. Finally, the presence of unfamiliar users (non-participants of the research) in other areas of the park may have contributed to feelings of unease or fear among the participants, making them less likely to leave the familiar group setting. This aligns with existing literature, where social inclusion is partly defined by the feeling of safety.

Because participants did not take photos throughout the entire facility, the 50 images do not provide a complete representation of Beweegpark Kraaiennest. While this could suggest that participants had no opinions about the areas they did not photograph, this is likely not the case. This assumption, combined with the importance of including perspective of the entire facility led the researcher to take additional photos of areas that were not covered by the participants. These photos are not considered part of the participant-generated data and were not collected through the photovoice process. However, they may still be relevant in the discussion section, as they represent spaces participants might want to use or feel could benefit from change.

At this stage, pictures have not yet been categorised. This is done on purpose, as premature categorisation may introduce bias in the interpretation of images, potentially influencing the study's outcome. Participants are given the lead in categorising the pictures, which will take place in the next part of the photovoice technique.

4.4.2. Discussion (voice)

Method

The discussions, forming the ‘voice’ component of the photovoice method, were conducted on a separate occasion from the ‘photo’, a week after the pictures were taken. To facilitate efficient conversations, the photographs were printed and numbered. Discussions took place in two groups, each consisting of about eight participants. Groups were formed based on the groups in which participants had taken pictures the previous week. Intentionally, groups were not formed around specific themes or locations depicted in the photos. This decision was made to avoid researcher bias, as categorising images could impose themes that were not actually intended by the participants. Each participant received their own photographs to discuss, along with those of their peers and pictures of the facility which the participant did not picture.

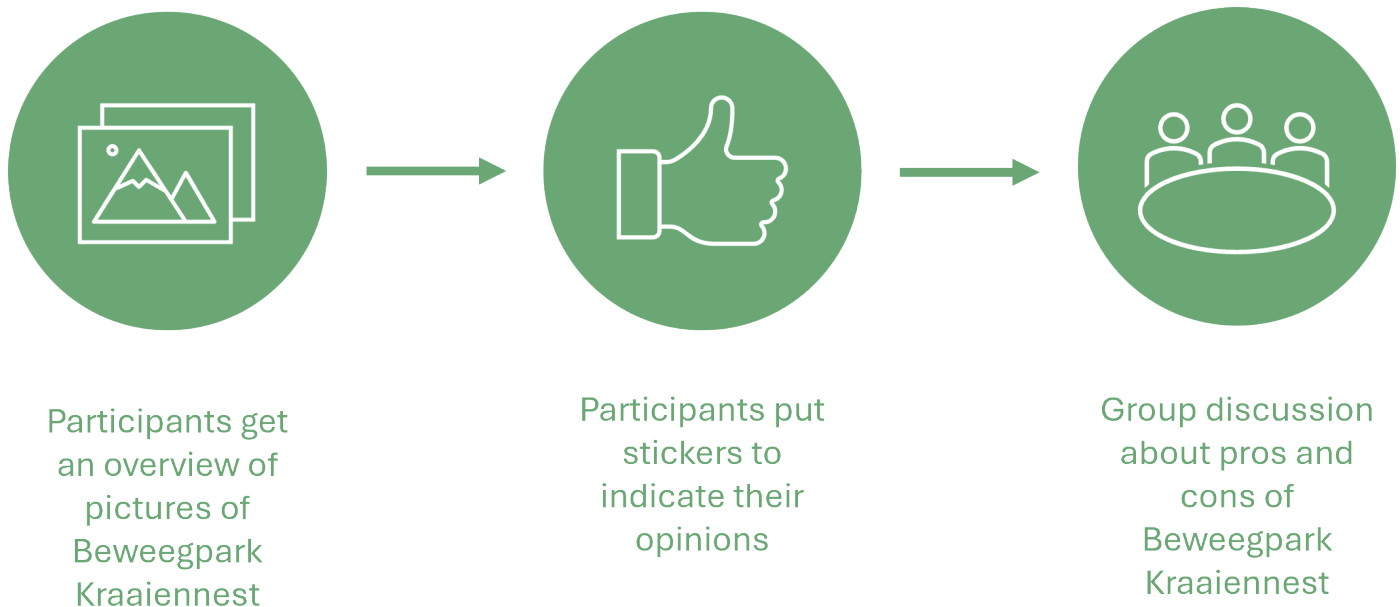


Figure 42. Structure photovoice discussions (own work)

Participants were provided with stickers which could be used to categorise the pictures. If a picture represents something which the participants perceive as something positive, they were asked to put a green sticker on the picture. This indicated a positive relation with social inclusion. Red stickers have been used to indicate negative feelings. This categorisation method is aimed at giving the participants a sense of ownership of the discussion, and provide all individuals with expressing their opinion, without having to speak up in groups. This also makes it easier to categorise the pictures into positive and negatively related to social inclusion, as they are physically labelled.

During the categorisation of the pictures, participants initially shared their experiences and opinions of Beweegpark Kraaiennest with one another without a researcher being present. Once the initial sorting was done, and it became clear that participants were losing focus or unsure of the next steps, researchers stepped in to facilitate the conversation by asking guiding questions, like ‘why do you like to be here?’ or ‘what do you not like about this?’.

Following the categorisation phase, a group discussion was held in which each group commented on a picture they disliked (indicated by red stickers) and one they liked (marked with green stickers). Researchers asked follow-up questions to better understand the reasoning behind the sticker placements. This allowed participants to elaborate on their choices, offering valuable insights.

The second part of the discussions focused on what participants would prefer in place of the current facility. While these insights will be discussed in more detail in the next paragraph (section 4.5), some noteworthy comments about the current state of Beweegpark Kraaiennest emerged during this phase and have therefore been included in the current analysis.

The discussions took about half an hour and were audio recorded using the sennheiser avx-me2. The recordings are transcribed into Word documents which were coded using Atlas.ti. The code consisted of the factors that have been identified to influence social inclusion (section 4.1). After the initial round of coding, new factors are derived from the interview using iterative coding practices. Several themes emerged as influences of the social inclusion of Beweegpark Kraaiennest for girls aged nine to twelve. Most of these themes directly follow from comments by participants that directly relate to one of the factors identified in section 4.1. Other themes follow from the iterative coding practices.

Shared physical activity with peers

The physical design of Beweegpark Kraaiennest does not consistently support engaging in physical activity together with peers. Certain parts of the facility encourage exercising with peers, such as the tennis courts and football court. Others, like singular swings on the playground, are less suited for this purpose. Throughout the discussions, participants voiced a desire to engage in activities collaboratively rather than individually. For example, the cableway was described as more enjoyable when used together: 'it is more fun to use it together!'. In response to the researcher's question about whether the social nature of certain activities was appealing, participants answered affirmatively. Additionally, they expressed a preference for equipment that could accommodate multiple users at the same time. These findings, although not directly, align with existing literature, which highlights that the presence of peers can significantly enhance the enjoyment of physical activities and create a more supportive and motivating environment (Cowley et al., 2021).

Amenities

Beweegpark Kraaiennest currently features a central storage and meeting point in the form of a small building in the middle of the playground (figure 43). Based on the discussions with participants, it seems that there is a possibility to open this building for public use. Currently, the building is only accessible during organised events, meaning that its function as a public amenity is highly limited.



Figure 43. House on the playground (own work)

When available, the building offers multiple functions: it provides access to a toilet, offers shelter from the sun and rain, allows for the storage of play and sports equipment, and serves as a venue for community activities. Participants expressed a clear appreciation for these amenities. Positive associations were reflected in comments such as 'and if you have to go to the toilet, you don't have to go all the way home' and 'you can make pancakes there, so that is fun!'. These remarks highlight the participants' recognition of the building's potential as an amenity. In summary, while the presence of the building is positively linked to improving social inclusion, the impact is currently minimal due to its restricted availability.

Surface quality

Participants expressed strong opinions regarding the types of surfaces present in Beweegpark Kraaiennest, particularly related to safety and maintenance concerns. Several participants raised issues with gravel (located on top of the asphalt) and wood chips, describing them as unpleasant and unsafe in case anyone falls. This was reflected in remarks like ‘and those pebbles. if you fall, that’s really not nice’. Participants voiced a clear preference for softer surfaces. This preference was captured in the exchange: ‘so you would rather have grass, or sand, or any softer surfaces? Yes’ (participant photovoice, personal communication, April 22, 2025).

Another negative aspect related to the surfaces of Beweegpark Kraaiennest were the challenges in terms of maintenance and cleanliness. Participants mentioned negative experiences such as getting dirty when using the swings (with sand surfaces), and the sand becoming muddy after rainfall. In conclusion, several of the current surface materials at Beweegpark Kraaiennest appear to be negatively related to the level of social inclusion, particularly for girls, who prefer safe and clean play environments.



Figure 44. Disliked surfaces in playground (own work)

Lack of protection from sun and rain

Although it was not a dominant theme in the discussions, participants took notice of the lack of protection from sun and rain within Beweegpark Kraaiennest. When discussed, availability of shelter was seen as a positive feature: ‘why is that one better? In any case, the cover, when it rains’. Participants highlighted the central building in the playground as a valuable opportunity to provide protection from weather conditions. This appreciation was reflected in quotes such as: ‘why is it fun? When it’s too hot, you can go in’. Despite this appreciation, Beweegpark Kraaiennest currently offers very few opportunities for users to find shelter from sun or rain. The lack of such facilities may negatively impact social inclusion, as the ability to comfortably use the park in different weather conditions can significantly influence who feels welcome and able to participate (Kostrzewska, 2017; Zimm, 2019).

Maintenance on facility level

Throughout the discussion phase, participants raised concerns about poor maintenance, litter, and neglected areas within the facility. These issues were particularly noticeable at the facility-level, where participants expressed frustration about widespread trash and the general lack of upkeep. This was also noted by the researcher, during observations (section 4.3.7.).

Figure 46, a picture taken by participants, depicts visible litter scattered across the grass. Participants explained their choice to capture this image by emphasising the fact that litter was scattered all around the facility, using remarks like ‘trash on the ground’ and ‘I think this is very bad, there’s so much trash down there’. These comments reveal a strong negative connotation attached to the state of maintenance of the facility.



Figure 45. Trash in Beweegpark Kraaiennest (own work)



Figure 46. Litter scattered around facility (own work)



Figure 47. The sandpit (own work)

A particularly striking example of maintenance issues concerned the sandpit. Participants described this part of the facility as dirty, while also posing hygiene concerns. According to participants, it was used by both animals and humans for toileting. Quotes such as ‘there are ants, and there are dogs shitting and peeing on there’ and ‘people are taking shits in here! And dogs and cats as well’ illustrate the strong aversion participants felt towards the sandpit.

The participants’ perceptions align with existing research findings. Visser and van Aalst (2022) highlight that the presence of litter, dog waste, graffiti, neglected greenery, and broken equipment significantly deters both parents and children from using playgrounds. Additionally, Karsten (2003) points out that girls, in particular, tend to avoid spaces perceived as dirty or disorderly. In light of these findings, it can be concluded that the presence of litter and the general lack of maintenance at Beweegpark Kraaiennest negatively impact its social inclusivity, especially for girls.

Limited versatility of equipment

A recurring theme during the discussions was the lack of flexibility and opportunities for creative interpretation of equipment within the public facility, particularly the playground area. Participants often expressed that many spaces were perceived as having a strictly defined, singular purpose, thereby leaving little room for imagination or alternative forms of engagement. The current mono-functional nature of equipment was criticised both explicitly and implicitly. Remarks such as ‘there is nothing you can do but sit there’ (figure 48) and ‘what do you do on there?’ (figure 49) highlight a sense of limitation experienced by participants.



Figure 48. Mono-functional playing equipment focused on sitting (own work)



Figure 49. Limited versatility of equipment (own work)

The limited versatility is also evident in the sports-focussed areas of Beweegpark Kraaiennest, such as the tennis courts and outdoor fitness equipment. These elements, while promoting physical activity, leave little room for different types of physical activity, thereby only catering to a specific interest and sports or play style. A comment made by one participant during the categorisation of pictures: ‘Ping pong. Where is red? I hate ping pong. Ping pong. Red. Tennis courts. Also red. Every tennis-related. Red’ may initially appear flippant or humorous, but actually underscores the monofunctional nature of the facility. Since the participant relates the equipment to one type of physical activity, they instantly dislike it.

These observations are consistent with the existing literature. Visser & van Aalst (2022) emphasise that girls are particularly drawn to environments that include flexible, open-minded elements that allow for reinterpretation and creativity. Earlier studies (Fjeldsted; 1980, Hill, 1980, as cited in Helleman, 2022) also stress the importance of imagination, social interaction and adaptability in playground design for girls. The current design of the facility is dominated by delineated, clearly defined, equipment or areas and appears to fall short of offering these qualities. As a result, Beweegpark Kraaiennest is less socially inclusive for girls aged nine to twelve.

Current supply of equipment

Although individual preferences for specific types of equipment vary greatly, several recurring themes emerged during the discussions. One theme was the perceived lack of challenge and scale in the current situation. Participants often described certain elements as being too small, as illustrated by the comment referring to the nest swing: ‘It is fun, but it has to be a bit bigger’ (figure 50).

In addition to a desire for larger equipment, participants expressed a wish for a greater quantity of the same types of equipment, which could possibly be linked to their preference for engaging in activities with peers. For example, regarding a single swing (figure 51), one participant noted: ‘that is fun, but there could be more of them’.



Figure 50. Nest swing that could be bigger (own work)



Figure 51. Singular swing (own work)

When the conversation shifted toward possibilities for improvement, participants demonstrated openness to a broader and more diverse range of play features. Suggestions included the addition of water elements, trampolines, and different sets of swings, indicating a desire for more varied and dynamic play options. While this feedback was primarily focused on the playground section of the facility, it highlights a larger principle: the need for a diverse and sufficiently challenging supply of equipment that can accommodate the preferences and abilities of a wide range of users, thereby fostering greater social inclusion.

Upkeep of equipment

The general maintenance of the facility has been previously described. On the other hand, participants pointed to the upkeep of play equipment, partly related to the suitability of surface materials. It became evident that certain pieces of equipment were poorly maintained and show signs of usage. Participants mentioned that the cableway sat too low at its endpoint, which limited its proper use and enjoyment (figure 52).



Figure 52. The cableway at its endpoint (own work)



Figure 53. Wear and tear under the swings (own work)

A similar issue arose with the swings, where a pit in the sand underneath made the swings unpleasant to use, as users would easily get dirty (figure 53). These issues can be seen as signs of wear and tear. Participants also expressed concerns about other equipment, such as the ping pong tables. Although generally regarded as fun, the tables' functionality was diminished by poor upkeep. One participant summed this up: 'it is good, but they just have to clean it'. The presence of bird droppings on the tables was also mentioned as an issue: 'yes, but the birds' poop' ('ja, maar die vogelpoep').

In table 11, an overview is provided of the themes mentioned during the discussion, stemming from the factors discussed in section 4.1. The table also highlights how these themes specifically influence social inclusion levels of Beweegpark Kraaiennest for girls aged nine to twelve. As can be noted, most themes fall into the ‘physical environment’ category of the categorisation model used in this study (section 4.1.1.). This seems logical, given the fact that these factors are most easy to picture, which served as the guiding principle for the discussion. It remains important to note that , although most inter- or intrapersonal factors are not discussed, they might still be relevant when assessing the current level of social inclusion.

Table 11. Themes discussions (own work)

Theme	Current state	Impact on social inclusion of Beweegpark Kraaiennest for girls aged 9-12
presence of peers	part of equipment and areas is fit for shared physical activity, but not all	opportunity to increase in certain parts of facility
amenities	small house central in playground, only open during events	opportunity. increases when open because of events
surface quality	gravel and wood chips pose feel unsafe and dirty	decreases
lack of protection from sun and rain	no publicly available possibilities within Beweegpark Kraaiennest	decreases
maintenance on facility level	lots of litter, lack of maintenance	decreases
limited versatility of equipment	clearly defined, delineated, mono-functional equipment or areas	decreases
current supply of equipment	varied, but does not take all preferences into account	decreases
upkeep of equipment	heavy signs of utilisation, thereby making equipment less functional	decreases

4.5. Measures

Based on the findings from the first two subquestions, several themes have been identified that influence the level of social inclusion of Beweegpark Kraaiennest for girls aged nine to twelve. These themes form the framework for the strategic actions proposed to increase the level of social inclusion of Beweegpark Kraaiennest.

4.5.1. Themes

The themes on which strategic actions with the aim to improve social inclusion are based, include:

- Safety
- Support
- Social aspect
- Imagination & creativity
- Care, cleanliness
- Ownership and belonging

For each theme, a short description is provided.

Safety

Girls are particularly sensitive to feelings of unsafety in relation to social inclusion (Zimm, 2019). Public outdoor sports facilities can feel unsafe because of, among other things, poor lighting, disruptive behaviours, presence of boys. Furthermore, physical safety is an important topic, relating to topics like traffic safety, materials, entries and 'escape routes'.

Support

Support refers to a broad network of possible support opportunities. Parental support has shown to be important in the level of social inclusion (Boxberger & Reimers, 2019). Support also includes access to guidance, encouragement and role models from others than parents. Given the financial difficulties that are present in the neighbourhood, financial support is also an important theme. Lastly, support refers to supportive functions, such as toilets and a water tap.

Social aspect

As girls prefer social rather than competitive activities, this should be taken into account when trying to improve the social inclusion. Both the design and programming can facilitate peer interaction and social activities. Spaces that are suitable for meeting and resting contribute in making the facility more socially inclusive.

Imagination & creativity

Girls express a preference for open-ended, imaginative, and creative forms of physical activity. Mono-functional equipment limits their imagination and creativity. Integrating creative and flexible design elements encourages broader, more inclusive use.

Care & cleanliness

Visible signs of neglect, like litter, broken equipment, or unhygienic areas signal that a facility is not cared for and are especially influential in social inclusion for girls aged nine to twelve. Clean, well-maintained environments foster respect, comfort and dignity, increasing social inclusion.

Ownership & belonging

Inclusive environments should provide girls with visual, symbolic and functional cues that reinforce the idea that they are welcome. This includes participating with target groups during the design phase, but also during the operationalisation phase.

4.5.2. Strategic actions

Method

After coming up with a draft version of the strategic actions, three interviews (two times with one interviewee, once with two interviewees) were conducted. The interviewees included professionals from various departments within the municipality: a representative responsible for the management and programming of municipal sports facilities, a project manager involved in the area redevelopment, an urban designer, and a specialist in public play facilities. This diverse range of expertise was selected to ensure an all-around perspective on the project. Interviews took on a semi-structured approach. First, the research was introduced, leading interviewees to share their initial thoughts. Then, the six themes were guiding themes which were substantiated by pictures taken during the photovoice methods. To integrate the perspectives of girls aged nine to twelve, inspirational examples were shown to them, leading to discussions about their wishes and preferences in a broader sense. The insights from this discussion were also shown to the experts during a later part of the interview to assess their opinions about practical feasibility of strategic actions.

The interviews were transcribed into Word documents, which were then coded using Atlas.ti. Code consisted of themes in the previous sections and the drafted strategic actions. After the initial round of coding, another round was conducted where general challenges were defined.

Strategic actions

Each strategic action is described separately in the following section, focussing on the impact on social inclusion, relevance, and practical applicability. Strategic actions are categorised based on the development phasing. Each action belongs to a particular phase in the development process, thereby serving as a roadmap of possibilities. The themes (safety, support, social aspect, imagination & creativity, care & cleanliness, ownership & belonging) form a framework against which each action has been evaluated. To visualise the relations, a radar graph was created for each strategic action. These graphs serve as comparative visualisations to illustrate the degree to which each action contributes to the five themes, based on insights from literature and expert interviews.

