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Playing outdoors in Dutch cities: how children perceive and value the public space as a place to play

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ABSTRACT

Outdoor play can positively affect children's personal development and health. But how do children perceive and value public space as a place to play, and which factors influence their perceptions and valuations? A total of 89 Dutch children, aged 5 to 11 years, participated in the study. Using photovoice and walk-along methodologies, children told and showed us their favorite and least favorite play spaces. Results showed that children perceive their environment in diverse ways. On the one hand, they engage with the play opportunities offered to them in public space, and on the other hand, they employ creativity to reinterpret the public space to their liking by transforming ordinary objects into play attributes. Physical environmental factors (variety of play spaces, challenging play elements, materials, hygiene) and social environmental factors (the presence of other children, bullying, social safety) influence how children perceive and value public space. Improving these factors might contribute to more child-friendly, play-friendly and therefore healthy cities.

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Introduction

As in other Western societies, too many children in the Netherlands do not meet the desired levels of physical activity, are overweight, and/or have poor motor skills (Mombarg *et al.* 2021, Nederlands Jeugdinstituut 2024, RIVM 2024). To help children become healthy and fit, it is important to encourage them to exercise more. This has the greatest effect when this exercise is embedded in their daily lives. One way to achieve this is to encourage and better facilitate play in public outdoor spaces. After all, time spent outdoors is one of the most consistent predictors and major contributors to children's physical activity (Veitch *et al.* 2006). Other research also shows that playing outside has a positive effect on the physical and mental health of children and stimulates their cognitive and social skills (Cole-Hamilton *et al.* 2002, Gray *et al.* 2015, Wyver 2017, Gromada *et al.* 2020).

Playing in public outdoor spaces differs from other play environments because it occurs in freely accessible spaces and is often neither initiated nor controlled by adults. Therefore, free play is more likely to happen here: the child is more in control and can focus on its own needs (Zosh *et al.* 2018, Ramsden *et al.* 2024). This degree of autonomy, independence, and freedom of choice makes public outdoor space an interesting research object for those seeking to understand how children perceive and value their environment, as well

as the factors that influence these perceptions. These insights may help urban planners, policymakers, and health professionals create more child- and play-friendly environments, thereby contributing to children's physical activity levels and health.

Like adults, children scan the physical and social features of an environment to determine what the space, and its objects, can mean to them (Heft 1988, Bell *et al.* 2001). These so-called 'affordances' are possibilities for action that someone perceives and may then actualize in the physical environment (Gibson 1979). Through perception, the sensory stimuli of the environment are absorbed, processed, and stored. The interpretation of this environmental setting may be the same for each individual but may also differ. If the environment sends clear, unambiguous, and universal signals, then many individuals will interact with it in the same way (Gibson 1979). For example, a bench in a public outdoor space is interpreted by most people as an object on which you can sit and lie down. The same goes for a football field (for playing football) and a playground (a play space for children). Individuals and groups then respond directly to the meaning that an environment has by itself or is defined as such within a culture (Costall 1995, Bell *et al.* 2001). However, not all environments have such a clear function with corresponding behavioral patterns. For example, is the pavement only meant for

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walking or is it also meant to play football there? Is a playground only for small children or also for young people who want to relax there? The answers to these questions will vary depending on the individual and the situation (Wholwill 1966). In other words, usage depends on how an individual interprets an environment's features. Children who see a slide can interpret this object as a place to sit (at the end of the slide), as a hiding place (under the slide), as a climbing object (slide stairs) or as a vantage point (on top of the slide). This interpretation depends on one's personal knowledge, skills, experiences, needs, and interests (Matthews 1992). A child who likes motor challenges is more likely to perceive the slide as a climbing object, a child who wants to relax is more likely to see the sitting and hanging opportunities, while a child with a physical disability may perceive the slide as an impregnable hurdle. Thus, environments have different play affordances that are determined, on the one hand, by the qualities of an environment and, on the other hand, by the possibilities a child perceives in it (Gibson 1979, Bell *et al.* 2001, Morgenthaler *et al.* 2024).

This relationship between children and the environment is reciprocal because the environment not only influences their play behavior, but children also influence their environment (Prout and James 1997, Holloway and Valentine 2000). By making use of it, children give a certain meaning to an environment: a grass field becomes a football field, a bird's-nest swing becomes a sitting place or hangout, and a pavement becomes a canvas (chalking) or racetrack (cycling). In addition, children can also modify their environment. This can be done in a physical sense, for example, by making a hut out of loose branches, but also in the social sense by occupying a slide.