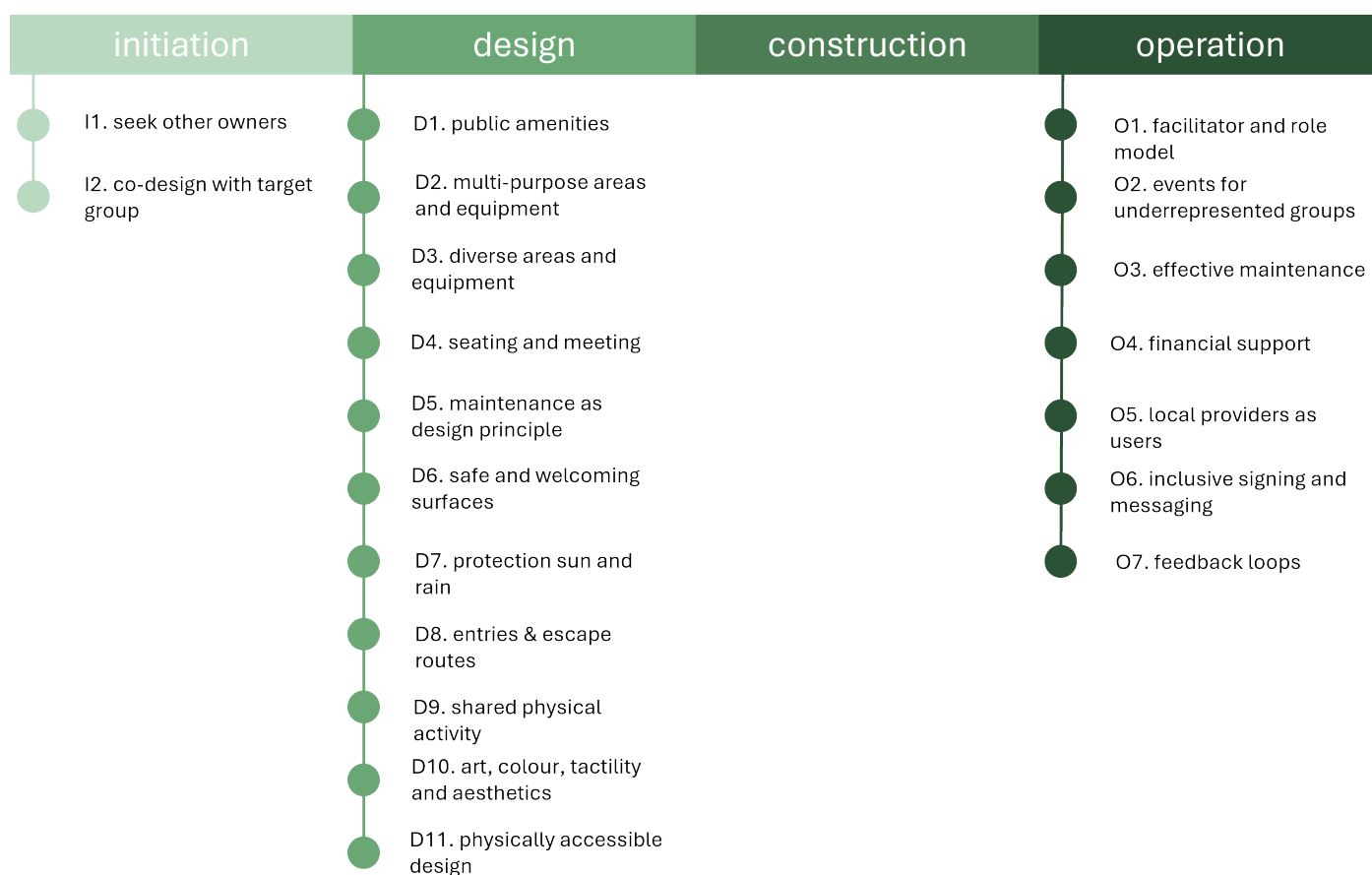


Figure 54. Strategic actions categorised in development phases (own work)

I1. Expand ownership feelings beyond municipality

The municipality is the legal owner of the sports facility. This means that they have the responsibility to care for the facility. In practice, this poses challenges; care and maintenance are substandard. Comparing the public nature to the more private nature of sports parks, which have regular users who feel a sense of ownership of the park shows that these parks are easier to maintain. This is underscored in an interview, where it was highlighted that regular users of a facility (such as sports clubs) feel more involved in the facility, possibly because they feel a bigger sense of ownership (municipal expert, personal communication, April 28, 2025). This could increase their willingness to care for the facility (municipal expert, personal communication, April 28, 2025).

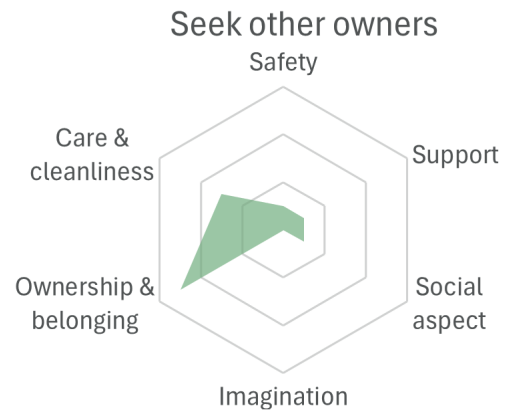


Figure 55. Affected themes I1 (own work)

Expanding ownership feelings beyond traditional parties also means that parties like schools, after-school care, and the community centre have a sense of ownership of the facility (strategic action O5). Since these parties attract a more diverse set of users than the traditional users, it poses an opportunity for underrepresented groups to get familiar with the facility. This increases feelings of ownership and belonging for the underrepresented groups. In practice, this could take the form of physical activity lessons taking place in Beweegpark Kraaiennest, thereby acquainting (among others) girls with the possibilities and opportunities of Beweegpark Kraaiennest, and making them feel more familiar with the facility.



Figure 56. Mural Bijmerpark in skate rink (own work)

In Beweegpark Kraaiennest and surrounding areas, multiple parties are active which could fill in this role. K-sports is a party active in Amsterdam Zuidoost, organising sports and play activities in the area, specifically for children age four to fourteen (K-Zone Sports, n.d.). Additionally, a childcare for children with disabilities is located close to the sports facility. Beweegpark Kraaiennest should offer an accessible playground for this group (municipal expert, personal communication, May 1, 2025). ‘There’s a childcare centre next door for children with disabilities, so it really needs to be accessible for them’ (municipal expert, personal communication, May 1, 2025). The community centre or the new library (OBA) could also serve as potential parties with a sense of ownership. A successful example of shared ownership of the facility is the skate rink in the facility. This was initiated and built by skaters from the local community (Skatepark Kraaiennest D.I.Y., n.d.). Additionally, they painted murals referring to the community on the walls surrounding the rink, thereby increasing the community feelings (figure 56). The importance of the skate rink to the community has been underscored multiple times on neighbourhood meetings (municipal expert, personal communication, May 1, 2025). This example shows the opportunity of the community as ‘owners’ by providing them with the opportunity to visually express themselves in parts of the facility.

I2. Co-design with target group

Actively involving girls aged nine to twelve in the redevelopment, through co-design sessions or other participatory methods, can ensure the final design better reflects their needs and preferences. It is important to make sure the co-design methods chosen suit the target group. This approach may require more creative and less conventional co-design methods. For example, in this research, photovoice has proven an effective method in capturing the perceptions of this group. Engaging girls early in the redevelopment process increases their perception of the relevance of the space and feelings of ownerships since they are partly responsible for the outcome.

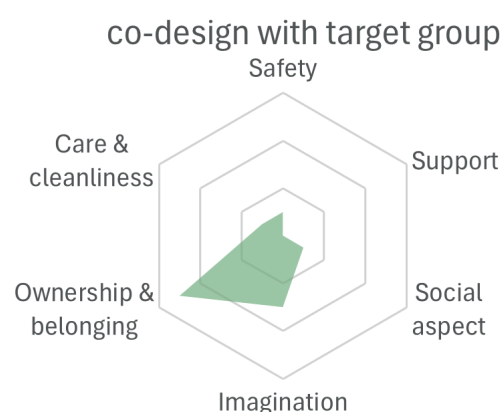


Figure 57. Affected themes I2 (own work)

D1. Include public amenities

The amenities present in Beweegpark Kraaiennest are only limitedly accessible to the public. The small building central in the playground houses a toilet and room to store play or sports supplies. The function has proven particularly important to residents: ‘The feedback we are getting about the little house is that it is a really valuable place with reading afternoons and, like, where the key to the trampoline is stored’ (municipal expert, personal communication, May 1, 2025). However, to make Beweegpark Kraaiennest more socially inclusive, these support-functions should be made publicly accessible, and not only during events. The following quote illustrates the need for more broad opening hours: ‘There is a toilet, but they (the girls) would like it to just be open more often, you know, like, on a regular basis’ (municipal expert, personal communication, May 7, 2025). In the redevelopment of the sports facility, a toilet which can be used by people of all ability levels should be incorporated.

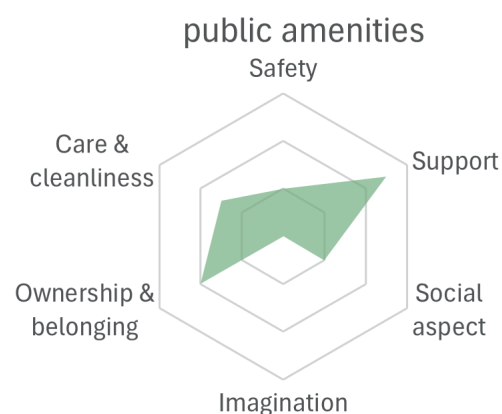


Figure 58. Affected themes D1 (own work)

Other important facilities that are not yet present include a public place to store sports and play equipment and changing rooms. Offering these amenities supports comfort, longer visits and also increases the utilisation numbers. Equipment can be stored in the house in the playground, but someone needs to open the house. A facilitator (strategic action O1) would be in the position to open the amenities during utilisation hours and make sure that the amenities are used according to plan. Additionally, it would be possible to provide a central place with public amenities and a place to sit and meet the facilitator, thereby increasing visibility and position of the facilitator.

Another possibility would be to house the public amenities in surrounding buildings, such as the community centre or the public library (strategic action I1). If the changing rooms are located in the facility, they can be closed by building owners. Additionally, it creates a connection between surrounding facilities and the sports facility, thereby creating an integrated area and providing surrounding functions with a stronger sense of connection to the park.

One of the key challenges related to public amenities is ensuring that they are used as intended and remain in good condition over time (municipal expert, personal communication, May 1, 2025). Unintended use can consist of loitering or spaces for illegal activities, thereby decreasing feelings of social inclusion. Without supervision, public amenities can suffer from vandalism: graffiti, littering or destruction. Fostering a sense of ownership (strategic action I1 and O5) should decrease this risk, along with visibility of amenities from surrounding areas, creating natural surveillance.

D2. Multi-purpose, versatile areas and equipment

Creating spaces that are flexible in use, for example combined sports courts, or open zones that can be used for both group lessons, games and relaxation, makes more efficient use of space. Additionally, girls aged nine to twelve expressed a preference for versatile equipment, for example, equipment that offered multiple ways to climb up (figure 61). This was seen as a positive feature because ‘you can climb up in different ways’ (participant photovoice, personal communication, April 22, 2025) (when asked why they liked this).

multi-purpose areas and equipment

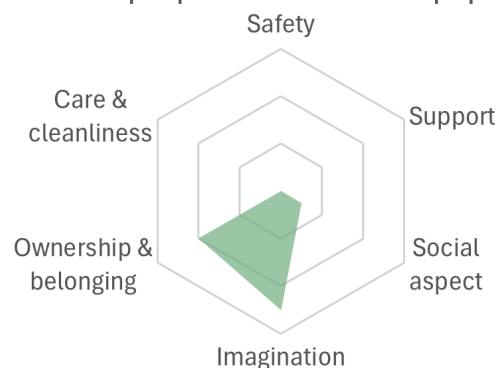


Figure 59. Affected themes D2 (own work)



Figure 60. Ten fundamentals of movement (Athletic Skills Model, n.d.)



Figure 61. Example of colourful, versatile playing equipment (L&A Group, n.d.)

The multi-purpose, versatile areas and equipment aims to make users feel less restricted in activity (type) by their environment, encouraging creative and inclusive use. A practical solution integrating multi-purpose and versatile areas and equipment would be incorporating the ideas of the Athletic Skills Model. This approach to physical activity consists of ten fundamentals of movements (Athletic Skills Company, 2020a).

In terms of design, this philosophy leads to multi-functional fields which provides a lot of opportunities for different types of movements (figure 61).



Figure 62. Athletic Skills Model field (Athletic Skills Company, 2020b)

When designing for multi-functional use, one should take into account the fact that design intention does not always match actual use (municipal expert, personal communication, April 28, 2025). Some users need clarity on the purpose of an area or equipment (municipal expert, personal communication, April 28, 2025). Additionally, by providing a space for multiple purposes, there is a possibility that certain groups take the upper hand, taking on a single activity.

D3. Diverse set of areas and equipment

Related to a multifunctional nature of areas and equipment, having a diverse set of areas and equipment also increases the level of social inclusion. Providing a range of equipment aims to create a range of physical activities that appeal to varying interests and ability levels. This should attract a diverse range of users and is especially important for the people which currently feel socially excluded, like girls aged nine to twelve. Additionally, it provides users with the opportunity to combine and explore different types of physical activity, as illustrated by the following quote: ‘One person might come for the calisthenics, and then think, hey, maybe I will try tennis sometime too, or the other way around’ (municipal expert, personal communication, May 7, 2025).

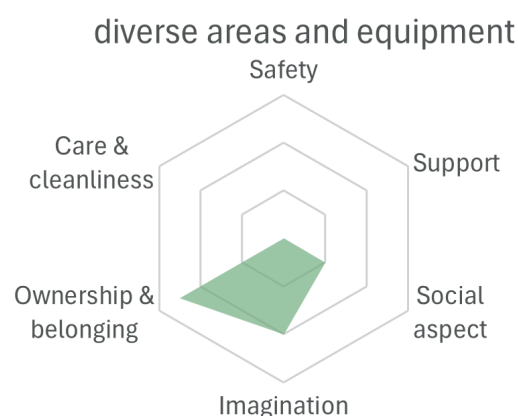


Figure 63. Affected themes D3 (own work)

Girls indicated the need for a more diverse set of areas, expressing interests in elements that involved water play, trampolines and climbing (figures 64 and 65) (participant photovoice, personal communication, April 22, 2025). Water play and trampolines are not yet present in Amsterdam Zuidooost (municipal expert, personal communication, May 7, 2025), which means incorporating these elements enriches the play supply on a bigger scale. Interactive playing opportunities were also appreciated by the target group.



Figure 64. Trampolines in Mariendaal (Gemeente Amsterdam, 2019)



Figure 65. Water play in the 'Indische buurt' (Gemeente Amsterdam, 2016)

D4. High quality seating and meeting spaces

Creating shared, comfortable spaces for sitting, gathering and social activities can enhance social inclusion. Girls tend to prefer engaging in social interactions and have appreciate places to sit (participant photovoice, personal communication, April 22, 2025). Creating high quality spaces which provide in this need supports both children and their potential supervisors. Girls also voiced their appreciation for places where other, like their parents can sit comfortably: 'It's not really something I enjoy myself, but some people just want a quiet place to read or sit. They want to work outside, in nature'. Well-designed seating that appeals to caregivers can increase their likelihood of staying longer at the park, which in turn makes it more likely that they will bring their children, and their children feeling safe (municipal expert, personal communication, May 1, 2025), creating a positive cycle of use and inclusion.

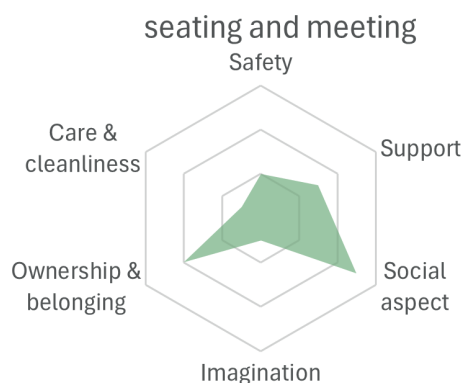


Figure 66. Affected themes D4 (own work)

Incorporating comfortable areas for sitting and gathering facilitates social interaction and makes less active users feel more socially included. It could also support in making the switch from social to sports activities more easier, as both types of activity are supported in the same facility. A stand from which you can watch sports, but also chill on, would be a possible way to provide in this need (municipal expert, personal communication, May 1, 2025).

D5. Take maintenance into account during design phase

Currently, poor upkeep causes nuisance and discomfort, which negatively affects social inclusion, particularly for girls aged nine to twelve. One way to increase the state of maintenance would be to take into account maintenance in the redesign phase of Beweegpark Kraaiennest. It is assumed that this leads to more efficient maintenance. Discussing this topic with different experts led to different insights. On the one hand, incorporating maintenance considerations early in the design process is considered valuable and often overlooked (municipal expert, personal communication, April 28, 2025). On the other hand, it is also argued that maintenance currently has too much influence on the design of public sports facilities (municipal expert, personal communication, May 7, 2025). It would pose limitations on materials, surface types, and greenery, which significantly restricts the designer's creativity.

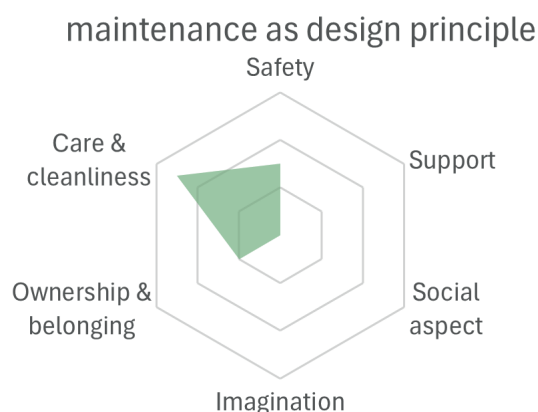


Figure 67. Affected themes D5 (own work)

D6. Use safe and welcoming surfaces and materials

The current use of gravel, worn-down sand and wood chips, combined with a lot of fences scattered around the facility leads to discomfort for girls aged nine to twelve. They describe the surface materials as unsafe and uncomfortable, increasing the risk of injury or getting dirty. This directly impacts users' feelings of safety. The fences can also decrease feelings of safety, as it can make users feel trapped. On the other hand, fences serve quite an important purpose in the facility, making sure balls stay within boundaries. However, the amount of fences in Beweegpark Kraaiennest can be decreased without hindering their functionality (municipal expert, personal communication, May 7, 2025). Generally speaking, careful consideration of surface materials and fences is important in the redevelopment to ensure both physical comfort and a stronger sense of safety and inclusion. Options consist of wooden play elements with natural surfaces, as pictured in figure 69. Girls' opinions about these options differ; some are explicit about how much they appreciate greenery: 'I need more green' (participant photovoice, personal communication, April 22, 2025), whereas others are afraid to get dirty.



Figure 68. Affected themes D6 (own work)



Figure 69. Playground with greenery and natural elements, Diemerpark (Gemeente Amsterdam, 2021)

D7. Protection from sun and rain

To enhance comfort and usability in varying weather conditions, design interventions can offer protection from sun and rain, such as shelters, trees, or other forms of overhead coverage. During the photovoice session, this need was explicitly voiced by participants. When asked what they appreciated about a particular spot, one participant responded: ‘Definitely the covered area, especially when it rains.’ (participant photovoice, personal communication, April 22, 2025). Such sheltered areas not only provide practical comfort during physical activity, but also support social interaction during poor weather. When combined with seating opportunities (D4), they become inviting places for rest, gathering and informal engagement, which all supports social inclusion.

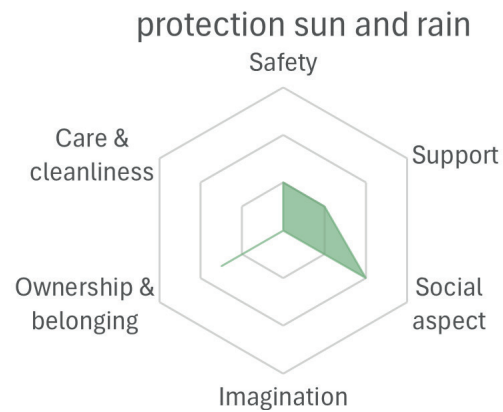


Figure 70. Affected themes D7 (own work)

However, in practice, covered structures carry risks, particularly regarding unintended or unwanted use. Shelters are associated with loitering, nuisance behaviour, or use by unhoused individuals: ‘If you add some kind of shelter, you will quickly get groups of people who just start hanging out there. Even homeless individuals who, so to speak, turn it into their place to live.’ (municipal expert, personal communication, May 7, 2025). This tension reflects a broader challenge in public space design: balancing the need for inclusive, comfortable spaces with concerns about safety and control. While these risks should not be ignored, they can potentially be mitigated. For example, ensuring the space is well-used and visible, integrating it near active areas (strategic action I1 and O5), and appointing a facilitator (strategic action O1) who maintains a presence and can intervene when necessary.

D8. Entries and escape routes

Ensure clear, visible access points and exits, both on the facility level and per area of the facility. On the bigger, neighbourhood scale, walking and cycling routes to the facilities consists of underpasses, under the ‘honingraatflats’. These can be considered unsafe, as highlighted by the following quote: ‘there are just a lot of those dark little underpasses, so to say’ (municipal expert, personal communication, May 1, 2025). To make the facility more socially inclusive, it is important to make sure the route to the facility is safe for everyone.

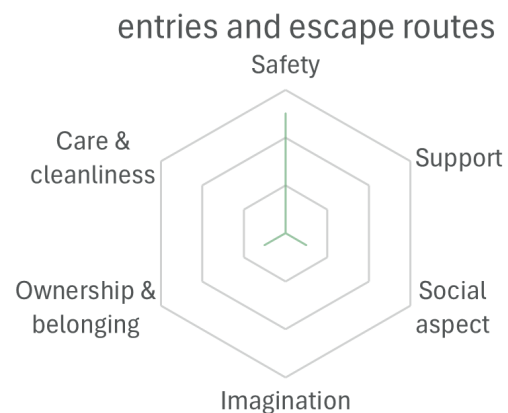


Figure 71. Affected themes D8 (own work)

On a more positive note, there is a lot of traffic moving through Beweegpark Kraaiennest to the shopping centre or market. Integrating routes to facilitate this natural flow should lead to a more intuitive (urban) design, making the space feel safer and easier to navigate (municipal expert, personal communication, May 1, 2025). Figure 72 shows an example of how different areas interact, with less strict boundaries than the current facility. This design strategy would also be valuable for the space under the metro line, which currently has very strict boundaries (municipal expert, personal communication, May 1, 2025).