The question is how primary school children perceive and value the public outdoor space within their neighborhood as a place to play. Aside from Hayball (2018), who conducted a study involving 40 children (aged 10–11 years) in Scotland, a limited number of studies have examined how children perceive and scan their environment for play opportunities. More research has been conducted on environmental appreciation, but some of these studies are outdated, rely on parents' opinions, are predominantly quantitative ('big data'), or have been applied in other contexts. In our study, 89 Dutch primary school children from three districts were invited to express their views on the play value of their living environment through creative, child-led research methods ('thick data'). By engaging with children, the purpose of our research was to improve our contextual understanding of their unique experiences and needs in public spaces.

The research question is not answered by testing existing theories, models, or criteria. Instead, an inductive research approach is employed in which

the experiences and reflections of children serve as the primary data source. Their experiences are interpreted through a theoretical lens grounded in the new sociology of childhood and posthumanist perspectives, both of which emphasize the complex and multifaceted factors that affect childhood (Prout and James 1997, Holloway and Valentine 2000, Vanobbergen 2023). Children are not viewed as autonomous individuals who act solely on the basis of rational decision-making. Rather, they are understood as socially constructed actors whose perceptions, actions, and judgments are deeply influenced by the physical and social environment in which they are embedded (Luo 2024). At the same time, children are recognized as social agents who continually anticipate, interact, and intra-act with their surroundings. They possess both the capacity to articulate their opinions and experiences (*voice*) and the ability to influence or transform their environment (*agency*). The latter often emerges within complex networks of relationships involving both humans and nonhuman entities (Malone *et al.* 2020). This theoretical point of view implies that our focus does not lie on the 'potential environment,' i.e. the environment that is conceived, planned, and designed by adults or professionals, but rather on the 'effective environment' (Gans 1993), i.e. the environment as it is actually perceived, filled in, experienced, and valued by children themselves. This does not mean that we overlook the role of adults (primarily parents). After all, they have a major impact on where and when children are allowed to play outside and how they should behave (O'Brien *et al.* 2000, Shaw *et al.* 2015). However, within these boundaries, and this is what this research focuses on, children have a certain degree of freedom to align their own interests with the (im)possibilities that the environment offers them (Rasmussen and Smidt 2003).

Methodology

The study took place in three different post-war residential areas in the Netherlands, namely Tanthof (Delft), Morgenstond (The Hague) and Kolenkitbuurt/Overtoomse Veld (Amsterdam). In these districts, approximately 30% of all households are families and on average 17% of residents are children aged between zero and fifteen. These urban areas are each fairly diverse in socio-economic and socio-cultural characteristics, and all three share the characteristic urban design of Dutch residential districts. These districts can be divided into smaller neighborhoods, each with their own shopping center, one or more primary schools and numerous formal play spaces (playgrounds, public sports fields). The facilities are often connected by a safe network of walking and cycling paths, combined with wide pavements and many car-free streets. In addition, all three districts

feature a mix of housing types, including terraced houses with back gardens, multi-story housing and (semi-)closed building blocks with enclosed parking areas and/or collective courtyards.

To gain insight into the ‘effective environment’ and to increase validity and credibility, two methods were used: photovoice and walk-along. These methods recognize the many forms of expression, other than spoken language, that children use to describe their perspectives. In addition, they offer children the opportunity to actively participate in the research as local experts (Wang and Burris 1997, Eelderink 2021, Shaw 2021, Horgan *et al.* 2022). In these methods, children themselves collect data and largely determine the topics of conversation, so that the child’s perspective is central. The children were told beforehand that there are no right or wrong answers, that every opinion counts, that all data will be anonymized, and that their opinion would not be relayed to their parents or other adults. This was also communicated with their parents who gave consent prior to the measurements. The methods are based on previous (inter)national research (Bryant 1985, Kolb 2008, Carpio 2009, Evans and Jones 2010, Loebach and Gilliland 2010, Barker and Smith 2012, Shaw 2021) and adapted to the research question and local context of this study. The ethics committee of The Hague University of Applied Sciences has approved the research protocol.

All participating children were instructed that the study was about playing outside, defined as self-directed play after school or on weekends in public outdoor spaces. Playing during school hours, at day-care, sports clubs (all organized, adult-directed settings) or in the backyard (private environment) were mentioned as times and locations that were not part of this study.

Photovoice

First, the photovoice method was used, in which 54 children were asked to take photos of their favorite play spaces and less favorite play spaces. These photos were then discussed in group discussions to hear the stories behind them and to start a dialogue with and among the children.

Purposive sampling was used to implement this method: in each district, contact was made with a primary school whose pupils mostly live in the same district. At two of the three participating schools, a full sixth-grade class participated in April and May 2023. At one primary school, children from the fifth and sixth grade could register to participate in this study during school hours in July 2023. It had been decided in advance that children from the fifth and sixth grade (8–11 years old) would be chosen to work with because a large part of these children already receive enough freedom from their parents to

play within their neighborhood or even district. Children younger than eight are mostly only allowed to play around their own home and/or with parental supervision, while children aged 12 years and older are allowed to go outside their own district, partly due to the transition to secondary school (O’Brien *et al.* 2000, Bouwmeester 2006, Shaw *et al.* 2015).

After several classroom-based sessions about research and outdoor play by the researchers (see acknowledgements at the end of this article), the children were given a digital camera to borrow and were asked to take individual photographs of their favourite and less favourite play spaces after school. The photographs the children took were then printed and discussed in 18 focus groups of three to four children at school in which the children reflected on and provided context to the photos they had taken themselves. Children who lived near each other and had taken photographs of the same places were grouped together. The group discussions were facilitated by two researchers in which the children were asked in turn to say something about their own printed photographs. The researchers guided the conversation by keeping the children within the framework of the theme ‘playing outdoors,’ by discussing most of the photos in a time frame of about 40 minutes, and by gaining insight into the underlying stories, perspectives and wishes. The latter by asking questions, such as ‘why did you take this photo?’, ‘how often do you go here?’, ‘what do you mean by “fun”?’, ‘do you know the place your classmate took a photo of?’ and ‘are there things you would like to improve at this play space?’. This semi-structured format allowed the researchers to pose open-ended questions and follow wherever the responses lead.

Walk-along method

The second method that was applied is the walk-along method, also known as *transect walks* or *child-led tours* (Lynch 1977, Hart 1979, Kusenbach 2003, Loebach and Gilliland 2010, Eelderink 2021). In this method, researchers walked through a neighborhood with two or more children, asking the children to take the lead while the researchers asked questions about the route, the built and social environment, and their outdoor play behavior. With these walking interviews the researcher gets to see a neighborhood from the children’s perspective and gets more insight into children’s relationship with their environment and the meanings they give to it. Another advantage of this approach is that children can point out things more easily and recall memories of certain places (Bryant 1985, Jones *et al.* 2008, Carpio 2009, Evans and Jones 2010, Garcia *et al.* 2012).

During the months of April, May and June in both 2023 and 2024 eight walks outside school hours took

Table 1. Number of participants.

Age	Photovoice	Walk-along	Total
5	0	1	1
6	0	2	2
7	0	3	3
8	5	5	10
9	31	6	37
10	17	8	25
11	1	10	11
Total	54	35	89

(40 girls, 49 boys)

place with 35 other children than in the photovoice method. The smallest group consisted of two children (with one researcher) and the largest group consisted of seven children (with two researchers). These children were recruited in various ways, including through a childcare center, through a community center, by distributing flyers door-to-door and with the help of mothers. Recruitment focused on children aged between 8 and 12 years, but sometimes some younger children were also present (Table 1). These included younger brothers, sisters and neighbors who came along with the other children. House addresses were known to the researchers so that the children who lived near each other ended up in the same group.

The walk started at a home, playground, or community center where all the children gathered. There, they were given an explanation of the research and a digital photo camera to borrow. With these cameras, the children could take photos of the things they like and dislike while walking and at the places designated by the children. At each play space, each child was then asked if and what they had taken a photo of and why (in accordance with the photo-voice method described above, but then on the spot). On average, the walks lasted 69 minutes. The children were allowed to take turns determining the route in order to show their favorite play spaces and less favorite play spaces and the route they usually use to go there.

A total of 89 children participated in one of the two methods, with a mean age of nine years (Table 1).