Figure 72. Facility without strict boundaries (Melbourne Playgrounds, n.d.)

D9. Opportunities for shared physical activity

Providing equipment and areas meant for communal use encourages users to participate in forms of physical activity together, aligning with their preferences. The opportunity to do something with peers would make the facility more socially inclusive. Engaging in physical activity together increases opportunities for creative play, as it fosters interactions between users. Similar to strategic action D4, these opportunities are strongly focused on the social dimension. Examples of shared physical activity include two cable cars next to each other, a big nest swing which you can use with multiple people at the same time (municipal expert, personal communication, May 7, 2025).

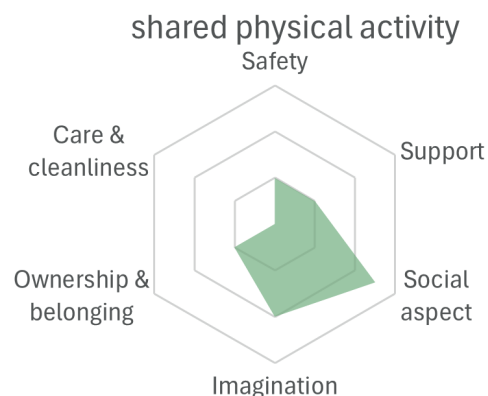


Figure 73. Affected themes D9 (own work)



Figure 74. Double cable cars (Kompan, n.d.)

D10. Art, colour, tactility and aesthetics

Girls prefer art, colour, tactility and aesthetics in the design of public space. This preference became clear when discussing references of girls after the photovoice discussions. Girls showed appreciation for colourful equipment, such as figure 61. Integrating visual and sensory design elements increases emotional connection and comfort levels, while simultaneously fostering creativity.

This strategic action could be combined with strategic action I2 and O5. Providing artists or people from the community with the opportunity to participate in the creation of artwork increases feelings of ownership and belonging. Currently, the skate rink has a large piece of graffiti artwork. These pieces are changed by graffiti artists on a regular basis (Vinger.nl, n.d.).

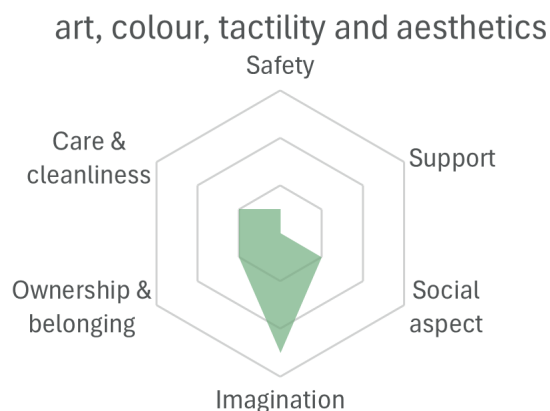


Figure 75. Affected themes D10 (own work)



Figure 61. Example of colourful, versatile playing equipment
(L&A Group, n.d.)



Figure 76 . Mural skate rink Beweegpark Kraaiennest
(Gemeente Amsterdam, n.d.-b)

One challenge for the practical implementation of this strategic action are the financials. Most of the times, the cost refers to the function of the equipment, whereas the aesthetic value is not reflected in the costs (municipal expert, personal communication, May 7, 2025). Equipment which creates more aesthetic value can be ten to twenty times more costly (municipal expert, personal communication, May 7, 2025). This raises questions about expenditures that go beyond merely functional value. This should be well argued, and their viability is dependent on the political context.

D11. Physically accessible design

Ensuring that paths, surfaces and equipment is accessible to people of all abilities and body types increases equity and the social inclusion of the facility. Currently, accessibility for people with disabilities is incorporated in the urban design plan (municipal expert, personal communication, May 1, 2025). Additionally, the presence of a child care facility for kids with a disability makes physical accessibility an important theme in the design of the playground (municipal expert, personal communication, May 1, 2025). A challenging aspect is the fact that taking into account physical accessibility restricts options in terms of design (municipal expert, personal communication, May 1, 2025). Additionally, options for accessible equipment can lack challenge for other users (municipal expert, personal communication, May 1, 2025).

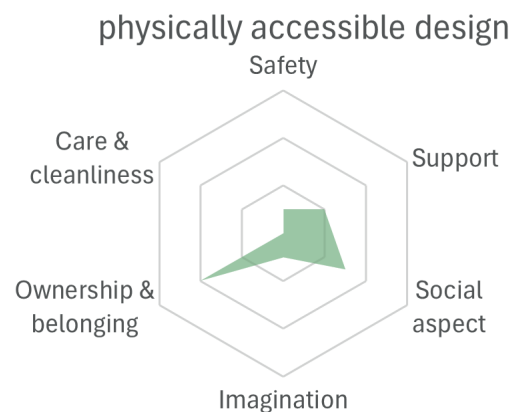


Figure 77. Affected themes D11 (own work)

O1. Include a facilitator and role model

The presence of a trained, trusted adult on site can play an important role in fostering social inclusion. Such a figure can make an impact in different ways. First of all, they provide supervision, ensuring that the facility is used safely and respectfully. They should be visible and approachable for (potential) users to increase trust and provide support. The presence of a facilitator increases parents' feelings of safety. Additionally, the facilitator regulates utilisation, so that the facility is used as intended, decreasing risks of vandalism. The facilitator is also ought to initiate events and activities focussed on physical activity, with particular attention for underrepresented groups (strategic action O2). Ideally, this person is female, as this can serve as a role model for young girls.

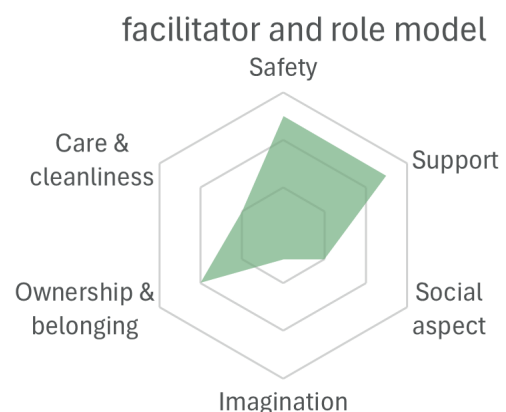


Figure 78. Affected themes O1 (own work)

Evidence from practice underscores the potential of this strategic action. In another facility in Amsterdam, Sportpark Zeeburgereiland, a social steward takes on this role, which leads to positive results: ‘The social steward made sure things went smoothly and that there was oversight and coherence among different parties. It actually works well there.’ (municipal expert, personal communication, April 28, 2025). This method is used in other cities as well. In Utrecht, each neighbourhood has one employee of a social organisation. This person opens and closes the facility, keeps an eye out and occasionally organises activities (municipal expert, personal communication, May 7, 2025). A similar example includes ‘voorleesmoeders’ (storytime moms) who are present in Beweegpark Kraaiennest on set times during summer. They are present to support children, organise events and lend out supplies (municipal expert, personal communication, May 7, 2025). This has proven successful in Beweegpark Kraaiennest (municipal expert, personal communication, May 7, 2025), indicating that it offers opportunities for this specific context.

O2. Organise events for underrepresented groups

Certain groups are underrepresented in utilisation of Beweegpark Kraaiennest, like teenage girls or people using wheelchairs. Hosting events targeted at these groups, who may otherwise feel excluded, should provide them with the opportunity to build familiarity and feel welcome in Beweegpark Kraaiennest. Additionally, these events would increase their feelings of safety, as it is more likely to be with peers or people they share similarities with.

Currently, the skaterink serves as a place where activities are organised. This is appreciated by the community (municipal expert, personal communication, May 1, 2025). This highlights the possibilities which Beweegpark Kraaiennest offers. Another example of an event which increases the level of social inclusion is a training from the Wheelchair Skills Team (Wheelchair Skills Team, n.d.). During such an event, wheelchair users gain independence in using their wheelchair. Thereby, they see how they can use the facility, fostering a sense of belonging.

This strategic action could very well be combined with the aforementioned strategic action O1, which propose the role of a facilitator. This person would be able to facilitate events in Beweegpark Kraaiennest (municipal expert, personal communication, May 7, 2025).

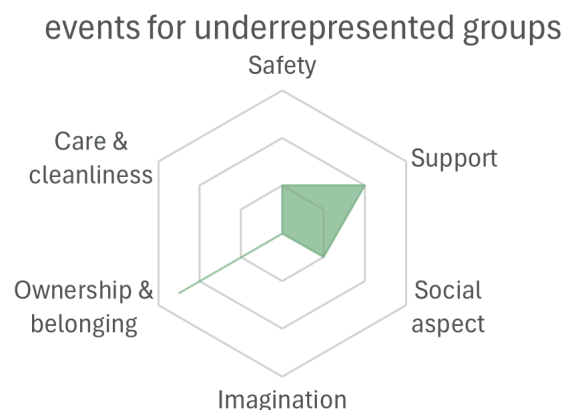


Figure 79. Affected themes O2 (own work)

O3. Effective long-term maintenance and easy fixes for short-term maintenance

Maintenance turned out very important in defining the level of social inclusion for girls aged nine to twelve. Poor maintenance directly undermines feelings of safety, care and belonging. Effective maintenance refers partly both the long-term, scheduled maintenance. Standards for maintaining public space are predefined for the city of Amsterdam. According to an expert in the field, these standards are too low, and have even been lowered lately (municipal expert, personal communication, May 7, 2025). This directly translates to spaces that appear neglected. Another issue for effective structured maintenance is the fact that maintenance responsibilities are spread across multiple fragmented departments within the municipality. There are different teams for bins, litter, greenery and sports equipment (municipal expert, personal communication, May 7, 2025). This division leads to inefficiency and a lack of cohesive oversight: 'Maintenance and waste management are actually all divided into separate branches. So it's not like they just say, 'we're going to clean the playground.' Emptying the bins is one task, picking up litter is handled by a completely different team' (municipal expert, personal communication, May 7, 2025). Data-driven maintenance could serve as an opportunity for more effective maintenance (municipal expert, personal communication, April 28, 2025). More money for maintenance would also be a way to increase cleanliness in Beweegpark Kraaiennest (municipal expert, personal communication, May 7, 2025).

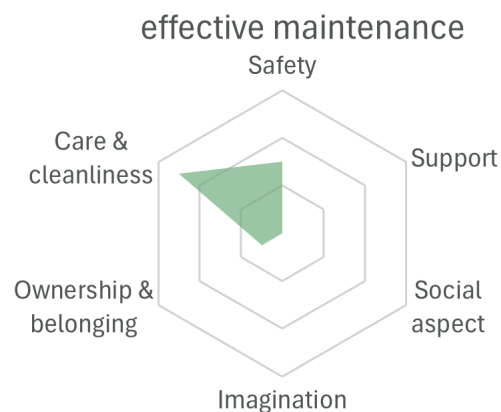


Figure 80. Affected themes O3 (own work)

On the shorter term, providing quick responses to instances of vandalism, litter or damage increases the cleanliness and maintenance of the facility. Instances of broken equipment or dump of waste should be easy to report for all people, and acted upon quickly. Keeping the facility clean and maintained increases the overall functionality and makes the space feel more cared for. This aligns with the broken window theory: 'Once it's clean, people keep it clean, I think' (municipal expert, personal communication, May 7, 2025). Additionally, the presence of a facilitator (strategic action O1) could help identify and report maintenance issues quickly.

O4. Provide financial support where needed

Financial difficulties are very closely related to social exclusion. Beweegpark Kraaiennest is located in a socioeconomically challenging neighbourhood. Therefore, potential users should be made aware of financial possibilities, also regarding organised sports. The municipality has multiple support systems in place, such as the Stadspas and Jeugdfonds Sport & Cultuur (Jeugdfonds Sport & Cultuur Amsterdam, n.d.). While these are not all directly focused on physical activity in public space, they increase the feelings of belonging in the sports sector, thereby increasing social inclusion. Another type of support would be lending sport and play supplies to users. This should remove a financial barrier for those who are not able to afford the supplies themselves. By combining this with strategic action O1, there would be a facilitator who is able to lend these supplies. Additionally, events taking place in or around the facility (strategic action O2) should be free of cost if possible.

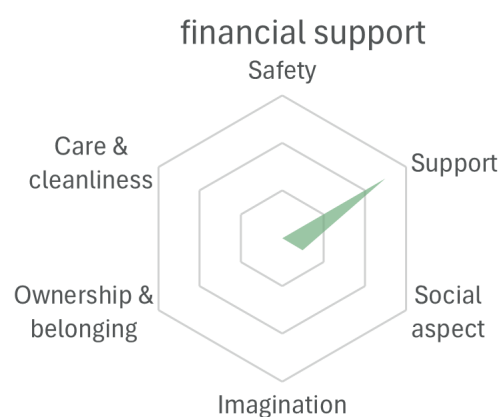


Figure 81. Affected themes O4 (own work)

O5. Local providers as users

This strategic action aligns closely with strategic action I1. It aims to make local providers, such as primary schools, child care, the OBA library or the community centre, use the facility. This increases diversity in the utilisation pattern and support by the local community. Assuming that local providers use the facility frequently, it is more likely that they will feel more involved in the facility and therefore keep the facility clean (municipal expert, personal communication, April 28, 2025; municipal expert, personal communication, May 7, 2025).

The relation between utilisation and feelings of responsibility and thereby feelings of ownership and belonging is highlighted in the following quote: een plek waar gewoon altijd heel veel mensen komen, dat de buurt zich daar wat meer verantwoordelijk voor voelt dan een plek die wat meer anoniem is (municipal expert, personal communication, May 7, 2025). The skate rink, as elaborated upon, serves as a well-functioning example showcasing the potential of community involvement in Beweegpark Kraaiennest.

O6. Use inclusive messaging and signage explanation

Ensuring welcoming, diverse and representative communication by using inclusive messaging and signage makes potential users feel more welcome. Messaging should include representatives of underrepresented groups, such as people using a wheelchair. Visually signing to users that they are welcome makes them feel more socially included and increases their sense of belonging. It is important to keep messaging and signage up-to-date (municipal expert, personal communication, April 28, 2025). Strategic action O1 poses an opportunity for this challenge, as a facilitator can take care of these keeping information relevant and up-to-date.

O7. Feedback loops during operationalisation phase

Since design intentions can differ from actual utilisation, it is valuable to have moments during the operationalisation of the facility, where user- and community input can be gathered and responded to. This ensures that the space really aligns with the needs of (potential) users. Additionally, it is important to stay in contact with the non-users, trying to gather information on reasons for a lack of utilisation. Gathering feedback ensures that perspectives of the community are heard and improvements integrated where possible. Additionally, it aligns well with the public, transparent and social character of a municipality.

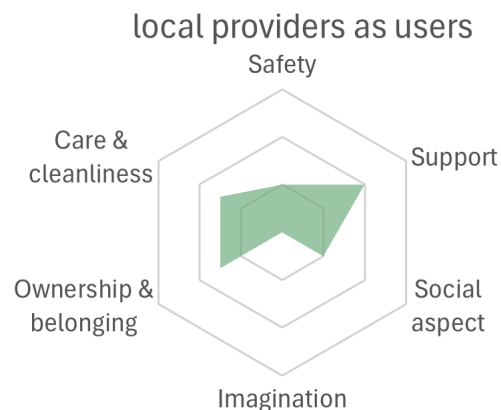


Figure 82. Affected themes O5 (own work)



Figure 83. Affected themes O6 (own work)

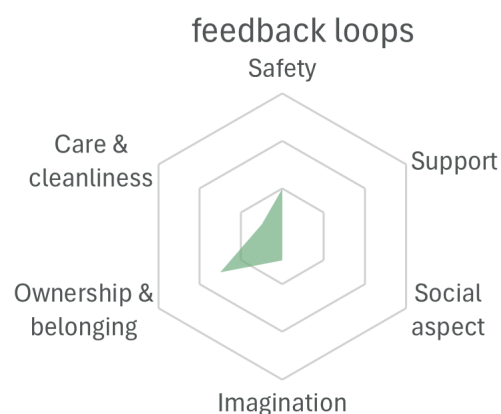


Figure 84. Affected themes O7 (own work)

4.5.3. Challenges in implementing strategic actions

For the distinct strategic actions, the strategic actions are elaborated upon. However, some challenges are overlapping emerged from interview-experts. These require extra attention to ensure practical feasibility of measures.

Rigid processes

Since municipalities usually operate within predefined procedures, contracts and frameworks, it can be difficult to implement tailored or innovative solutions. For example, procurement takes place under framework contracts (raamcontracten). This limits the municipality in the range of products or equipment it can purchase. Another example is Amsterdam's adherence to the Puccinimethod; a standard approach to public space design. While this is beneficial for identity, unity and management, it can limit flexibility in design, thereby failing to reflect the unique needs of spaces and communities. This is highlighted in the following quote: 'In Amsterdam, we like to keep everything a bit the same, which leads to uniformity.' (municipal expert, personal communication, May 7, 2025). One opportunity lies in adapting procurement criteria to include criteria referring to social inclusion.

Fragmented organisation

Even though the Municipality is regarded as one single, unified entity, it is a very fragmented organisation. This refers to both internal organisation and in terms of distribution of responsibilities. For example, maintenance is spread across different departments, each with distinct roles and responsibilities (municipal expert, personal communication, April 28, 2025). This division of labour makes coordination and responsiveness more difficult. Additionally, different boroughs used to manage their own budgets, leading to stark contrasts between different parts of the city. This created inequalities across the city, which now have to be rectified: 'One borough had more money for these kinds of things than another. You can still see the differences in the city' (municipal expert, personal communication, April 28, 2025).

Symbolic and emotional value

As Lefebvre (1974) elaborates upon when discussing the spatial triad (2.2.1), the places have symbolic and emotional meanings attached to them (lived space). In this case, Beweegpark Kraaiennest have personal and meaningful values and memories attached. This can present challenges in the redevelopment process. Certain elements like the small house in the playground probably have practical and sentimental value to the neighbourhood: 'If you say you're going to tear that house down, people will get angry.' (municipal expert, personal communication, May 1, 2025). Such attachment must be recognised and respected, for example by being given extra attention during the participation process.

Safety

Safety is a major concern in Amsterdam Zuidoost, both in perception and reality (Karakaya, 2021). Especially in the evenings, people feel unsafe on the streets. This problem is even more articulated for the target group, as elaborated upon in section 2.2.3. The route to a sports facility can be as much as a challenge to utilisation as the space itself. Even though a lot of the proposed measures try to increase feelings of safety, the fact that this problem plays on a bigger scale poses a broader challenge. Safety in Zuidoost is a challenge at a larger urban level, that cannot be resolved solely through local design interventions.

4.5.4. Impression of implementation

To illustrate the potential impact of the proposed strategic actions, the following visual impression (figure 85) offers a conceptual look at what a more socially inclusive Beweegpark Kraaiennest could look like. This drawing brings together multiple measures and demonstrate how they can function in harmony.

By visualising the spatial and social outcomes, this section helps translate more abstract recommendations into concrete ideas. It shows how the individual actions interrelate, reinforcing one another to create a more welcoming, inclusive, and engaging public space. As such, this sketch supports the overall outcome of the research by making its ambitions more tangible, both for design professionals and decision-makers.

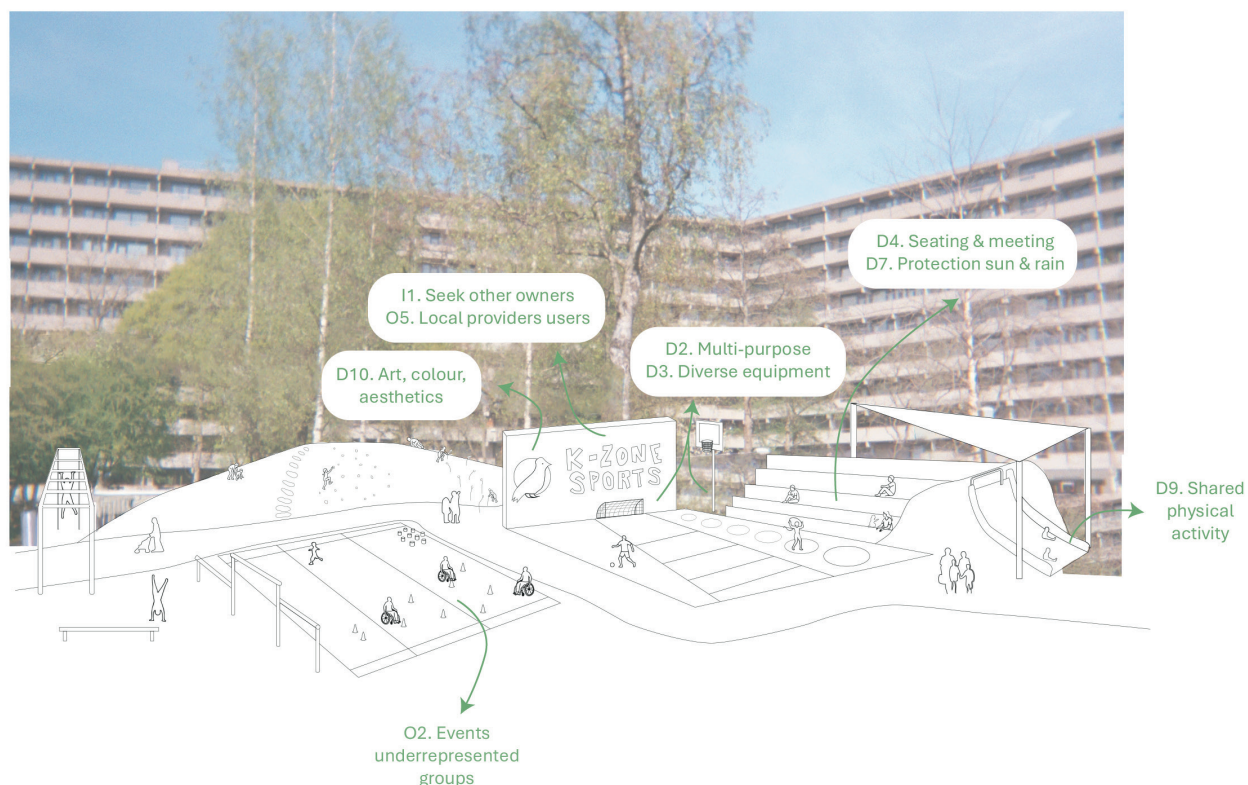


Figure 85. Impressions of measures (own work)

4.6. Empirical findings compared to literature

4.6.1. The concept of social inclusion

The literature clearly defines social inclusion as a dynamic, context-dependent process. It is not only about access to physical space but also about whether individuals feel that they can and want to participate (Oxoby, 2009; World Bank, n.d.). In the empirical findings from Beweegpark Kraaiennest, it showed that girls experienced both physical barriers, as some equipment did not align with their interests, but also a reluctance to use certain areas because of social aspects. For example, the photovoice method revealed that certain swings were disliked because they did not provide the possibility to participate in activities together.

Another important aspect of definition of social inclusion is the fact that it relates to perceived access to opportunities of an individual (Oxoby, 2009; Kelly, 2011). Therefore, strategic actions are specifically aimed at making people feel like they have the opportunities. For instance, inclusive messaging and free-of charge events are measures focused on this aspect of social inclusion.

Mirzoev et al. (2021) argue that social exclusion is driven by multiple dynamic and multidimensional causes; it is not simply a result of poverty. The factors influencing social inclusion (and therefore exclusion) of public outdoor sports facilities for girls aged nine to twelve, as determined in the first subquestion, align with this reasoning. They are based on different levels of the ecological model of health behaviour, trying to take into account the multidimensional causes.

Lastly, social inclusion is inherently subjective and shaped by personal perceptions and experiences. This became clear during the photovoice method, where participants shared their opinions on Beweegpark Kraaiennest. In multiple instances, opinions varied between participants. Where one participant can feel welcome and included, another participant can feel the contrary.

4.6.2. Assessing social inclusion

To fully understand the current level of social inclusion of girls aged nine to twelve, the literature calls for a multidimensional assessment, which includes not only the physical environment but also aspects like health, safety, emotional well-being, and labour market participation (Social Watch, 2010; UNECE, 2022). This multifaceted nature was reflected in the empirical approach of this study, which assessed inclusion not just by counting users or analysing the space, but also by using photovoice, which is tailored for discussing qualitative concepts. This method has proven effective in capturing the subjective, emotional dimensions of public space. By using different research methods, both the real, imagined and fully lived space (Soja, 1996) are ought to be captured.

This research brings a fresh perspective to the existing body of work on social inclusion in public space. The focus on a specific, underrepresented group provide new insights on perspectives from this target group. Additionally, because of the focus on this target group, methods could be deployed to be more effective. The photovoice method is particularly suitable for this group. Using different, less standard, methods led to a rich assessment of social inclusion.

The research deliberately applied a no-threshold approach to assessing inclusion, meaning it did not rely on fixed indicators or thresholds to define exclusion. Instead, it focused on capturing the lived experiences of girls aged nine to twelve to understand to what extent they felt included and excluded. By seeing social inclusion as a spectrum, a more nuanced understanding of how specific factors support or hinder inclusion was reached. This approach aligns with UNECE's recommendation for flexible and context-sensitive measurements of inclusion.

4.6.3. Groups at risk of social inclusion

Existing literature identifies specific groups as more likely to be socially excluded, both generally, in public space and with regards to sports. So called risk-factors involve, among other things, low income, belonging to ethnic minorities, being young and being female. Collins and Kay (2014) state that possessing multiple factors can lead to double deprivation; even higher risks of being socially excluded. This research provides added value by examining a vulnerable group; girls aged nine to twelve, that embodies multiple intersecting risk factors. In doing so, it brings together insights from different domains of exclusion (age, gender, ethnicity, and socioeconomic status), which are often considered in isolation.

Upon analysing the sociodemographic state of Beweegpark Kraaiennest, it became clear that the target group of this study is at risk of double deprivation. Since the target group consists of younger girls, mostly with low socioeconomic status, belonging to a group of ethnic minorities, the potential for social exclusion is high.

4.6.4. Social inclusion in public space

The literature and empirical data converge in their critique of the open access approach, which assumes physical accessibility of a space directly leads to inclusion. The critique on this approach aligns with the line of reasoning in this research; providing new opportunities does not automatically lead to a promotion of social inclusion (Waring & Mason, 2010). Instead, a more holistic, multi-level approach is more valuable. For example, the presence of a facilitator was identified as a potential strategic action to increase social inclusion. Such a measure focuses on different levels, activating the space, ensuring safety, supporting group activities and providing potential users with a role model. This strategic action aligns with literature that highlights the importance of the social level, alongside physical design (Waring & Mason, 2010).

The concept of representational space, spaces filled with emotional or symbolic meaning, was evident in the interpersonal factors influencing social inclusion of public outdoor sports facilities for girls aged nine to twelve. The presence of peers (Cowley et al., 2021), female role-models (Dopheide et al., 2023; Moreno-Vitora et al., 2024) and boys (Reimers et al., 2018; Visser & van Aalst, 2022) were identified as factors influencing social inclusion. These findings confirm that social control plays a major role in the level of social inclusion.

4.6.5. Measures to increase social inclusion

Effective measures must address three levels of space: the real (physical), the imagined (mental), and the fully lived space (Soja, 1996). While many facilities, including Beweegpark Kraaiennest, may be physically accessible to most, girls may still feel emotionally or socially excluded if the park is dominated by other groups. This is why the measures proposed in subquestion three are not limited to physical changes. Existing research in this domain often tends to prioritise either design interventions or participation rates, without fully accounting for how individuals experience the spaces. In contrast, this research explicitly integrates Soja's framework to ensure that measures proposed in the third subquestion are not limited to physical adjustments but also include social programming, symbolic design cues and user engagement strategies.

In line with Collins and Kay (2014), the measures must also address the three causes of exclusion in sports, consisting of societal structures, institutional biases and individual perceptions. The results of subquestion one support the need for interventions that address all three. Proposed improvements, such as hiring a female facilitator, organising girls-only events, and enhancing emotional safety through design and programming, align with this multi-level approach.

CONCLUSION

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5.1. Subquestion 1

What factors influence social inclusion of a public outdoor sport facility for girls aged nine to twelve?

The first subquestion led to a list of factors influencing the social inclusion of public outdoor sports facilities for girls aged nine to twelve. This list of interacting factors is categorised using the ecological model of health behaviour (Sallis et al., 2008). This categorisation involves four levels; intrapersonal, interpersonal, physical environment and policy level.

The intrapersonal factors relate to biological and psychological factors of an individual. Factors include feeling safe, which relates directly to social inclusion. Zimm (2019) states that girls report feeling ten times more unsafe in public spaces than boys from age eight. A lack of confidence, reinforced by stereotypes and social sexism in sports education, also decreases social inclusion (Moreno-Vitoria et al., 2024; Rodríguez & Miraflores, 2018). Priorities shift as girls enter secondary school, reducing free time for sports (Cowley et al., 2021), with financial constraints and logistical issues further limiting participation (Dopheide et al., 2023).

On an interpersonal level, social and cultural factors are discussed. Parental safety concerns are greater for girls, leading to stricter restrictions on outdoor activities due to fears of 'stranger danger' and traffic hazards (Boxberger & Reimers, 2019; Helleman, 2022; Visser & van Aalst, 2022). These restrictions limit the social inclusion for girls. Parental approval and encouragement are crucial for girls' participation in sports, while a lack of support can be a barrier (Boxberger & Reimers, 2019; Coleman et al., 2008). The presence of boys often discourages girls due to cultural norms, spatial dominance, and exclusionary dynamics (Helleman, 2022; Reimers et al., 2018). Female role models and peer support positively influence participation and social inclusion (Allender et al., 2006; Moreno-Vitoria et al., 2024; Dopheide et al., 2023; Cowley et al., 2021).

In terms of factors from the physical environment influencing social inclusion, proximity and accessibility of a sports facility significantly impact social inclusion for girls. Facilities within 800 meters of home increase perceived accessibility, with walking and cycling paths playing a crucial role (Scott et al., 2007; Kostrzewska, 2017; Kenniscentrum Sport en Bewegen & SWEKO, 2024). Social inclusion improves with amenities like toilets, proper lighting, and resting areas (Kenniscentrum Sport en Bewegen & SWEKO, 2024). The design of the sports facilities, including the diversity and flexibility of the equipment used, influences the level of social inclusion (Helleman, 2022; Reimers et al., 2018). Physically accessible design is essential for social inclusion in general. Additionally, maintenance of sports facilities affect the level of social inclusion, especially for girls (Karsten, 2003; Visser & van Aalst, 2022).

Policy factors are not as directly related to social inclusion as the previously explained factors. Policy tends to create indirect conditions for social inclusion. An identified policy factor are the presence of girls-only activities, which increase the level of social inclusion for girls aged nine to twelve (Ekholm et al., 2019).

5.2. Subquestion 2

To what extent is Beweegpark Kraaiennest socially inclusive for girls aged nine to twelve?

This subquestion introduces the case of Beweegpark Kraaiennest and explores the degree of social inclusion experienced by girls aged nine to twelve. Insights were gathered through key methods: systemic observations and a photovoice study with local girls.

5.2.1. Observations

Eight observation sessions recorded a total of 227 users, with a significant gender imbalance: 78% male and 22% female. Adults were overrepresented, while children aged 0–4 and 9–18 were underrepresented. Gender gaps were most pronounced in high-usage age groups, highlighting the park's limited inclusivity for girls. Activity patterns also differed by gender. Male users primarily engaged in sports (65%), while females more often participated in social activities (42%) and play (30%), with sports comprising only 28% of their activity. This suggests that the current design better supports boys' needs for physical activity, whereas girls prefer more social and flexible uses of space. Spatial usage varied as well. Males dominated the tennis court and football field, while females preferred the calisthenics area and playground, possibly due to their greater versatility. Older age groups tended to use a wider range of areas.

Unstructured observations revealed that external factors, such as nearby events, market days, or gatherings, influence facility use. A buzzing environment can enhance perceived safety due to more 'eyes on the street', but can also make girls feel watched, which may decrease feelings of social inclusion. Disruptive behaviour (e.g., loud scooters, public urination) and maintenance issues (e.g., litter, broken equipment) negatively impact perceptions of safety and inclusion. The lack of shelter and comfortable seating also discourages social use. Nevertheless, the park does foster positive community interactions, which support social inclusion overall.

5.2.2. Photovoice

Seventeen girls from a nearby primary school participated in a photovoice study. They photographed areas of the park they liked or disliked, and discussed these in a follow-up session. Transcripts were analysed to understand the target groups' experiences of social inclusion in Beweegpark Kraaiennest.

The findings confirm that Beweegpark Kraaiennest shows potential for inclusion, but currently falls short in several key areas. While participants appreciated the presence of shared activity spaces and a space for basic amenities, they identified clear barriers to inclusion.

Several major themes emerged. The only topic which did not directly relate to the built environment consisted of the presence of peers. Participants wished for more equipment that could be used collaboratively, emphasising their preference for shared experiences. Secondly, the limited availability and access to amenities like toilets and shelter, along with a lack of protection against weather conditions, is perceived as being a barrier to social inclusion. Furthermore, issues with surface quality, poor maintenance, and hygiene, such as litter and worn-out equipment, were repeatedly cited as negatively influencing participants' feelings of safety and enjoyment. Lastly, the park's equipment was often perceived as mono-functional and uninspiring, lacking the versatility and challenge that girls preferred, and limiting creative and inclusive play.

5.2.3. Social inclusion of Beweegpark Kraaiennest

Overall, Beweegpark Kraaiennest offers a foundation for social inclusion, but currently falls short in adequately addressing the needs and preferences of girls aged nine to twelve. When assessed using a no-threshold approach (section 2.1.4.), the park is not considered inclusive, but it does demonstrate several promising elements that contribute positively to social inclusion. At the same time, there are multiple limiting factors.

5.3. Subquestion 3

What improvements could be made to make Beweegpark Kraaiennest more socially inclusive for girls aged nine to twelve?

Based on the assessment of Beweegpark Kraaiennest's current level of social inclusion for girls aged nine to twelve, six themes have emerged as influential: safety, support, social aspects, imagination & creativity, care & cleanliness and ownership & belonging. These themes highlight both the current shortcomings and the critical factors that can foster greater inclusion. They form the basis for the strategic actions proposed in this section. Recommended actions are tailored specifically to the context of Beweegpark Kraaiennest and draw on insights from the target group, expert interviews and successful interventions in comparable cases.

To make Beweegpark Kraaiennest more socially inclusive for girls aged nine to twelve, several key improvements could be made. Among other things, expanding feelings of ownership beyond the municipality by involving actors like schools, community groups, and girls themselves, a sense of belonging and engagement is fostered. Co-designing with the target group ensures that the space better reflects their needs and preferences. The inclusion of versatile, multi-functional, and a diverse set of equipment and areas supports creative and inclusive play, thereby involving a broader range of potential users, and respond to wishes of girls aged nine to twelve. Social inclusion is also enhanced through the integration of high-quality seating, weather protection, and amenities like toilets and water taps, all of which increase comfort and extend usage time.

Safety and accessibility must be prioritised by improving surface materials, creating clear entry and exit points, and designing for users of all ability levels. Additionally, incorporating visual and sensory elements such as art and colour helps create a welcoming and emotionally engaging environment for girls. Appointing a female facilitator, who is also a role model, hosting events specifically for underrepresented groups, and offering financial support for equipment access further break down social and psychological barriers. Finally, maintaining the space consistently and creating opportunities for ongoing user feedback will ensure that the park remains socially inclusive over time.

5.4. Main research question

‘What measures can municipalities take to make public outdoor sports facilities more socially inclusive for girls aged nine to twelve?’

To make public outdoor sports facilities more socially inclusive for girls aged nine to twelve, it is most effective for municipalities to take an integrated approach. This approach includes actively involving girls aged nine to twelve in the design process through inclusive and custom participation methods. Their involvement results in the space reflecting their preferences, but also increases their sense of ownership and connection to the facility. Municipalities can further strengthen this sense of belonging by sharing (feelings of) ownership with local stakeholders, such as schools, youth organisations or other actors, for example by involving them in programming.

On a neighbourhood scale, the facility should be accessible by safe walking and cycling routes, while also be accessible by public transport. In terms of design of the facility, incorporating multi-functional and versatile equipment and areas supports unstructured, creative forms of physical activity, which girls tend to prefer. Offering a variety of equipment types and areas can help meet diverse interests and thereby foster greater inclusion. The facility’s design should have a balance between visibility and privacy, since girls dislike exposure and unwanted attention, but risk feeling unsafe in such instances. Additionally, providing comfortable seating and informal meeting spaces supports social interactions, which is an important topic to girls, while also making a facility more attractive to people who prefer less active activities.

Ensuring safety, comfort and accessibility is essential in creating a socially inclusive facility. This includes the use of soft, safe surfaces, physically accessible design, and the addition of basic public amenities such as toilets, water taps, storage options and protection from the weather. The presence of a trained, ideally female, facilitator can support activities, serve as a role model, and provide additional safety and encouragement.

Inclusive and welcoming messaging and signage helps girls feel represented, while financial support, such as free access to sports equipment, can remove financial barriers to participation. To ensure long-term social inclusion, municipalities should also prioritise consistent maintenance and cleanliness, as neglected spaces tend to feel unsafe and unwelcoming for girls aged nine to twelve. Finally, organising targeted events for underrepresented groups, such as girls-only classes, can help build confidence, familiarity, and positive associations with a sports facility.

6

DISCUSSION

6

6.1. Validity

6.1.1. Internal validity

The main concept of this research is social inclusion. From the literature, it becomes clear that social inclusion is complex, referring to the process that ensures every individual or group perceives equitable access to opportunities for full participation and engagement in society, regardless of their background or abilities. Because of the subjective nature of social inclusion, it is very important to assess social inclusion based on the perspective of the target group. Photovoice has proven an effective method in voicing the experiences and opinions of vulnerable groups, such as children (Mannion et al., 2024). Utilising this non-standard approach that is fit for purpose, reinforces the validity of this research.

For the photovoice method, participants are reached by means of a gatekeeper (a physical activity teacher from a school located close to the case). By providing the gatekeeper with requirements for participants: girls aged nine to twelve, living close to Beweegpark Kraaiennest, the sample turns out diverse. Opinions of underrepresented voices, such as people with negative past experiences and non-users are captured by using this sampling method. Therefore, it can be concluded that the findings from the photovoice method accurately reflect opinions of the target group.

Social inclusion is a sensitive and nuanced topic, as has become clear from the literature (section 2.1). Participants might not be accustomed to reflecting on it explicitly. Talking about inclusion, especially for vulnerable groups, might feel uncomfortable and prompt new awareness or shifts in perception, thereby possibly influencing their responses. To increase validity, the concepts have been explained to participants using familiar language and concepts. Furthermore, the research activities took place in places familiar to the girls: their school and Beweegpark Kraaiennest.

This research takes on a multi-method approach. The first subquestion uses a literature review to provide theoretical grounding. Part of these values were validated by professionals in the field. Case study observations and photovoice sessions captured lived experiences and perceptions of the target group. Findings from the last subquestion are based on the aforementioned methods and validated by municipal professionals, thereby increasing validity and practical relevance of the results. By combining different research techniques, the research captures the complexity and multidimensionality of the issue.

The observations of this research have been carried out systematically by adapting a framework that has proven useful in practice. The practical guidelines provided by Helleman (2024) served as an inspiration for structured observations of the sports facility. By deciding what data to collect beforehand, data collection was simplified. This led to a clear overview of the collected data, thereby providing useful data which could be easily analysed.

6.1.2. External validity

Although the case study focuses on a specific area, Beweegpark Kraaiennest in Amsterdam Zuidoost, the research is supported by a detailed description of the social, physical and institutional context. This description (section 4.2) allows others to assess the relevance and applicability of the findings to their own settings. There are multiple neighbourhoods in the Netherlands and beyond that share similarities with the Bijlmermuseum. The intersection of gender, age, ethnicity and income as risk factors are not unique to this case. Additionally, in other social norms, cultural dynamics and governance structures, the rich contextual description enhances the study's transferability and generalisation.

Most of the challenges elaborated upon in this research, such as the role of maintenance, inequalities in genders, need for social safety and fragmentation of municipal services, are not unique to Amsterdam. These issues are present in many urban areas worldwide. As became clear from section 2.3.2, social exclusion in sports is an international challenge. Therefore, findings from this research are relevant on a broader scale. Even tough adaptations to make them more suitable to the context might be necessary, strategic actions presented in this study could resonate in other neighbourhoods that face familiar social and spatial conditions.

The strategic actions recommended, such as clear entries, possibilities for social activities, weather protection and public amenities, are rooted in universal design principles (section 2.4.2.). These measures do not depend on local policy or cultural specifics, making them adaptable to a wide range of public space projects, from sports parks to schoolyards and mixed-use recreational zones. These generalisable strategies go beyond the case study context.

The proposed strategic actions are based on the municipality of Amsterdam. However, part of the proposed measures can be scaled up or down depending on the size, resources and ambitions of a municipality. A small village looking to upgrade a single play area can apply principles of diverse equipment and aesthetics, thereby using the same principles as Beweegpark Kraaiennest, a bigger-scale project.

Although this study focuses on public outdoor sports facilities, many of the identified barriers and enablers of social inclusion, such as safety, accessibility, social support and care and cleanliness, are not sport-specific. These themes are relevant not only to outdoor sports like football, basketball or calisthenics, but also to indoor and private facilities such as schoolyards, gyms and sports halls. For instance, co-designing with the target group, or providing high quality seating and meeting spaces can be applied to indoor facilities. Thus, the strategic actions developed in this research are applicable to a wider spectrum of sports facilities.