Data analysis

All conversations with the children, both in the focus groups and during the walks, were audio-recorded. If one of the children gave a non-verbal reaction, this was mentioned by the researchers so that this was also recorded on tape. This also happened when children pointed something out during the walk, when the direction was changed, and when a certain place was reached. This audio material of a total of 27 hours was transcribed and anonymized for subsequent thematic coding and analysis in a qualitative research software package (Atlas.ti). The coding was conducted using inductive reasoning. In other words, the themes discussed in this article have been chosen based on the qualitative data and not on the basis of existing

literature or a particular theory. In this way, the perspective of the children involved is central.

Results of thematic analysis

Based on the photovoice method and the walk-along method more insight has emerged on how children perceive and value public outdoor space as a place to play. We discuss both topics in two separate paragraphs.

Perception of public outdoor space as a place to play

The children played in a variety of places in their neighborhood, but based on their photos and stories, the focus was on formal play spaces (playgrounds, schoolyards, public sports fields). Within the playgrounds, the play activities were strongly related to the play environment: they were swinging on a swing and climbing in the designated climbing frames or climbing nets. At the same time, children indicated that they also climb onto the roof of a playhouse, use a seesaw to crack nuts, and use the poles of a swing as a football goal (see also Figure 1). Attributes from the environment are thus regularly used in ways other than what they were initially conceived for. Children give them their own interpretation and meaning. In addition, the attributes are adjusted to better suit their own playing preferences, such as with swings. A ten-year-old girl explains: 'If you want to make them higher, you can throw them over the trunk and then you sit a lot higher, so you can swing higher too.'

Children played football and basketball on the public sports fields, but here too, the environment is used creatively. For example, a number of boys indicated that they use various lines on a basketball court for self-conceived ball games. A ten-year-old girl indicated that football goals are multifunctional: 'When the football



Figure 1. Photo by an eight-year-old boy of his favorite playground, made from his balcony: 'You can make goals to play football', namely from the merry-go-round to the spring rider and from the seesaw to the climbing area.



Figure 2. Photo by a nine-year-old boy: 'There are two trees together and I often go there to play football [...] because they are a kind of goal. [...] you are not allowed to shoot higher than those tree trunks, otherwise you don't get a point. If you are going to shoot, you are not allowed to shoot hard'.

field is empty, we climb on the goals.' A nine-year-old girl added: 'Then we hang out and talk.' Football is also often played outside of designated sports fields. A 10-year-old girl plays it 'sometimes at a garage, or sometimes just at a kind of front garden. There is a big wall there that is the goal, we drew that very realistically with chalk, and then we also made a mini goal like that.' Other children use containers, traffic bollards or tree trunks as goals (Figure 2).

Children thus also play outside formal play areas, using various elements from the public space as play objects. Children showed or talked, for example, about how they 'climb' elements in public spaces, such as posts, fences or electricity boxes. Other children sometimes deliberately chose a more difficult route, such as along the side of a bridge, which requires some climbing and hanging. In addition, attributes are regularly integrated into games. For example, an eight-year-old girl told how a pole, to prevent cars from parking there, had become part of a game she made up herself: whoever loses the game must jump over the pole. Other children also described games in which the environment plays a significant role. According to a 10-year-old boy, hills are good hiding places during tag because the others cannot see you. A six-year-old girl always sits 'behind the houses and behind the bushes' during hide-and-seek. Two nine-year-old friends put the environment to their liking in a different way. They take the inner world outside by taking a blanket, drinks, cards and dices to a nearby grass field.

Although not all children like playing 'in nature,' there are also several children who do use the green spaces and bushes in their neighborhood as a play space. There, they mainly climb trees or build huts. The latter with the help of the branches that are already there or by taking things away: 'We cut out a whole hut ourselves with scissors.' Two children

independently talked about using things they brought or found: 'Children would bring some planks. We would use them as a kind of slide and to walk up the tree.' Another nine-year-old girl about her hut: 'We had really cool things. We had a chair, we had a rug, we had a lamp, and we also had a cupboard and everything.' Children can also build other things with branches. An eight-year-old girl said: 'When we are bored, we usually go and look for branches, then we stick them all in the ground, then we make a course and then you have to walk or jump around that.'

The interviews also revealed that the presence of other children plays an important role in deciding where and how to play. Thus, when perceiving an environment, children consider not only the potential play possibilities of physical objects but also the social characteristics of the environment. The presence of other children opens other play possibilities, as a nine-year-old girl explains: 'I don't play hide-and-seek in the playground very often. If there are about seven or five children there, we usually play hide and seek or tag, that sort of thing.' The presence of other children can also limit the play possibilities. A nine-year-old boy describes a playground as 'always very busy. That's why I never go there.' In addition to the number of children, the interviews revealed that the kind of child(ren) also matters: Are they familiar children, are they nice, and do they have the same play needs? Some of these aspects are also discussed in the following section in relation to how children value their environment.

Valuing public outdoor space as a place to play

The children were generally positive about playing outside in their neighborhood. In doing so, the children identified a number of recurring environmental factors that they labelled as positive ('nice') or negative ('not nice'). The positive and negative physical and social environmental factors that were mentioned most often were: playing together, variety, challenge, hygiene, materials, bullying, and social safety.

Playing together

In general, children do not play outside alone. Being with their friends is a big part of their enjoyment of play (see Figure 3). 'I really don't feel like going outside without friends,' said an eight-year-old boy. A 10-year-old boy named 'the company' as the reason why he likes to play outside. A nine-year-old girl said that the best thing about her neighborhood is 'that there are lots of children to play with.' Children like to share the same experiences, chat with each other, and play certain games and sports.

Play equipment that several children can use at the same time is more appreciated because it allows them to experience the fun of playing together, working together, and/or engaging in competition. Children



Figure 3. Photo of a nine-year-old girl: 'I really liked this playground, because it is close to our house. We are friends, the two of us, and a few other children. So that is why I like it and also because it is just really fun'.

often expressed their preference for large trampolines, hammocks, and bird nest swings, 'because more people can fit in them.' If there is no nest swing, children like to have some regular swings next to each other, 'because it's cozier, then you can swing in pairs.'

Variation within play spaces

According to the children, play spaces are especially fun if you can do a lot of things there. This often refers to the number of (different) play elements. The play spaces that were perceived as less fun were often described as being boring and having too little to do (see Figure 4): '[this playground] is very boring because there are only three things,' 'I think there are very few devices,' 'there is not much to do [...]' Look, there is one climbing frame and a swing, nothing else,' 'on the last square you only have a climbing frame and a basketball court,' etc.

When there is less to do, a play space is no longer fun to return to. When asked why a boy did not go to



Figure 4. Photo by an eleven-year-old boy: 'Those are just baby toys, only that swing is nice'.

a playground more often, he replied: 'I have done everything. Usually, when you go with two people, you don't have much to do [...]' I have already tried everything once.' Another boy has the same experience: 'I have been here so many times. It just doesn't get fun anymore then.'

Children want more variety of play and/or usage options at a play space so that they can enjoy themselves for longer. This is shown, for example, by this answer from a nine-year-old boy when asked why this is his favorite playground: 'You can do more things here. You can swing, climb, play football, trampoline, play on the seesaw.' A nine-year-old girl answered the same question by saying 'because there are many things to do.' A nine-year-old boy talked about one of his favorite playgrounds: 'There you can climb and clamber, there is a whole space, there are a few swings. Here are two more climbing frames and a ping-pong table, you can really let off steam there.' Children do not understand why sometimes so few playground equipment is placed in large play spaces. In their eyes, there is still a lot of unused space. A nine-year-old girl remarked that the extra equipment she wants may come at the expense of the sports field, because 'the football field takes up so much space.' One of the boys who uses the football field a lot shakes his head as he listens to this plea.

According to the conversations, potential play activities increase when there are more play elements, but also when there are play elements that offer more possibilities. For example, a 10-year-old boy said about a playhouse: 'I think that is quite funny, because you can play in it and there are many ways to play. [...] You can try to climb on the roof. You can hide in it with hide-and-seek. If you are a bit weird, you can play mom and dad in it.' It also appears that nest swings (left in Figure 3) are used for different activities: sitting, standing, lying down, relaxing and swinging.