6.2. Limitations

This research specifically focuses on girls as the target group (see section 1.2). By focussing this research specifically on girls, it is implicitly assumed that there are internal differences in preferences between girls and boys. However, it can be argued that these differences are less about gender and more about individual variation among children (Schouten, 2017). Helleman (2022) suggests that factors such as age, competence, culture, education, personality, and family dynamics contribute to these differences. Edwards et al. (2001) add parental influence as an important factor in shaping children's activity preferences. Parents often create gendered environments and attempt to pass on their own beliefs about gender roles. Moreover, children's perceptions of what is considered appropriate for boys or girls can shift when their personal experiences challenge these norms. Additionally, Edwards et al. (2001) propose that children tend to internalise ideas, attitudes, and values that align with the oversimplified and exaggerated gender stereotypes often promoted by commercial media. This further supports the idea that girls' preferences are shaped more by societal influences than by innate differences (Edwards et al., 2001).

Another way to approach the differences between males and females would be to categorise people into people showcasing masculine and feminine behaviour. This categorisation would emphasise that distinctions are not tied biological sex, but to social, cultural, and psychological traits often associated with gender. This concept could be extended to sports as well as play.

Literature review

One limitation of this research is the scarcity of existing literature about social inclusion in sports. As highlighted in the section on scientific relevance (section 1.4.2.), the limited availability of studies may result in an incomplete list of factors influencing social inclusion for the first subquestion. Additionally, the use of the ecological model of health behaviour to structure identified factors may oversimplify their complexity. Many factors are multifaceted and could belong to multiple levels within this framework. Simplifying this interconnectedness might limit a nuanced understanding of the issue.

Case study

This research is based on a specific case study. Therefore, the applicability to other public outdoor sports facilities can be questioned. The generalisability can be debated as Beweegpark Kraaiennest is situated in Amsterdam Zuidoost, an area with a unique demographic and socioeconomic composition. Therefore, insights may not be directly applicable to other locations with different cultural, economic, or spatial characteristics. Findings regarding the physical environment are tied to the specific design, maintenance, and policies of Beweegpark Kraaiennest. While some insights (e.g., the importance of lighting, seating, and perceived safety) may be transferable, they may not apply to other facilities.

Observations

The observations conducted have several scientific limitations. Since observations, even though non-participative and naturalistic, involve subjective assessments, researcher bias may have influenced the results. Estimating characteristics, particularly age, can be challenging. This introduces the possibility of misclassification errors, thereby affecting the results. Another way in which the accuracy of the results could be affected is the fact that individuals could have been aware of the researchers presence, thereby potentially changing their behaviour

Another limitation is the restricted observation period. Data collection took place over the course of approximately two weeks, exclusively on weekdays during working hours. As a consequence, the study does not account for evening or weekend activity, when usage may differ significantly, for example utilisation by sports clubs or other organised forms of physical activity. The limited number of observation sessions (eight in total) further restricts the reliability and representativeness of the findings.

Additionally, observations only capture current users of the facility, excluding non-users who may wish to utilise Beweegpark Kraaiennest, but do not do so. While photovoice participants included non-users to address this gap, the inability to directly observe non-users remains a weakness of the observation method.

Photovoice

Participants were reached through a gatekeeper; the physical activity teacher of a primary school. This recruitment method can impact the representativeness of the sample, as the teacher is in charge of reaching out to the potential participants. Another limitation is the sample size; seventeen girls. This may be too small to accurately represent the broader target population. Additionally, the sample might not be representative for a broader group, thereby limiting the generalisability of findings.

When taking photos for the photovoice method, participants might be constrained by what they think is expected to be captured. Additionally, conducting the research in a group setting may introduce peer pressure and other group dynamics, thereby influencing participants' decisions. Additionally, the presence of others (non-participants) in Beweegpark Kraaiennest during the research may discourage participants from taking certain photographs, thereby potentially limiting the data collection.

Another limitation of the photovoice method is its emphasis on the physical aspects of Beweegpark Kraaiennest. The ecological model of health behaviour, one of the theoretical frameworks vital for this research, highlights that social inclusion is shaped by multiple levels and is not limited to the built environment. While the photovoice method effectively captures factors of the built environment that influence social inclusion, interpersonal and intrapersonal dynamics are more challenging to represent visually. For example, financial barriers to sports participation can be a significant factor in social exclusion, yet they are challenging to portray through photographs. To address this limitation, the group discussions following the pictures offer a valuable opportunity for participants to share insights about non-physical influences. Nevertheless, it is important to acknowledge that photovoice remains primarily focused on the physical environment, which limits its capacity to fully capture the complexity of social inclusion.

The literature review highlights the role parents play in shaping the social inclusion of children; their access to resources, (a lack of) encouragement, their view on safety. Despite mentioning these factors as important in influencing the level of social inclusion, the research does not include input from parents when assessing the level of social inclusion. As a result, perspectives and contextual factors may be missing from the analysis. This exclusion could lead to an incomplete or limited understanding of the actual level of social inclusion of Beweegpark Kraaiennest.

Interviews

Because of planning difficulties, the focus groups were conducted in the form of separate interviews and one interview with two participants. The structure of the interviews was similar to the intended structure of the focus groups, thereby offering similar opportunities to share knowledge. It also poses opportunities to go more in-depth about specific knowledge of the professional. However, on the other hand, interviews lack the group dynamics which can be valuable. A limitation for this research might be the sample of professionals which have been contacted. Professionals are more likely to participate if they see the added value. Therefore, they might be biased in the importance and relevance of this topic, thereby decreasing their ability to provide a realistic perspective on the measures to be taken.

6.3. Recommendations

6.3.1. Practical recommendations

Practical recommendations based on this research include the strategic actions, discussed in section 4.5.2. and have been communicated to stakeholders through a separate advisory report. These recommendations address both policy- and design related interventions, but it is essential to view them as interrelated rather than isolated measures. Strategic actions will not be repeated in this section.

On the policy level, municipalities could embed inclusion criteria in procurement frameworks and contracts. For example, when selecting equipment suppliers, decision-makers should consider the diversity and multi-functionality of the products offered, along with the ability of the equipment to support shared physical activity. Additionally, better collaboration and integration across multiple municipal departments, such as public space, spatial planning, maintenance and youth services, would enhance coherence and responsiveness of strategies. Collaboration with local sports and (youth) organisations can also play a role in fostering inclusion. It would be valuable to explore hybrid public-private partnerships with the municipality and other organisations to see if responsibility for the facility can be shared. These organisations can offer inclusive programming, thereby lowering barriers to participation, whether social, cultural or financial.

Another way to increase social inclusion is by dedicating funding especially for this cause. Funding should be established both for inclusive design and long-term control, recognising that inclusion is not a one-time achievement but a continuous commitment.

Even though municipalities can use the results of this research for all cases, they are most valuable for high-priority neighbourhoods. These neighbourhoods are characterised by low sports participation numbers for girls aged nine to twelve in combination with social, economic and spatial challenges. The measures proposed in this research would have the most impact there.

6.3.2. Future research

Most importantly, further research should aim to create even more generalisable outcomes, which could be done by broadening the scope and enhancing the depth of understanding of the research. There are several interesting aspects to consider when researching how social inclusion of sports facilities can be improved.

This research is focused on girls aged nine to twelve, which is a severely underrepresented group in sports participation. However, there are multiple groups underrepresented in sports participation, and socially excluded from sports, such as people lacking financial resources, the elderly, ethnic minorities and people with disabilities. Including different groups in the study would be a way of broadening the scope. The same goes for researching a population with other socio-economic and cultural backgrounds. If it turns out that measures to improve social inclusion are effective for multiple groups, implementation of those measures would be more effective in reaching socially inclusive public space.

For stakeholders related to sports, it would be interesting to see if the measures to promote social inclusion of public sports facilities would also be effective in promoting social inclusion in (partly) private sports facilities, such as sports complexes. The scope of the research can also be broadened by integrating sports facilities of different scales in the research.

There are also recommendations on doing different studies on the same topic, but not focussed on broadening the scope. This could involve a comparison study, where the utilisation and state of social inclusion is compared before and after measures have been taken to increase social inclusion of a specific sports facility. In line with this research, long-term trends in participation could be researched.

Further research could take on a more social perspective, for example taking interpersonal or intrapersonal factors as a starting point for research, instead of the physical environment.

REFLECTION





The final reflection, answering the questions as stated in the template of the Graduation Manual 2024-2025, can be found in Appendix C. An overview of the reflection is provided in the following text.

7.1. Research through a social lens

For this research, I had the opportunity to work on themes that have long fascinated me: public space, inclusion and sports. Throughout my academic journey, I've always been drawn to topics related to social justice and values such as equity. During my study, these themes were sometimes underrepresented, especially in a field that is more managerial and focused on private organisations.

Before starting my thesis, I wasn't aware that a graduation topic could offer room to explore such personally significant themes in depth. It wasn't until I began engaging with this topic that I realised how well it aligns with both my personal values and the field of spatial planning and design. The conversations I had with municipal practitioners highlighted the need for research that focuses on the experience of vulnerable groups in public space.

This research allowed me to express my personal motivation to contribute to more inclusive, human-centred environments, and to do so in a way that felt both academically accurate and socially relevant. From a scientific perspective, it introduces a social lens into the field of architecture, urbanism and building sciences. Focus is on the experience of space shaped by policy, culture and community, rather than the purely physical or functional design.

7.2. Methodological growth and skills development

During this research, I learned to work with several qualitative research methods. These included conducting observations, interviews and photovoice. These were unfamiliar to me before starting this project, so the process significantly broadened my methodological skillset. Applying these methods turned out to be both rewarding and insightful; not only because they align well with the subjective and context-sensitive nature of the research topic (as elaborated upon in section 6.1.1.), they also challenged me to step outside my comfort zone.

I have never been particularly drawn to qualitative research, often associating it with less structure or analytical depth; ways of working I greatly value. However, conducting this research helped me realise that qualitative research can also be approached with precision and a structured way of working. It also showed me how these methods are particularly powerful in capturing lived experiences, which is essential when studying themes like social inclusion. I now feel more confident in applying these approaches in the future.

7.3. Professional experience and exposure

Conducting this research within the Municipality of Amsterdam gave the project a strong and direct link to professional practice, which proved insightful. This experience allowed me to explore the practical implications of policy frameworks, stakeholder dynamics and public space governance, which are all topics that have been covered in the Management in the Built Environment curriculum. Having previously studied these topics in theory, it was valuable to see how these play out in projects from an insider perspective.

My internship at the Municipality of Amsterdam was my first experience working in a professional environment. I had the chance to collaborate with people who are genuinely passionate about themes like public space, physical activity and inclusion, which was both inspiring and motivating. Through these interactions, I began to see how my own interests and skills could contribute in a professional setting. It confirmed that working at the intersection of spatial development and social impact is possible, and gave me confidence that this is where I can make a valuable contribution.

7.4. (Personal) challenges and growth

Beyond the research-specific developments, such as learning to apply qualitative methods and experiencing projects from a municipal perspective, this process offered personal growth. Like any project of this size and duration, it came with moments of uncertainty, dependency and frustration. Uncertainty was high in the early stages, before defining the scope of the research. Decisions had to be made quickly: in the first week, time or space to fully consider all possible directions lacked. That period felt overwhelming at times. However, once I gained clarity on my scope, the process became much more manageable. I enjoyed the ability to organise my own structure, the freedom to make individual choices, organise my planning and work independently.

The project had some particular challenges. First of all, I was already warned that getting approval from the Human Research Ethics Committee could be demanding. It was indeed complex, time-consuming and asked for quick and specific adjustments. However, I am proud that I pursued this initial interest and did not choose for an easier way. Another challenge related to the HREC approval consisted of accessing the target group. While it turned out relatively smooth in practice, it required careful planning, the support of a committed gatekeeper and constant attention to ethical concerns. I am very grateful for the people who were willing to collaborate with me for this project.

BIBLIOGRAPHY

Bibliography

- Abma, T., Breed, M., Lips, S., & Schrijver, J. (2022). Whose Voice is It Really? Ethics of Photovoice With Children in Health Promotion. *International Journal of Qualitative Methods*, 21, 16094069211072419. <https://doi.org/10.1177/16094069211072419>
- Aedes. (n.d.). 1. Een miljoen toekomstbestendige woningen erbij in 10 jaar. Aedes. Retrieved 31 October 2024, from <https://aedes.nl/actieagenda-wonen/1-een-miljoen-toekomstbestendige-woningen-erbij-10-jaar-0>
- AlleCijfers.nl. (2016). *Statistieken wijk Bijlmermuseum*. AlleCijfers.nl. <https://allecijfers.nl/wijk/bijlmermuseum-amsterdam/>
- Allender, S., Cowburn, G., & Foster, C. (2006). Understanding participation in sport and physical activity among children and adults: A review of qualitative studies. *Health Education Research*, 21(6), 826–835. <https://doi.org/10.1093/her/cyl063>
- Athletic Skills Company. (2020a). De Schijf van 10! De praktische invulling van een breed motorische ontwikkeling en veelzijdig bewegen. *Athletic Skills Model (ASM)*. <https://www.athleticskillsmodel.nl/de-schijf-van-10-de-praktische-invulling-van-een-breed-motorische-ontwikkeling-en-veelzijdig-bewegen/>
- Athletic Skills Company. (2020b). Platform buitenspelen—Corona verhoogt druk op speelplekken in de openbare ruimte [photograph]. <https://www.athleticskillsmodel.nl/corona-verhoogt-druk-op-speelplekken-in-de-openbare-ruimte/>
- Athletic Skills Model. (n.d.). De Schijf van 10! - Athletic Skills Model [figure]. <https://www.athleticskillsmodel.nl/schijfvan10/>
- Atkinson, A. B. (1998). *Social Exclusion, Poverty and Unemployment*. Hills, J., 1–20.
- Atkinson, A., & Marlier, E. (2010). Analysing and Measuring Social Inclusion in a Global Context. *United Nations Department of Economic and Social Affairs (UNDESA)*.
- Avramov, D. (2002). *People, Demography and Social Exclusion*.
- Barry, B. (1998). *Social Exclusion, Social Isolation and the Distribution of Income* (No. CASE 012). Centre for Analysis of Social Exclusion, LSE. https://sticerd.lse.ac.uk/CASE/_new/publications/abstract/?index=1012
- Borch, C. (2002). Interview with Edward W. Soja: Thirdspace, Postmetropolis, and Social Theory. *Distinktion: Journal of Social Theory*, 3(1), 113–120. <https://doi.org/10.1080/1600910X.2002.9672816>
- Borge, S. (2021). What Is Sport? *Sport, Ethics and Philosophy*, 15(3), 308–330. <https://doi.org/10.1080/17511321.2020.1760922>
- Boxberger, K., & Reimers, A. K. (2019). Parental Correlates of Outdoor Play in Boys and Girls Aged 0 to 12—A Systematic Review. *International Journal of Environmental Research and Public Health*, 16(2), 190. <https://doi.org/10.3390/ijerph16020190>
- Brady, D. (2002). *Rethinking the Sociological Measurement of Poverty* (Working Paper No. 264). LIS Working Paper Series. <https://www.econstor.eu/handle/10419/160936>
- Bronfenbrenner, U. (1986). Recent Advances in Research on the Ecology of Human Development. In R. K. Silbereisen, K. Eyferth, & G. Rudinger (Eds.), *Development as Action in Context: Problem Behavior and Normal Youth Development* (pp. 287–309). Springer. https://doi.org/10.1007/978-3-662-02475-1_15
- Chen, T., Hui, E. C.-M., Lang, W., & Tao, L. (2016). People, recreational facility and physical activity: New-type urbanization planning for the healthy communities in China. *Habitat International*, 58, 12–22. <https://doi.org/10.1016/j.habitatint.2016.09.001>
- Coleman, L., Cox, L., & Roker, D. (2008). Girls and young women's participation in physical activity: Psychological and social influences. *Health Education Research*, 23(4), 633–647. <https://doi.org/10.1093/her/cym040>
- Collins, M., & Kay, T. (2014). *Sports and Social Exclusion* (2nd Edition). Routledge.
- Coumans, M., & Schmeets, H. (2015). The Socially Excluded in the Netherlands: The Development of an Overall Index. *Social Indicators Research*, 122(3), 779–805. <https://doi.org/10.1007/s11205-014-0707-6>
- Coumans, M., & Schmeets, H. (2015). Theoretical framework of social exclusion [figure]. <https://doi.org/10.1007/s11205-014-0707-6>
- Cowley, E. S., Watson, P. M., Fowweather, L., Belton, S., Thompson, A., Thijssen, D., & Wagenmakers, A. J. M. (2021). “Girls Aren’t Meant to Exercise”: Perceived Influences on Physical Activity among Adolescent Girls—The HERizon Project. *Children*, 8(1), Article 1. <https://doi.org/10.3390/children8010031>

- De Havenloods. (2023). Het nieuwe basketbalpark vanuit de lucht [photograph]. <https://www.dehavenloods.nl/nieuws/algemeen/47161/prachtige-foto-vanuit-de-lucht-van-nieuw-basketbalpark-in-rot>
- Desai, D. H., Shukla, A., & Desai, H. (2023). *Is exercising better for your Mental Health?* (p. 2023.03.28.23287187). medRxiv. <https://doi.org/10.1101/2023.03.28.23287187>
- Dopheide, M., Dellas, V., & Stuij, M. (2023). *Bi-culturele tienermeiden en hun ouders over geldzorgen en niet sporten*. Mulier Instituut. <https://www.kennisbanksportenbewegen.nl/?file=11141&m=1676550272&action=-file.download>
- Edwards, C., Knoche, L., & Kumru, A. (2001). Play Patterns and Gender. *Department of Psychology: Faculty Publications*. <https://digitalcommons.unl.edu/psychfacpub/607>
- Ekblom-Bak, E., Ekblom, Ö., Andersson, G., Wallin, P., & Ekblom, B. (2018). *Physical Education and Leisure-Time Physical Activity in Youth Are Both Important for Adulthood Activity, Physical Performance, and Health*. <https://doi.org/10.1123/jpah.2017-0083>
- Ekholm, D., Dahlstedt, M., & Rönnbäck, J. (2019). Problematizing the absent girl: Sport as a means of emancipation and social inclusion. *Sport in Society*, 22, 1043–1061. <https://doi.org/10.1080/17430437.2018.1505870>
- European Commission. (1998, September 29). *The development and prospects for Community action in the field of sport*. DIRECTORATE-GENERAL X INFORMATION, COMMUNICATION, CULTURE AND AUDIOVISUAL MEDIA. https://ec.europa.eu/assets/eac/sport/library/documents/doc252_en.pdf
- Everyone Can Play*. (2021). Fleetwood. <https://www.fleetwoodurban.com.au/everyone-can-play>
- Fernandez, J., M.A., H., & Velez Colon, L. (2017). *Vulnerable groups at risk for sport and social exclusion*. 17, 312–326. <https://doi.org/10.7752/jpes.2017.01047>
- Galea, S., & Vlahov, D. (2005). URBAN HEALTH: Evidence, Challenges, and Directions. *Annual Review of Public Health*, 26(Volume 26, 2005), 341–365. <https://doi.org/10.1146/annurev.publhealth.26.021304.144708>
- Gao, W., Feng, W., Xu, Q., Lu, S., & Cao, K. (2022). Barriers associated with the public use of sports facilities in China: A qualitative study. *BMC Public Health*, 22(1), 2112. <https://doi.org/10.1186/s12889-022-14441-w>
- Gemeente Amsterdam. (n.d.-a). *Dashboard kerncijfers*. Onderzoek en Statistiek. Retrieved 14 January 2025, from <https://onderzoek.amsterdam.nl/interactief/dashboard-kerncijfers?tab=gebied&thema=overzicht&gebied=TG&taal=nl>
- Gemeente Amsterdam. (n.d.-b). *Skatepark Kraaiennest DIY* [photograph]. <https://www.amsterdam.nl/sport/skateparken/alle-skateparken/skatepark-kraaiennest/>
- Gemeente Amsterdam. (Cartographer). (n.d.-c). *Sportvoorzieningen* [map]. <https://maps.amsterdam.nl/sport/?LANG=en#>
- Gemeente Amsterdam. (2016). Samen-Doen [photograph] https://hoofdstad-my.sharepoint.com/:i:/g/personal/e_tiggelman_amsterdam_nl/Ed4g7vwErpVDtOKel4I-eu0BXWXsAfdQ0cLwgV-6caAECw
- Gemeente Amsterdam. (2019). Mariendaal Opening-speeltuin MS [photograph]. https://hoofdstad-my.sharepoint.com/:i:/g/personal/e_tiggelman_amsterdam_nl/EVXp9ZFL8CZLuzf0ZXMg7BMBGzcA36GN7eihC_RrrSmZQQ
- Gemeente Amsterdam. (2021). Diemerpark A50 [photograph]. https://hoofdstad-my.sharepoint.com/:i:/g/personal/e_tiggelman_amsterdam_nl/ESxVNXr0uuFKt8JW5grxni0BMrZ8RMF_6boBxVVtrbewtw
- Gemeente Amsterdam & 1104 - Hart voor de K buurt. (n.d.). *Cocreatie participatie K-midden*. Retrieved 14 March 2025, from www.bit.ly/participatiecocreatie-plan
- Google Maps. (2025). Google Maps [photograph]. https://www.google.nl/maps/@52.317833,4.9793146,3a,90y,277.87h,79.45t/data=!3m7!1e1!3m5!1sHY-ni5eljwRbfm-0TCKI7w!2e0!6shttps:%2F%2Fstreetviewpixels-pa.googleapis.com%2Fv1%2Fthumbnail%3Fcb_client%3Dmaps_sv.tactile%26w%3D900%26h%3D600%26pitch%3D10.554717191038321%26panoid%3DHY-ni5eljwRbfm-0TCKI7w%26yaw%3D277.8735255481311!7i16384!8i8192?hl=nl&entry=tту&g_ep=EgoyMDI1MDMzM54wIKXMDSoJLDEwMjExNDUzSAFQAw%3D%3D
- Hagen-Zanker, J., & Babajanian, B. (2014). *Social protection and social exclusion: An analytical framework to assess the links*. ODI: Think Change. <https://odi.org/en/publications/social-protection-and-social-exclusion-an-analytical-framework-to-assess-the-links/>
- Handy, S. L., Boarnet, M. G., Ewing, R., & Killingsworth, R. E. (2002). How the built environment affects physical activity: Views from urban planning. *American Journal of Preventive Medicine*, 23(2 Suppl), 64–73. [https://doi.org/10.1016/s0749-3797\(02\)00475-0](https://doi.org/10.1016/s0749-3797(02)00475-0)

- Haselbacher, M., Kuokkanen, K., Palonen, E., & Reeger, U. (2024). Inclusion and Exclusion in Urban Public Space: Contemporary Challenges in Vienna and Helsinki. *Urban Planning*, 9(0). <https://doi.org/10.17645/up.8291>
- Helleman, G. (2021, December 7). Buitenspelen: Wie, waar en wat? *Buitenspelen*. <https://stadslente.blogspot.com/2021/12/buitenspelen-wie-waar-en-wat.html>
- Helleman, G. (2022, June 8). Meisjes en buitenspelen: Op zoek naar meer gelijkheid. *Meisjes en buitenspelen*. <https://stadslente.blogspot.com/2022/06/meisjes-en-buitenspelen.html>
- Helleman, G. (2024, October 16). *Observatie speelplekken Kolenkitbuurt/Overtoomse Veld*. ArcGIS StoryMaps. <https://storymaps.arcgis.com/stories/53dfb0a8446d4b88b3aa8f6663f25294>
- Hoogendoorn, M. P., & de Hollander, E. L. (2016). *Belemmeringen en drijfveren voor sport en bewegen bij ondervertegenwoordigde groepen* (p. 79) [Briefrapport]. Rijksinstituut voor Volksgezondheid en Milieu (RIVM).
- Hudec, M., & Rollová, L. (2014). Sports Facilities – Analyses and New Trends. *Advanced Engineering Forum*, 12, 44–47. <https://doi.org/10.4028/www.scientific.net/AEF.12.44>
- Jehoel-Gijsbers, G., & Vrooman, C. (2007). *Explaining Social Exclusion*. <https://www.semanticscholar.org/paper/Explaining-Social-Exclusion-Jehoel-Gijsbers-Vrooman/728f15dfef75300430d6b8e96c97ecabc76c01fc>
- Jehoel-Gijsbers, G., & Vrooman, C. (2007). Conceptual model: risk factors and characteristics of being socially excluded [figure]. <https://www.semanticscholar.org/paper/Explaining-Social-Exclusion-Jehoel-Gijsbers-Vrooman/728f15dfef75300430d6b8e96c97ecabc76c01fc>
- Jeugdfonds Sport & Cultuur Amsterdam. (n.d.). Jeugdfonds Sport & Cultuur Amsterdam. *Jeugdfonds Sport & Cultuur*. Retrieved 23 May 2025, from <https://jeugdfondssportencultuur.nl/fondsen/amsterdam/>
- Kane, M. J., LaVoi, N., Wiese-Bjornstal, D., Duncan, M., Nichols, J., Pettee, K., & Ainsworth, B. (2007). The 2007 Tucker Center Research Report: Developing Physically Active Girls: An Evidence-based Multidisciplinary Approach. *The 2007 Tucker center research report*. <https://conservancy.umn.edu/items/3a5c467b-bbea-4168-a7a2-1db768a58f20>
- Karakaya, C. (2021, March 29). *AT5-panel: Zuidoost heeft slecht imago, maar meeste bewoners vinden dit onterecht*. AT5. <https://www.at5.nl/nieuws/208118/at5-panel-zuidoost-heeft-slecht-imago-maar-meeste-bewoners-vinden-dit-onterecht>
- Karsten, L. (2003). Children's Use of Public Space. *Childhood*, 10, 457–473. <https://doi.org/10.1177/0907568203104005>
- Kelly, L. (2011). 'Social inclusion' through sports-based interventions? 31(1). <https://doi.org/10.1177/0261018310385442>
- Kenniscentrum Sport en Bewegen & SWECO. (2024). *Ontwerpchecklist inclusieve beweegvriendelijke omgeving*. <https://www.kenniscentrumsportenbewegen.nl/producten/ontwerpchecklist-inclusieve-bvo/>
- Kim, J., Kim, J., Kim, Y., Han, A., & Nguyen, M. C. (2021). The contribution of physical and social activity participation to social support and happiness among people with physical disabilities. *Disability and Health Journal*, 14(1), 100974. <https://doi.org/10.1016/j.dhjo.2020.100974>
- Kim, T., & Chang, K. (2018). Developing a measure of user-perceived universal design for sport facilities. *South African Journal for Research in Sport, Physical Education and Recreation*, 40, 25–38.
- Kompan. (n.d.). Dubbele Kabelbaan voor talud, lengte glijbaan: 25m [photograph]. <https://www.kompan.com/nl/nl/p/nro880>
- Kostrzewska, M. (2017). Activating Public Space: How to Promote Physical Activity in Urban Environment. *IOP Conference Series: Materials Science and Engineering*, 245, 1–9. <https://doi.org/10.1088/1757-899x/245/5/052074>
- L&A Group. (n.d.). *Little Black Fish Wonderland, Luneng Resort, Qiandao Lake, Hangzhou* [photograph]. <https://www.aoya-hk.com/index.php?m=content&c=index&a=show&catid=59&id=1505>
- Landezine. (n.d.). *The Urban Sport Zone* [photograph]. <https://landezine-award.com/the-urban-sport-zone/>
- Lebed, F. (2022). Physical Activity is not Necessary: The Notion of Sport as Unproductive Officialised Competitive Game. *Sport, Ethics and Philosophy*, 16(1), 111–129. <https://doi.org/10.1080/17511321.2021.1874044>

- Lee, S. A., Ju, Y. J., Lee, J. E., Hyun, I. S., Nam, J. Y., Han, K.-T., & Park, E.-C. (2016). The relationship between sports facility accessibility and physical activity among Korean adults. *BMC Public Health*, 16(1), 893. <https://doi.org/10.1186/s12889-016-3574-z>
- Lefebvre, H. (1974). *The Production of Space* (1st ed.). T.J. Press Lt.
- Limstrand, T. (2008). Environmental characteristics relevant to young people's use of sports facilities: A review. *Scandinavian Journal of Medicine & Science in Sports*, 18(3), 275–287. <https://doi.org/10.1111/j.1600-0838.2007.00742.x>
- Limstrand, T., & Rehrer, N. J. (2008). Young people's use of sports facilities: A Norwegian study on physical activity. *Scandinavian Journal of Public Health*, 36(5), 452–459. <https://doi.org/10.1177/1403494807088455>
- Liu, Y.-D. (2009). Sport and Social Inclusion: Evidence from the Performance of Public Leisure Facilities. *Social Indicators Research*, 90(2), 325–337. <https://doi.org/10.1007/s11205-008-9261-4>
- Liu, Y.-D., Taylor, P., & Shibli, S. (2009). Sport Equity: Benchmarking the Performance of English Public Sport Facilities. *European Sport Management Quarterly*, 9(1), 3–21. <https://doi.org/10.1080/16184740802461686>
- Logan, K., Lloyd, R. S., Schafer-Kalkhoff, T., Khoury, J. C., Ehrlich, S., Dolan, L. M., Shah, A. S., & Myer, G. D. (2020). Youth sports participation and health status in early adulthood: A 12-year follow-up. *Preventive Medicine Reports*, 19, 101107. <https://doi.org/10.1016/j.pmedr.2020.101107>
- Madanipour, A. (2011). Social exclusion and space. *City Reader*, 186–194.
- Mannion, N., Fitzgerald, J., & Tynan, F. (2024). Photovoice Reimagined: A Guide to Supporting the Participation of Students With Intellectual Disabilities in Research. *International Journal of Qualitative Methods*, 23, 16094069241270467. <https://doi.org/10.1177/16094069241270467>
- Mareš, L., & Novotný, D. D. (2023). What Is Sport? A Response to Jim Parry. *Sport, Ethics and Philosophy*, 17(1), 34–48. <https://doi.org/10.1080/17511321.2022.2064538>
- Massey, D. (1993). Power-geometry and a progressive sense of place. In *Mapping the Futures*. Routledge.
- Meire, J. (2020). *Het grote buitenspeelonderzoek*. Kind & Samenleving. <https://k-s.be/medialibrary/purl/nl/6626949/Het%20grote%20buitenspeelonderzoek.pdf>
- Melbourne Playgrounds. (n.d.). Ballam Park Reserve (West) Playground, Cranbourne Road, Frankston [photograph]. <https://www.melbourneplaygrounds.com.au/ballam-park-reserve-west-playground-cranbourne-road-frankston>
- Ministerie van Algemene Zaken. (2014). *Sport en bewegen voor iedereen—Sport en bewegen—Rijksoverheid.nl* [Onderwerp]. Ministerie van Algemene Zaken. <https://www.rijksoverheid.nl/onderwerpen/sport-en-bewegen/sport-en-bewegen-voor-iedereen>
- Ministerie van Algemene Zaken. (2019). *Moderne sportvoorzieningen—Sport en bewegen—Rijksoverheid.nl* [Onderwerp]. Ministerie van Algemene Zaken. <https://www.rijksoverheid.nl/onderwerpen/sport-en-bewegen/moderne-sportvoorzieningen>
- Ministry of Social Affairs and Employment. (2009). *Poverty and social exclusion*. <https://ec.europa.eu/social/BlobServlet?docId=8258&langId=en>
- Mirzoev, T., Tull, K., Winn, N., Mir, G., King, N., Wright, J., & Gong, Y. (2021). Systematic review of the role of social inclusion within sustainable urban developments. *International Journal of Sustainable Development & World Ecology*, 29, 1–15. <https://doi.org/10.1080/13504509.2021.1918793>
- Mooren, H. (n.d.). Gallery. <https://bijlmerbios.com/gallery/>
- Moreno-Vitoria, L., Cabeza-Ruiz, R., & Pellicer-Chenoll, M. (2024). Factors that influence the physical and sports participation of adolescent girls: A systematic review. *Apunts Educación Física y Deportes*, 157, 19–30.
- NOC*NSF. (2024). *Sportdeelname Index*. NOC*NSF. <https://cdn.nocnsf.nl/media/r2ylylx3/noc-nsf-sportdeelname-amsterdam-sdi-maandrapportage-april-2024-v4.pdf>
- Nurdiani, N., Katarina, W., & Grestio, I. (2020). The universal design approach on sport center in Jakarta to create livable public facilities. *IOP Conference Series: Earth and Environmental Science*, 426(1), 012108. <https://doi.org/10.1088/1755-1315/426/1/012108>
- Ompad, D. C., Galea, S., & Vlahov, D. (2008). Urban Health Systems: Overview. In H. K. (Kris) Heggenhougen (Ed.), *International Encyclopedia of Public Health* (pp. 463–470). Academic Press. <https://doi.org/10.1016/B978-012373960-5.00323-3>

- Onagoruwa, A., Wodon, Q., Malé, C., Montenegro, C., Nguyen, H., & de la Briere, B. (2020). *How Large Is the Gender Dividend? Measuring Selected Impacts and Costs of Gender Inequality*. <https://doi.org/10.1596/33396>
- Oxoby, R. (2009). Understanding social inclusion, social cohesion, and social capital. *International Journal of Social Economics*, 36(12), 1133–1152. <https://doi.org/10.1108/03068290910996963>
- Parry, J. (2019). E-sports are Not Sports. *Sport, Ethics and Philosophy*, 13(1), 3–18. <https://doi.org/10.1080/17511321.2018.1489419>
- Pattnaik, I., & Mohanty, D. A. (2014). Social Exclusion: A Challenge for the Status of Third Gender People of Odisha. *International Journal of Scientific Research*. https://www.semanticscholar.org/paper/Social-Exclusion%3A-A-Challenge-for-the-Status-of-of-Pattnaik-Mohanty/fddd44712b060fc86116f7363fd450f8d-9d0e6e1?utm_source=consensus
- Prins, R., Hoekman, R., van der Poel, H., Wezenberg-Hoenderkamp, K., Noordzij, M., Dellas, V., Stevens, V., Floor, C., Ruikes, D., Lucassen, J., Singh, A., & van Lindert, C. (2021). *Sport en bewegen in de openbare ruimte. De beweegvriendelijke omgeving in gebruik en beleid, brancherapport sport*. Mulier Instituut. <https://www.mulierinstituut.nl/publicaties/26297/sport-en-bewegen-in-de-openbare-ruimte/>
- Reimers, A. K., Schoeppe, S., Demetriou, Y., & Knapp, G. (2018). Physical Activity and Outdoor Play of Children in Public Playgrounds—Do Gender and Social Environment Matter? *International Journal of Environmental Research and Public Health*, 15(7), 1356. <https://doi.org/10.3390/ijerph15071356>
- Ruetten, A., Abu-Omar, K., Frahsa, A., & Hartwig, N. (2011). *Improving Infrastructures for Leisure-Time Physical Activity in the Local Arena*. Erlangen-Nuremberg: IMPALA consortium. https://www.oeiss.org/fileadmin/user_upload/Main/Forschung/2017_impalanet/2011_Proposed_European_Guidelines_IMPALA.pdf
- Sallis, J. F., Owen, N., & Fisher, E. B. (2008). ECOLOGICAL MODELS OF HEALTH BEHAVIOR. In *HEALTH BEHAVIOR AND HEALTH EDUCATION* (4th ed., pp. 465–). John Wiley & Sons. <chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/file:///C:/Users/elset/Downloads/HB20amp20HE-20Glanz20Book.pdfpage503.pdf>
- Schouten, M. (2017). Genderaspecten in het spel van kinderen. *Genderaspecten in het spel van kinderen*. <https://ruimtevoordejugd.nl/speelforum/speelforum-3-genderaspecten-in-het-spel-van-kinderen/>
- Scott, M. M., Evenson, K. R., Cohen, D. A., & Cox, C. E. (2007). Comparing Perceived and Objectively Measured Access to Recreational Facilities as Predictors of Physical Activity in Adolescent Girls. *Journal of Urban Health*, 84(3), 346–359. <https://doi.org/10.1007/s11524-007-9179-1>
- Sholanke, A. B., & Eleagu, J. C. (2024). Appraisal of Universal Design Strategies for Enhancing Social Inclusion in The Development of Sporting Facilities. *IOP Conference Series: Earth and Environmental Science*, 1342(1), 012024. <https://doi.org/10.1088/1755-1315/1342/1/012024>
- Skatepark Kraaiennest D.I.Y. (n.d.). *Skatepark Kraaiennest*. SkateparkKraaiennest. Retrieved 21 May 2025, from <https://www.skateparkkraaiennest.com/nl/nl>
- Smilde, K. (n.d.). MARKT KRAAIENNEST [photograph]. <https://www.iamsterdam.com/uit/agenda/winkelen/markten/markt-kraaiennest>
- Social Watch. (2010). *Measuring Social Inclusion*. Social Watch.
- Soja, E. W. (1996). *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places*. Wiley-Blackwell.
- Spaaij, R., Luguetti, C., McDonald, B., & McLachlan, F. (2023). Enhancing social inclusion in sport: Dynamics of action research in super-diverse contexts. *International Review for the Sociology of Sport*, 58(4), 625–646. <https://doi.org/10.1177/10126902221140462>
- Spaaij, R., Magee, J., & Jeanes, R. (2014). *Sport and Social Exclusion in Global Society*. Routledge. <https://doi.org/10.4324/9780203066584>
- Staurowsky, E. J. & Women's Sports Foundation. (2009). *Her life depends on it II: Sport, physical activity and the health and well-being of American girls and women* (Vol. 1–1 online resource (135 pages).). Women's Sports Foundation. <http://www.womenssportsfoundation.org/home/research/articles-and-reports/mental-and-physical-health/her-life-depends-on-it-ii>
- Stewart, F., Barrón, M., Brown, G., & Hartwell, M. (2006). *Social Exclusion and Conflict: Analysis and Policy Implications*. https://www.semanticscholar.org/paper/Social-Exclusion-and-Conflict%3A-Analysis-and-Policy-Stewart-Barr%C3%B3n/b13bd3cab4efb3dda031dd87d74fef622e9aad57?utm_source=consensus

- Telama, R., Yang, X., Laakso, L., & Viikari, J. (1997). Physical Activity in Childhood and Adolescence as Predictor of Physical Activity in Young Adulthood. *American Journal of Preventive Medicine*, 13(4), 317–323. [https://doi.org/10.1016/S0749-3797\(18\)30182-X](https://doi.org/10.1016/S0749-3797(18)30182-X)
- Townsend, P. (1979). *Poverty in the United Kingdom: A Survey of Household Resources and Standards of Living*. Penguin Books.
- Tsang, K. K. (2020). *Photovoice Data Analysis: Critical Approach, Phenomenological Approach, and Beyond*. <https://doi.org/10.1163/25902539-00201009>
- UNECE. (2022). *Approaches to Measuring Social Exclusion*. United Nations. <https://unece.org/statistics/publications/approaches-measuring-social-exclusion>
- UN-Habitat. (2018). *SDG Indicator 11.7.1*. UN-Habitat. https://unhabitat.org/sites/default/files/2020/07/indicator_11.7.1_training_module_public_space.pdf
- United Nations. (n.d.). *THE 17 GOALS | Sustainable Development*. THE 17 GOALS. Retrieved 24 September 2024, from <https://sdgs.un.org/goals>
- United Nations Department of Economic and Social Affairs. (2016, November 17). *Identifying social inclusion and exclusion* [Text]. UN iLibrary; United Nations. <https://doi.org/10.18356/5890648c-en>
- Vinger.nl. (n.d.). *M53K1104*. Vinger.NL. Retrieved 22 May 2025, from <https://www.vinger.nl/m53k1104>
- Visser, K., & van Aalst, I. (2022). Neighbourhood Factors in Children's Outdoor Play: A Systematic Literature Review. *Tijdschrift Voor Economische En Sociale Geografie*, 113(1), 80–95. <https://doi.org/10.1111/tesg.12505>
- Vogel, K. (2018). *Bloed, zweet en zwanen: Fitnessen in het park*. Universiteit Utrecht. <https://www.kennisbank-sportenbewegen.nl/?file=9145&m=1538733753&action=file.download>
- Vuori, I. (1987). *Exercising for health*. 8(2), 131–154.
- Wang, K., & Wang, X. (2020). Providing Sports Venues on Mainland China: Implications for Promoting Leisure-Time Physical Activity and National Fitness Policies. *International Journal of Environmental Research and Public Health*, 17(14), Article 14. <https://doi.org/10.3390/ijerph17145136>
- Waring, A., & Mason, C. (2010). Opening doors: Promoting social inclusion through increased sports opportunities. *Sport in Society*, 13(3), 517–529. <https://doi.org/10.1080/17430431003588192>
- Wheelchair Skills Team. (n.d.). *Wheelchair Skills Trainingen*. Wheelchair Skills Team. Retrieved 22 May 2025, from <https://wheelchairskillsteam.nl/rolstoelgebruikers/>
- Wilderink, L. (n.d.). *Handleiding photovoice*. Hogeschool Windesheim, Vrije Universiteit. Retrieved 5 March 2025, from https://www.gezondin.nu/wp-content/uploads/2020/11/Handleiding-photovoice_project-MAPZ-2.pdf
- Wolf, S. (2022). *Leefbaarheid in Zuidoost*. openresearch.amsterdam. <https://openresearch.amsterdam/nl/page/82673/leefbaarheid-in-zuidoost>
- Woman's Sports Foundation. (2020). *Keeping Girls in the Game: Factors that Influence Sports Participation*. <https://www.womenssportsfoundation.org/wp-content/uploads/2020/02/Keeping-Girls-in-the-Game-Executive-Summary-FINAL-web.pdf>
- World Bank Group. (n.d.). *Social Inclusion* [Text/HTML]. World Bank Group. Retrieved 24 September 2024, from <https://www.worldbank.org/en/topic/social-inclusion>
- Zhou, S. (2019). *Understanding 'Inclusiveness' in Public Space: Learning from Existing Approaches* (p. 68) [UBC Sustainability Scholars report]. City of Vancouver. <https://sustain.ubc.ca/about/resources/understanding-inclusiveness-public-space-learning-existing-approaches>
- Zimm, M. (2019). GIRLS' ROOM IN PUBLIC SPACE – PLANNING FOR EQUITY WITH A GIRL'S PERSPECTIVE. In *Our City? Countering Exclusion in Public Space – Placemaking Europe* (pp. 167–171). STIPO Publishing. <https://placemaking-europe.eu/project/our-city/>