Variation between play spaces

In addition to the need for variation within play spaces, the children pointed out that play spaces often resemble each other which prevents them from going to another play space. The children see the same kind of elements recurring in many play spaces (slide, swing, seesaw) that are also similar in design, as this 10-year-old boy explained: 'I think the slide is a bit stupid. Those slides are always the same. Make them unique, make them a bit more adventurous. [...] For example, put twists in them or something.' Researcher: 'Why is it so important for them to be unique?' Boy: 'Otherwise you have like: "oh cool, a new playground. Maybe there is a really cool slide here?" But then you see the same slide again that you already know.' Play spaces and play elements that deviate from the standard are often labelled as 'fun' by the children (see Figure 5).



Figure 5. Photo by nine-year-old boy: 'I always jump off this there by the tail and sometimes it hurts and sometimes it doesn't and [...] I play in the sand a lot'. A classmate comes here to slide and to read the graffiti texts.

Challenging

The word 'challenging' and its synonyms were the most frequently mentioned in our interviews, referring to, on the one hand, more *difficult* things: can I do this or not? For example, children talked about climbing frames, monkey bars and courses with climbing and balance elements where you have to learn certain skills and build stamina (Figure 6). A nine-year-old boy always challenges himself on the climbing frames by 'practicing tricks.' For a nine-year-old girl, a balance course is especially challenging because it requires good balancing skills: 'That is very difficult, because you have to walk over tree trunks that keep rolling when you are standing on them and on a very long thing, then you have to hold on to ropes. If you fall, you actually fall all the way down and then you have to do it again.'



Figure 6. Photo by 11-year-old boy: 'You have to jump, balance and swing here. That's more fun [than a playground]. [We do the game] "the floor is lava". Then you're only allowed on the blocks, and then you play tag. [...] It's for older kids, but [name of six-year-old girl] plays there too. [...] It's a great place to chill'.

On the other hand, the word challenging refers to more *exciting* things: do I dare to do this or not? In the words of an 11-year-old boy: 'being dangerous is also a challenge for me and I like challenges, so dangerous things should be a bit more there too.' This also applies to a 10-year-old girl who would like to be able to swing high: 'That's scary, I like doing scary things.' Going high also makes it more fun: 'This [swing] is also quite long, so I can see all the way into the gardens.' Another girl indicated that she especially likes jumping off the swing.

According to the children, it becomes more difficult and more exciting when it is higher and faster. Children then often talk about a crazy or nice feeling in their stomach. According to the children, swings should therefore be able to go high. Slides should be longer, bigger, and steeper. A cableway or zip line is only challenging if it also goes a bit fast, and spinning equipment is especially popular if it can spin fast.

Hygiene

Another topic frequently mentioned by the children was litter or trash (uncleanliness). Children pointed to garbage and litter at their play spaces (Figure 7). 'The playground alone is nice, but I don't like that there is a lot of rubbish here,' said a nine-year-old boy. He referred to plastic packages and (beer) bottles. This also applies to his favorite play space: 'Also dirty. Always dog poop everywhere.' A 10-year-old girl stated in another conversation: 'People always pee on the slide, and then it goes down like that. It really stinks!' Her friend added: 'There are a lot of turds here.'

In addition, there are children (or their parents) who would rather not get dirty while playing and therefore avoid bushes and shrubs, such as this 10-year-old girl: 'My clothes get dirty, and I have to take another shower. And my mother just doesn't like that, when I climb bushes and stuff. [...] I want to stay clean.' This also applies to an eight-year-old boy who does not play on the lawn in front of his door: 'Not allowed. From my mum and dad. There's a lot of clay soil. Then my shoes get dirty.'

Material

Children expressed their dissatisfaction with certain play elements in different ways. In addition to the play options, children often started talking about the material, because it was broken ('they don't work properly anymore') or unwanted ('they really make such a squeaking sound'). All kinds of play elements were reviewed. About swings, for example, children said: 'This one is a bit less comfortable because I think it's a different kind of rubber than this' and 'it creaks a lot.' A seesaw that also makes a lot of noise is not used ('my ears almost falling off'). About slides: 'In the summer



Figure 7. Four photos of an 11-year-old boy of litter in a playground during one of the walks.

that thing is hotter than the sun' and 'water gets stuck on that slide when it rains.' About a climbing frame: 'In front of my house the whole climbing frame is covered in moss, and poop, and other things.'

Another point of dissatisfaction mentioned by children is the surface. A nine-year-old girl told: 'The most irritating thing is the sand, because if you just want to get into the swing normally, your whole shoes are completely covered in sand and you don't want that, do you? So, I actually want there to just be a mat or something.' Many comments focused on the surfaces made of gravel. A nine-year-old boy said about a playground: 'There is one climbing frame and a swing, nothing else. I'd just better rename the playground: cat litter box [...] Cats always poop there. [...] and all that sand always goes in your shoe.'