APPENDICES

Appendix A. Observation logs

Observations Kraaiennest

Date Tuesday 11/03/2025

Time 13:40 - 14:25

Weather 11°C, cloudy

older men are using
fitness equipment,
low intensity

E1



one of the men is
peeing against a
fence, another in the
bushes

men are playing
tennis with low
intensity

E1



pedestrian and
cycling traffic is high,
particularly from east
to west

a weekly market
takes place, causing
buzz and traffic flow



A2



DPD pakketpunt - Pickup
parcelshop verzend - en...
Verzendservice



the park is full of
garbage which seems
to have been moved
all over the park by
the wind



Observations Kraaiennest

Date Thursday 13/03/2025

Time 16:00 - 16:45

Weather 5°C, cloudy



Observations Kraaiennest

Date Friday 14/03/2025

Time 15:15 - 16:00

Weather 7°C, sunny

a man is jogging
on the track



E1

two men doing
gym exercises



E1

E1

two men are playing a
game of tennis, while four
are watching and chilling
on the side. One of them
brought his own chair

E3

there is a big event
because of the holi
celebration. It's private,
with security and fences.
Loud music can be heard
at every part of the
facility



the older girl is
pushing the swing
and looking after
two younger kids



A2

a group of kids is
playing football,
more and more join

B1



one of the
kids has a
step which he
uses on the
football field
twice



girls are tumbling on
the iron bars

E1

B1

E3

DPD pakketpunt - Pickup
parcelshop verzend - en...
Verzendservice

there are three
police vans parked
next to the event

a group of older
kids are watching
the event from
the highest part
of the playground

D3



D3

E1

B1

one of the guys has a
skateboard, the others
follow him by foot. They
film his tricks to rewatch

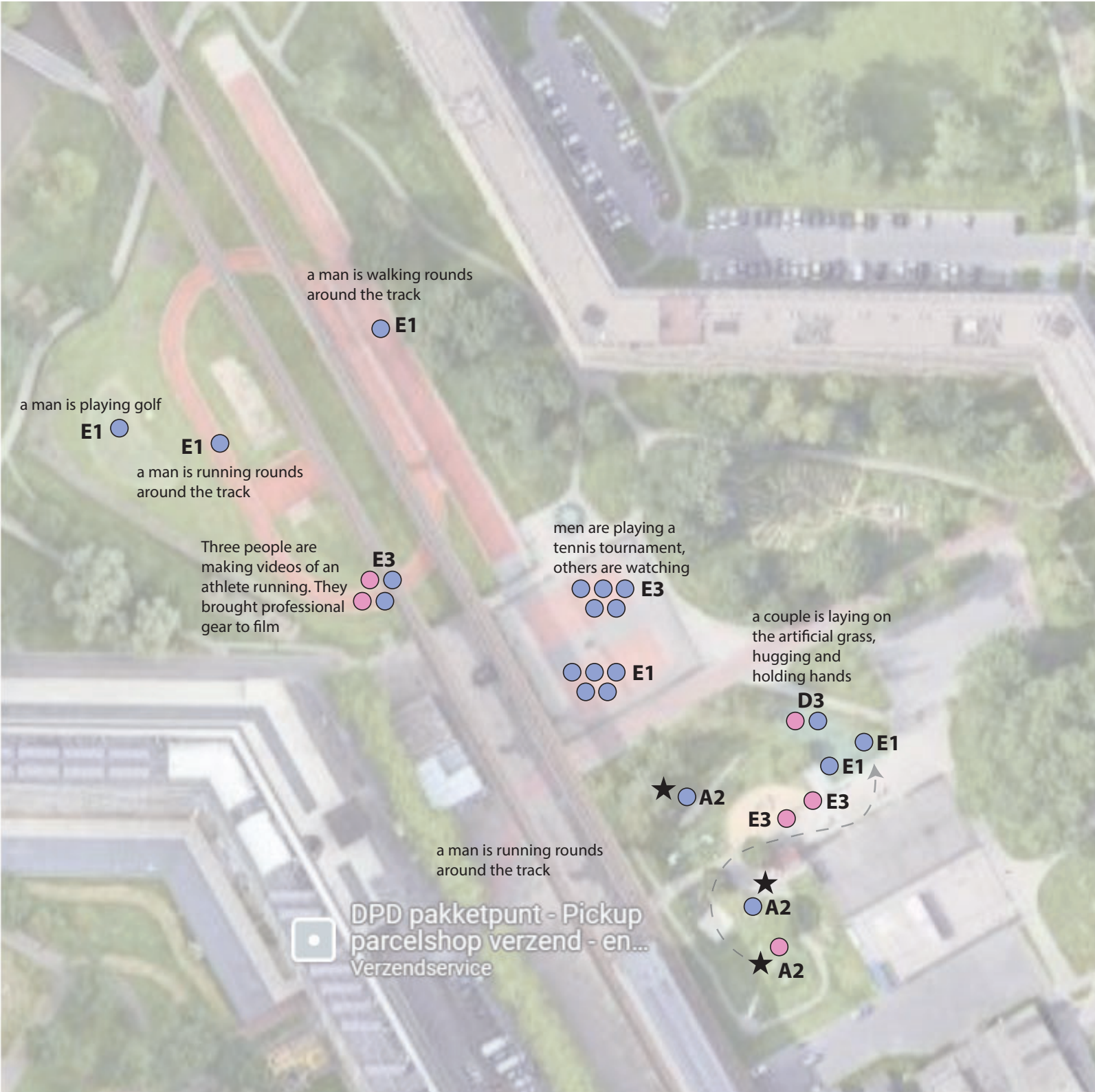
D1



Date	Thursday 20/03/2025
Time	13:30-14:15
Weather	17°C, sunny

Time 13:30-14:15

Weather 17°C, sunny

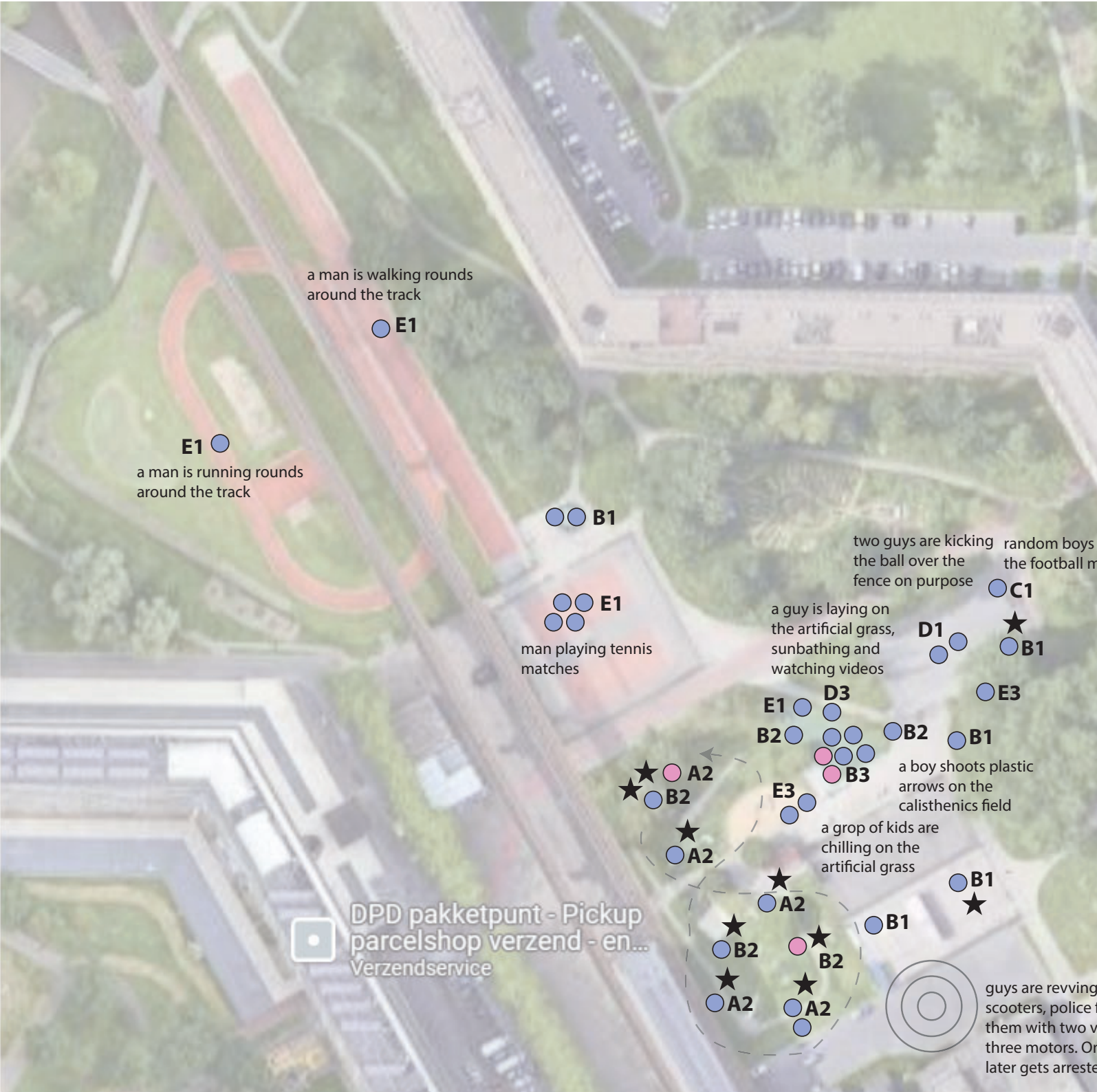


Observations Kraaiennest

Date Thursday 20/03/2025

Time 15:15-16:00

Weather 18°C, sunny

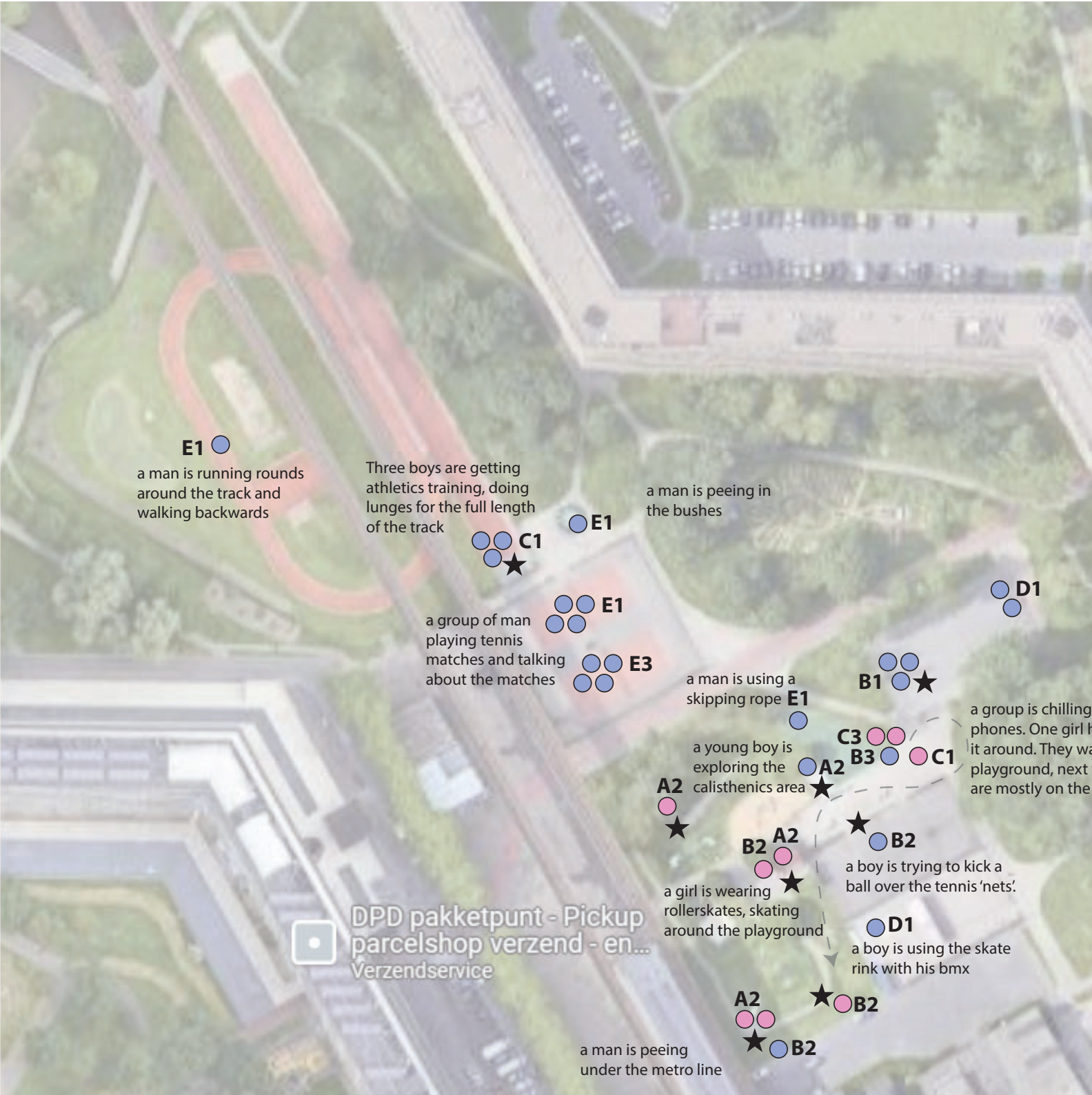


Observations Kraaiennest

Date Monday 24/03/2025

Time 16:25-17:10

Weather 11°C, cloudy



Appendix B. Translation quotes

Original	Translation
‘het is vooral leuk om er met meerderen op te gaan!’	‘it is more fun to use it together!’
‘en als je moet plassen, hoef je niet helemaal naar huis te gaan’	‘and if you have to go to the toilet, you don’t have to go all the way home’
‘je kan daar pannenkoeken maken dus dat is leuk!’	‘you can make pancakes there, so that is fun!’
‘en die steentjes daarzo ook. Als je dan valt, is dat echt niet nice’	‘and those pebbles. if you fall, that’s really not nice’
‘dus zou je liever gras willen, of zand, of iets zachters in ieder geval? Ja’	‘so you would rather have grass, or sand, or any softer surfaces? Yes’
‘waarom is die beter? Sowieso het overdak, als het regent’	‘why is that one better? In any case, the cover, when it rains’
‘waarom is het leuk? Als het te heet is, kan je erin gaan’	‘why is it fun? When it’s too hot, you can go in’
‘troep op de grond’	‘trash on the ground’
‘ik vind dit heel slecht, er is zoveel troep daar beneden’	‘I think this is very bad, there’s so much trash down there’
‘er zijn mieren en honden kakken en plassen erop’	‘there are ants, and there are dogs shitting and peeing on there’
‘mensen poepen hierin he! En honden en katten ook’	‘people are taking shits in here! And dogs and cats as well’
‘je kan niks doen behalve gewoon daar zitten’	‘there is nothing you can do but sit there’
‘wat kun je daarop doen?’	‘what do you do on there?’
‘tafeltennissen. Waar is rood? Ik haat tafeltennissen. Tafeltennis. Rood. Tennisvelden. Ook rood. Alles wat met tennis te maken heeft. Rood’.	‘ping pong. Where is red? I hate ping pong. Ping pong. Red. Tennis courts. Also red. Every tennis-related. Red.’
‘het is leuk, maar het moet iets groter’	‘It is fun, but it has to be a bit bigger’
‘dat is leuk, maar het mag nog meer’	‘that is fun, but there could be more of them’
‘het is goed, maar ze moeten het gewoon schoonmaken’	‘it is good, but they just have to clean it’
‘ja, maar die vogelpoep’	‘yes, but the birds’ poop’
‘er zit gewoon een kinderopvang naast voor kinderen met een beperking en daarvoor moet het ook heel toegankelijk worden’	‘There’s a childcare centre next door for children with disabilities, so it really needs to be accessible for them’
‘De signalen die wij van het huisje krijgen is dat het echt een super waardevol ding is met voorleesmiddagen en soort van dat daardoor de sleutel van de trampoline ligt enzo’	The feedback we are getting about the little house is that it is a really valuable place with reading afternoons and, like, where the key to the trampoline is stored’
‘Maar wel er zit een toilet in, maar dan zouden ze het gewoon meer willen weten van dat het altijd open is ofzo, weet je wel van vooral regelmatig’	‘There is a toilet, but they would like it to just be open more often, you know, like, on a regular basis’
‘de ene komt Misschien voor de calisthenics ofzo en die denkt Misschien ook een keer van. Hé, Ik ga ook eens een keer tennissen of zo, of andersom’	‘One person might come for the calisthenics, and then think, hey, maybe I will try tennis sometime too, or the other way around’
‘Ik vind dit niet leuk voor mezelf, maar mensen die rustig willen lezen of ergens willen zitten. Die willen werken buiten, in de natuur’	‘It’s not really something I enjoy myself, but some people just want a quiet place to read or sit. They want to work outside, in nature’
‘I need more green’	‘I need more green’
‘sowieso het overdak, als het regent’	‘definitely the covered area, especially when it rains’

Original	Translation
‘Als je iets met een overkapping gaat doen, dat je heel snel al daar groepjes krijgt, die daar, ja, gewoon gaan hangen. Dakloze mensen die daar gewoon hun woonplek van maken bij wijze van spreken.’	‘If you add some kind of shelter, you will quickly get groups of people who just start hanging out there. Even homeless individuals who, so to speak, turn it into their place to live.’
‘er zijn gewoon veel om een donkere onderdoorgangetjes om het even zo te zeggen’	‘there are just a lot of those dark little underpasses, so to say’
‘een sociaal sportpark beheerder op zitten die dus meer zorgt ook voor die samenhang en dat het goed gaat en die een beetje toezicht houdt en die partijen samenbrengt. En eigenlijk gaat het daar ook best goed.’	‘The social steward made sure things went smoothly and that there was oversight and coherence among different parties. It actually works well there.’
‘eigenlijk is het met beheer en afval zijn eigenlijk allemaal verschillende takken, dus ze zeggen niet, We gaan in speelplek schoonmaken. Je hebt zeg maar prullenbakken legen is een tak, zwerfafval opruimen is een weer een ander clubje, zeg maar die dat doet’	‘Maintenance and waste management are actually all divided into separate branches. So it’s not like they just say, ‘we’re going to clean the playground.’ Emptying the bins is one task, picking up litter is handled by a completely different team’
‘Als het eenmaal netjes is, dan houden Mensen het ook net denk ik.’	‘Once it’s clean, people keep it clean, I think’
‘in Amsterdam willen we juist graag alles een beetje hetzelfde hebben. Dus dan krijg je toch een beetje meer eenheidsworst’	‘In Amsterdam, we like to keep everything a bit the same, which leads to uniformity.’
‘Het ene stadsdeel had meer geld over voor dit soort dingen dan een ander stadsdeel, dus die grote verschillen zie je ook wel in de stad’	‘One borough had more money for these kinds of things than another. You can still see the differences in the city’

Appendix C. Reflection

What is the relation between your graduation project topic, your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS)?

The topic relates to public space, as it is focused on public outdoor sports facilities. Public space refers to not only the physical form of space, but also refers to the meanings and emotions connected to spaces (Zhou, 2019). By focussing on the social inclusion of public space, the emphasis is not merely on the physical environment and design aspects of space. Highlighting the social aspect of the built environment provides a new perspective in the Master Architecture, Urbanism and Building Sciences.

Taking a municipal perspective on changing the public space is closely related to the Management in the Built Environment master track. The municipal perspective is mostly focussed on policy making and development of plans, aligning well with concepts taught in the MBE master. Additionally, the MBE graduation lab 'inclusive communities', of which this research is part, aligns very well with this research topic, as it focuses on the concept of social inclusion in Amsterdam Zuidoost, which can be considered a community.

How did your research influence your design/recommendations and how did the design/recommendations influence your research?

The research resulted in recommendations for municipalities to enhance the social inclusion of public outdoor sports facilities, based on themes that have a big impact on social inclusion. Through an initial literature review, I developed a strong theoretical base in the concepts of social inclusion and public space. Delving into literature before starting the research deepened my understanding of the subjective nature of social inclusion and the challenges involved in measuring it. As a result, research methods were carefully selected to best capture these complexities. Therefore, the photovoice method was chosen.

The literature review and examples of similar research highlighted the importance of measuring social inclusion in a way that genuinely reflects the experiences and feelings of the target group, rather than being shaped solely by the researcher's perspective or existing literature. Ensuring that the voices of typically underrepresented groups are well heard is essential for achieving truly inclusive outcomes, which is the intended deliverable of this research.

Furthermore, the list of factors influencing the social inclusion of public sports facilities for girls aged nine to twelve, which are identified in the first subquestion, served as a foundation for the following research steps. By refining these factors to be specifically relevant to the case study in the second subquestion, the proposed measures for improving social inclusion at Beweegpark Kraaiennest became more targeted. Understanding the relationship between context and intervention also enhances the ability to generalise findings or provide greater clarity on which aspects can be applied to other settings.

How do you assess the value of your way of working (your approach, your used methods, used methodology)?

This research has a strong foundation in literature. This was essential in shaping the research process, as it deepened the understanding of concepts before conducting empirical research. I think this made the subquestions more efficient and structured. The same goes for the empirical literature study as a main method to answer subquestion one, which was then validated by experts in the field. By identifying factors influencing the level of social inclusion beforehand, it was easier to assess the level of social inclusion of Beweegpark Kraaiennest.

As elaborated upon in section 6.1.1., I think the strength of this research lies in the careful consideration of qualitative research methods that align well with the concept of social inclusion. Qualitative approaches such as photovoice are particularly suited for capturing lived experiences, especially from vulnerable groups.

The use of a case study, Beweegpark Kraaiennest, was a practical and effective strategy for assessing social inclusion in a real world setting. Examining a specific case allowed for detailed exploration of social inclusion, making it easier to identify challenges and propose targeted interventions. Rather than discussing social inclusion in an abstract or theoretical manner, grounding the research in a concrete case made it possible to assess actual usage patterns and (non)user experiences. Additionally, involving a case study helps bridging the

gap between theory and practice, ensuring that findings are not only academically relevant but also applicable to practice. This relevance is also underscored by the fact that findings from the third subquestion were validated by professionals during interviews.

Lastly, completing an internship at the municipality facilitated the research process by providing direct access to experts, policy makers and other resources. The municipality possesses a lot of knowledge, containing databases, reports and professional expertise related to urban development and social policy. Additionally, being embedded within the municipality made networking with professionals and stakeholders easier. The municipality also provided support with the logistical challenges, such as acquiring approvals, arranging interviews and facilitating site visits.

How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

The academic relevance of this research is in line with the scope of a master thesis, given the time constraints and available resources. It contributes to filling a gap in literature by addressing social inclusion in sports within the Dutch context, an area currently underexposed. While existing studies have explored social inclusion in public spaces and sports participation in general, there is a lack of research specifically focusing on how public sports facilities can be designed to be socially inclusive, particularly for girls.

I would argue that the societal impact of this research is the most significant contribution. Throughout my internship and in discussions with professionals in urban planning, sports policy, and development, it became evident that increasing sports participation among girls is a key policy priority. This project aligns with this goal by providing insights into the barriers girls face in public sports facilities. Additionally, there is a broader need for knowledge on how to make the built environment more socially inclusive, and this research directly addresses that gap. By offering concrete recommendations for municipalities, the study has the potential to inform policy decisions and improve real-world public sports facilities, making them more socially inclusive.

The scope of the research is focused on the case study of Beweegpark Kraaiennest to assess social inclusion in a specific public sports facility. While the findings are specific to the context, they also provide insights that can be applied to similar public spaces elsewhere. The implications of the study extend beyond the case itself. Policymakers, urban planners, and sports organisations could use the findings to design more inclusive spaces, thereby fostering greater participation in sports among underrepresented groups.

The ethical aspect received a lot of attention in this research (section 3.5.1.). This research tries to make the voices of vulnerable groups, in this case girls aged nine to twelve, heard in discussions about public space. Ethical considerations included obtaining informed consent from participants, ensuring privacy and anonymity throughout the process, and being mindful of potential biases in interpreting data. Additionally, care was taken to avoid reinforcing stereotypes or making assumptions about participants' experiences. By prioritising participatory methods like photovoice, the research actively involves the target group in shaping the findings, ensuring that their perspectives are accurately represented.

How do you assess the value of the transferability of your project results?

Generalisability of the research is a central topic discussed in the recommendations for further research (section 6.3.2.). Because this research is based on a case study, the findings are very context-specific. However, by doing an in-depth analysis of the context, both in terms of space and socio-economic state, it is easier to relate findings to their context. This provides the opportunity to generalise findings to answer the main research question (section 5.4.).

When assessing the transferability of the research results, it is important to keep in mind what makes this case unique. For Beweegpark Kraaiennest, this is mainly the safety problems that play a role in the area (municipal expert, personal communication, May 1, 2025). Therefore, improving social inclusion for Beweegpark Kraaiennest might be more related to improving safety perceptions than in other cases. Additionally, unique to Amsterdam Zuidooost is the minimal existence of organised sports clubs. Therefore, people are disproportionately left to use public sports facilities. Another aspect that has proven important in the K-neighbourhood is the community feeling (municipal expert, personal communication, May 1, 2025).

The transferability of this study's findings is dependent on the extent to which other public sports facilities share similar characteristics with Beweegpark Kraaiennest. While the overarching themes (safety, support, social aspect, care & cleanliness, ownership and belonging and imagination & creativity) are relevant to all cases to different extents, strategic actions, like the role of neighbourhood organisations, might be more case-specific.

Given the complex, multi-layered nature of social inclusion, how can future policy efforts be more effective in making recommendations to make public sports facilities more inclusive?

This research underscores that social inclusion in public outdoor sports facilities is inherently multi-layered and shaped by a wide range of factors, as explained in subquestion two. Section 4.1.1. explains how interventions that only target one layer (i.e. the built environment) are insufficient, or at least less effective on their own. The open-access approach was therefore deemed ineffective.

To effectively foster social inclusion, with special attention for girls aged nine to twelve, future policy efforts should adopt a more holistic, multi-level strategy. This aligns with the arguments of Sallis et al. (2008) regarding the socio-economic model of health behaviour, which emphasises the need to address factors across multiple layers: intrapersonal, interpersonal, environmental, and policy. Implementing such an integral approach requires close collaboration across multiple domains: urban design, social policy, education, youth work and public health. While this seems logical theoretically, it can pose significant challenges in practice. Municipal governments can be large and compartmentalised, making cross-departmental coordination complex and time-consuming. Overcoming these institutional barriers is essential to make sure that inclusive policies move beyond physical interventions and address the broader social and emotional dimensions that shape young girls' engagement in public sports spaces.

How has this research shaped your personal development and future ambitions within the field of AUBS?

This research has had a meaningful impact on both my personal development and the way I envision my future within the AUBS (Architecture, Urbanism, and Building Sciences) field. Choosing a topic that aligns with my own interests; combining public space, social inclusion and physical activity, motivated me throughout the process. For one of the first times, I found myself excited to work on a project within the AUBS field, making me realise that there are areas within the AUBS domain that not only interest me and fit my personal values and needs, but also pose professional opportunities. This insight gave me confidence for my future professional path, reinforcing the idea that there is a meaningful place for me within the field. The project itself reaffirmed my interest in public space as a theme. More importantly, it helped me clarify that the work I do needs to hold social relevance. I now see that my motivation is strongly tied to contributing to projects with societal value, particularly in promoting equity and inclusion. These findings have shaped my ambition to work at the intersection of spatial design and social justice.

My internship at the Municipality of Amsterdam played a crucial role in my personal development. Not only did it offer valuable empirical insights for my thesis, but it also provided my first experience of working in a professional environment. Being part of a team passionate about sports and equity gave me a sense of belonging. Seeing others treat issues regarding inclusion in sports made me realise that the AUBS discipline plays a role in these issues.

Of course, the graduation process came with challenges. The early stages of the research, in particular, were more stressful as I needed to define a clear direction and topic. Once that was settled, the process became more structured and manageable. Relying on others, such as a gatekeeper for participant access or aligning with busy schedules at the municipality, remained a challenge. Lastly, this project expanded my skill set. I became familiar with multiple qualitative research methods, such as an in-depth case study, observations, photovoice, and focus groups. These were all methods I had little experience with before.

Appendix D. Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: Master thesis social inclusion sports facilities girls

Creator:Else Tiggelman

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2025)

Project abstract:

In the Netherlands, approximately 700,000 individuals do not feel socially included in the sports sector (Ministerie van Algemene Zaken, 2014). Sports participation offers physical, mental and social health benefits (Vuori, 1987). Public sports facilities, defined as publicly available built facilities or areas designed to encourage physical activity (Limstrand, 2008), should enable everyone to participate. However, a significant gap exists between ideal utilisation and actual utilisation, where certain groups are underrepresented (Gao et al., 2022). Girls aged nine and above are particularly underrepresented in sports (Collins & Kay, 2014) and more likely to be socially excluded from public spaces (Zimm, 2019). This suggests a mismatch between public outdoor sports facilities and the need of this group. This research aims to address this mismatch by answering the following research question: 'What measures can municipalities take to make public outdoor sporting facilities more socially inclusive for girls aged nine and above?'. A literature review will identify factors influencing social inclusion. After identification of factors, Beweegpark Kraaiennest is introduced and assessed through photovoice techniques and observations to evaluate the current level of social inclusion and utilisation, highlighting areas of improvement of the public sports facility. These insights inform a co-design focus group, where professionals and the target group translate these factors into concrete and actionable design measures. Ultimately, this research aims to provide municipalities with practical measures to enhance the social inclusion of public outdoor sports facilities for girls aged nine and above, offering valuable guidance for municipal policymakers in the sports sector and addressing a gap in literature about increasing social inclusion of sports facilities.

Keywords: social inclusion, public sports facilities, sports participation, public space

ID: 167921

Start date: 10-02-2025

End date: 27-06-2025

Last modified: 14-03-2025

Master thesis social inclusion sports facilities girls

0. Administrative questions

1. Provide the name of the data management support staff consulted during the preparation of this plan and the date of consultation. Please also mention if you consulted any other support staff.

Yawei Chen, the student's supervisor and thus Responsible Researcher for HREC application, has reviewed this DMP on 10-2 and has discussed the contents with the student on 21-2.

Janine Strandberg, Data Stewart at the Faculty Architecture & the Built Environment has reviewed this DMP on 5-3.

The Privacy Team has been consulted on 21-2 and sent their first round of feedback on 24-2, second round of feedback on 10-03.

2. Is TU Delft the lead institution for this project?

- Yes, leading the collaboration – please provide details of the type of collaboration and the involved parties below

In this project, TU Delft is leading the research. An internship is conducted at the Municipality of Amsterdam, who share information on the redevelopment process of Beweegpark Kraaiennest, along with contact information of important partners.

1. Data/code description and collection or re-use

3. Provide a general description of the types of data/code you will be working with, including any re-used data/code.

Type of data/code	File format(s)	How will data/code be collected/generated? <i>For re-used data/code: what are the sources and terms of use?</i>	Purpose of processing	Storage location	Who will have access to the data/code?
Personally Identifiable Information (PII): participants' name, gender, age, professional role	.pdf, .xlsx	Contact information for participants taking part in photovoice or focus groups. Received from participants themselves, who are reached via gatekeepers; primary schools or network of municipality.	mostly administrative purposes; communication with participants. Age and gender are important for making sure they belong to target group.	Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang
Personally Identifiable Information (PII):	physical papers	Informed consent forms are signed physically and contain the name of participants' parents. Assent forms contain participant name.	administrative purposes; informed consent (parents) or assent (children)	Locked cabinet in locked room	Else Tiggelman, Yawei Chen, Tong Wang
Observation logs	Physical notes .xlsx, .pdf, .PNG	Non-participatory, naturalistic observations of which parts of the facility are used, number of users, estimated age category, gender, presence of guardians and activities of users.	Get insight into current utilisation of Beweegpark Kraaiennest. This does not involve personal data.	Project Data Storage drive, notebook, locked cabinet in locked room	Else Tiggelman, Yawei Chen, Tong Wang,

Pictures from 'taking pictures' phase of photovoice	.PNG	Pictures of more and less appreciated locations within Beweegpark Kraaiennest, taken during photovoice session by participants themselves. Pictures should not contain people or in a way that they are not recognisable.	Assessing current state of social inclusion of Beweegpark Kraaiennest of girls aged nine and above. Understanding their perspective on the state of social inclusion.	Devices used for taking pictures, Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang, Municipality of Amsterdam
Printed pictures from photovoice	physical pictures	Pictures will serve as a basis for 'voice' part of photovoice, discussions about current state of social inclusion of Beweegpark Kraaiennest for girls aged nine until twelve.	Pictures taken by participants themselves give them a sense of ownership of the discussion. Printed pictures are a useful starting point for conversations.	Locked cabinet in locked room	Else Tiggelman, Yawei Chen, Tong Wang
Audio-recordings of discussions (part of photovoice) with girls age nine and above	.mp3	Discussions take place in focus group-like discussions. Discussions are conducted at a primary school in proximity to Beweegpark Kraaiennest. Audio-recordings are made on an external device, before being moved to Project Storage. Recordings are deleted after transcription.	Get qualitative insight into current state of social inclusion of Beweegpark Kraaiennest. Audio-recordings are the basis for transcription, which is needed to analyse the discussions and the main findings from those discussions.	External recording device, Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang
Anonymous transcriptions of photovoice discussions	.txt	Anonymous transcriptions created manually based on audio-recordings.	Privacy-preserving data on current state of social inclusion of Beweegpark Kraaiennest from girls aged nine and above.	Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang
Audio-recordings of focus-group	.mp4	Focus group with professionals and (non)-users in which measures to increase social inclusion of Beweegpark Kraaiennest are co-designed	documentation of proposed measures by professionals	External recording device, Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang
Anonymous transcriptions of focus-group	.txt	Anonymous transcriptions created manually based on audio-recordings.	Privacy-preserving data on the proposed measures to make Beweegpark Kraaiennest more socially inclusive	Project Data Storage drive	Else Tiggelman, Yawei Chen, Tong Wang
Documentation made during focus group	physical notes	Focus group with professionals and (non)-users in which measures to increase social inclusion of Beweegpark Kraaiennest are co-designed	anonymous documentation of proposed measures by professionals, like models, sketches, post-it notes	Locked cabinet in locked room	Else Tiggelman, Yawei Chen, Tong Wang

II. Storage and backup during the research process

4. How much data/code storage will you require during the project lifetime?

- < 250 GB

5. Where will the data/code be stored and backed-up during the project lifetime? (Select all that apply.)

- Project Data Storage (U:) drive at TU Delft
- Another storage system – please explain below, including provided security measures

External recording device: Used as a temporary storage location for recorded discussions and focus groups. Data on discussions and focus groups will be deleted from device as soon as they are moved to Project Data Storage.

Locked cabinet in a locked room: used to make sure the physical documents are stored safe. Should be in possession of TU Delft, as all people who have access to it are from TU Delft.

Notebook: used as a temporary storage location for observations, as it is important to note observations immediately for accurate observations. Will be destroyed after the project's lifetime.

Device used for taking pictures: used as a temporary storage location for taken pictures. Pictures will be deleted from device as soon as they are moved to Project Data Storage.

Physical consent forms will be stored separately from the research data (in other cabinets) to minimise risks of identification.

III. Data/code documentation

6. What documentation will accompany data/code? (Select all that apply.)

- Data – Methodology of data collection

IV. Legal and ethical requirements, code of conducts

7. Does your research involve human subjects or third-party datasets collected from human participants?

If you are working with a human subject(s), you will need to obtain the HREC approval for your research project.

- Yes – please provide details in the additional information box below

I intend to apply for ethical approval from the Human Research Ethics Committee, but have not yet done so.

8. Will you work with personal data? (This is information about an identified or identifiable natural person, either for research or project administration purposes.)

- Yes

For administrative purposes, Personally Identifiable Information is collected. This involves name, contact information and role of participants who will be worked with. This is needed in order to conduct the research.

Personally Identifiable Research Data is used to answer subquestions two and three. This involves audio-recordings of discussions and focus groups, along with data on the gender, age and professional role of the participants. It is important to note that either gender and age, or professional role of the participants is collected.

Transcripts of audio-recordings are anonymised.

9. Will you work with any other types of confidential or classified data or code as listed below? (Select all that apply and provide additional details below.)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- No, I will not work with any other types of confidential or classified data/code

10. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your [Faculty Contract Manager](#) when answering this question

The intellectual property rights are framed by a graduation agreement between Delft University of Technology, myself and the

Municipality of Amsterdam. This means that the rights on the achieved results lie with the student. Both the student and the Faculty of Architecture and the Built Environment may use the results for internal purposes without consultation of the host organisation. Data is accessible to the student and their mentors during and after completion of the project. The Municipality of Amsterdam should only have access to the device on which the photos are taken, as they can be helpful in providing the resources to take those photos. The Intellectual Property Rights are not supposed to be affected. There are no restrictions on the re-use of third-party data.

11. Which personal data or data from human participants do you work with? (Select all that apply.)

- Telephone number, email addresses and/or other addresses as contact details for administrative purposes
- Proof of consent (such as signed consent materials which contain name and signature)
- Audio recordings
- Photographs
- Date of birth and/or age
- Gender
- Names as contact details for administrative purposes

Personal Identifiable Information: names, professional role, email address are collected to communicate with professionals participating in the focus groups. This data is merely used for practicalities concerning the research.

Personally Identifiable Research Data includes audio-recordings of discussions and focus groups, along with data on the gender, age (not date of birth) and professional role of the participants. It is important to note that either gender and age, or professional role of the participants is collected and not all three at the same time.

Photographs are considered a product of the chosen research method. They should not include (recognisable) persons, only picture part of public sports or play facilities.

12. Please list the categories of data subjects and their geographical location.

The research involves personal data of children, which are considered a vulnerable group and are unable to give formal consent. Therefore, the parents have to sign the consent forms, where the children give formal assent. These children should be living in Amsterdam Zuidooost, the Bijlmer area in particular.

Professionals involved in the focus groups of this research are reached by using the network of the internship mentor of the Municipality of Amsterdam. Focus will be on professionals working in the Amsterdam Zuidooost area, but this is not a requirement.

13. Will you be receiving personal data from or transferring personal data to third parties (groups of individuals or organisations)?

- No

The research is carried out at the Municipality of Amsterdam, but no personal data will be shared (see question 3).

16. What are the legal grounds for personal data processing?

- Informed consent

The HREC informed consent guide and template are used to create the informed consent forms for the photovoice and focus groups. Formal consent is given by parents of children, who are not allowed to give formal consent. They are provided with assent forms. Consent forms are rewritten to be easily understandable for parents filling them in.

17. Please describe the informed consent procedure you will follow below.

The researcher will inform the potential participants about the goals and procedures of the research project. The researcher will also inform them about the personal data that are being processed and for what purpose. This information will be provided to the potential participants as follows:

1. For the photovoice; All participants will be asked for their assent in the study. Their parents have to sign a physical informed consent form for taking part in the study and for data processing before the start of the interview.
2. For the focus groups; All participants will be asked for their consent for taking part in the study and for data processing by signing a physical informed consent form before the start of the focus group. The participants from earlier subquestions, participating in

focus group, will again be informed of their rights, but their parents have already given signed consent.

18. Where will you store the physical/digital signed consent forms or other types of proof of consent (such as recording of verbal consent)?

Physical signed consent forms will be stored in a locked cabinet in a locked office space, separate from other personal data.

19. Does the processing of the personal data result in a high risk to the data subjects? (Select all that apply.)

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data in your research project.

If any category applies, please provide additional information in the box below. Likewise, if you collect other type of potentially sensitive data, or if you have any additional comments, include these in the box below.

If one or more options listed below apply, your project might need a DPIA. Please get in touch with the Privacy team (privacy-tud@tudelft.nl) to get advice as to whether DPIA is necessary.

- Sensitive personal data
- Data concerning vulnerable data subjects

The personal data accompanying this research; age and gender of participants can be considered sensitive personal data as it involves data relating to children (who are considered vulnerable data subjects)

20. Did the Privacy team advise you to perform a DPIA?

- No – please provide details in the additional information box below

Privacy Officer Henk was consulted on 10/03/2025, and did not advise me to perform a DPIA, based on the following assessment:

"I can confirm that you do NOT need to do a DPIA"

23. What will happen with the personal data used in the research after the end of the research project?

- Anonymised or aggregated data will be shared with others

The anonymised data consists of anonymised transcripts of the discussions of the photovoice and the focus groups. This data is used in the research, but not shared in a repository.

As per the next question, personal data will be deleted after July 27th, 2025.

24. For how long will personal research data (including pseudonymised data) be stored?

- Other – please state the duration and explain the rationale below

The necessary personal data will be stored for the duration of the research project, extended with one month. This means the personal data will be deleted after July 27th, 2025.

25. How will your study participants be asked for their consent for data sharing?

- Other – please explain below (see guidance for additional options)

Participants are informed that their personal data will be anonymised in the informed consent or assent form. However, the anonymised dataset is not shared publicly, only the results following from the analysis of the dataset.

V. Data sharing and long term preservation

27. Apart from personal data mentioned in question 23, will any other data be publicly shared?

Please provide a list of data/code you are going to share under 'Additional Information'.

- All other non-personal data/code produced in the project

The observation logs, pictures from the photovoice (without recognisable persons) and the documentation made during the focus groups are all non-personal data produced in the project. These will be made publicly available.

29. How will you share research data/code, including those mentioned in question 23?

- I am a Bachelor's/Master's student at TU Delft and I will share the data/code in the body and/or appendices of my thesis/report in the Education Repository

The data shared in the Repository will only consist of processed data. Therefore it does not include personal data and all shared data will be de-identified.

31. When will the data/code be shared?

- As soon as corresponding results (papers, theses, reports) are published

VI. Data management responsibilities and resources

33. If you leave TU Delft (or are unavailable), who is going to be responsible for the data/code resulting from this project?

My supervisor Yawei Chen, Assistant Professor,

34. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

Data will not be shared in a data repository. The report will be uploaded to the TU Delft Repository. The report uses data that is processed, analysed and summarised.