When it was asked what children get excited about in terms of surfaces, a nine-year-old girl showed a photo of a hill of grass because she always rolls off it. She also sometimes flies a kite from there and looks for flowers. A 10-year-old boy described why he enjoys going over small hills of asphalt with his stunt scooter (see Figure 8): 'That you just get to the top without pushing.'

Bullying behavior

In general, children indicated that they play nicely with each other. At the same time, they talked about occasional disagreements about the use of a play element. For example, a 10-year-old girl said: 'There is a little boy who lives nearby. He also comes to those swings. When my friend sits on it, he says: "Get off, I want to sit on it." He doesn't even ask.'



Figure 8. Photo by a 10-year-old boy: 'I love that mountain range because you can go scoot there'.

Often, however, there is no immediate reason for disagreements. Children are then simply challenged, insulted, or made fun of. This sometimes involves family members or well-known neighbors, but more often it involves children they don't know, 'bullies,' as a nine-year-old boy called them. He, as well as other children, therefore avoid specific play spaces: 'There are very big kids there and they sometimes act a bit mean. [...] A kid used to scold me there.'

This bullying can also lead to children being excluded. For example, a 10-year-old girl reported being sent away from a schoolyard by other children, and two other girls said that they were sent away from a football field by boys because they are not allowed to chat there.

Social safety

Children also regularly spoke about socially unsafe situations. These were mainly stories about people who conduct scary or strange behavior. A nine-year-old girl spoke, for example, about 'strange people [...] being drunk' and a nine-year-old boy said 'that man chased us all the time.' An 11-year-old boy told the following about a park in the middle of his district: 'People come there who are a bit drunk, sometimes people with a knife in their pocket. [...] I went to play there once with my mother and I saw three men in a dark place, one with a balaclava, and I saw a sharp, silver thing, which was a knife.'

In addition, children regularly brought up the topic 'kidnapping.' For example, a girl is not allowed to play outside alone because 'my parents are afraid that someone will take me.' A nine-year-old boy told: 'My mother sometimes says that I am not allowed to go beyond [name of schoolyard], because in 2019, we had also heard at my street that there was a kidnapper at [name of schoolyard]. And there is also a boy who said that his sister has been picked up and they are still looking for his sister.' There are also references to criminal activities, as by this 10-year-old boy in the same conversation: 'Then two people were selling drugs to each other by my street, at the very back in the bushes.' Some children indicated that they play outside less because of these events and stories, other children indicated that it affects where they do and do not play, and still others indicated that it has no influence on their playing behavior at all.

Discussion

Data collection with and by children provided several insights into primary school children's perceptions and valuation of public outdoor space as a place to play in three Dutch urban districts.

Perceiving and creating play opportunities

The conversations with the children show that public outdoor spaces are an important place for these primary school children to play. However, the way in which they perceive this public outdoor space varies from place to place. It is mainly the formal play space (playgrounds, schoolyards, sports fields) that children associate with playing outside. This makes sense, as children respond directly to the meaning and function of these places. These formal play spaces are 'places for children,' as Rasmussen (2004) calls them. Many stories and experiences were therefore about play opportunities that were directly linked to a specific play attribute: children slide down the slide and do tricks on the tumbling bars. Play elements that deviate from the standard, such as the whale (Figure 5), are used

more freely. Form and function are less attuned to each other here, leaving more room for children's creativity and imagination to give it a certain play value.

In addition, at playgrounds with traditional elements, children often talked about alternative uses: using certain play elements as places to relax or as football goals. They also often serve as a meeting place for playing various games, such as hide-and-seek and tag. In this case, the existing play elements are given a different function, for example, as a hiding or shelter place. So even within a planned and constructed space, children see opportunities to give the environment their own interpretation. The 'place for children' becomes a 'children's place' as children attribute their own meaning to a space (Rasmussen 2004).

Children also give their own interpretation to other parts of the public outdoor space so that it can be used for play. A child perceives, utilizes, or shapes numerous affordances that are unrelated to the original design or social norms (Reed 1996, Jones 2000, Kyttä 2003, Rasmussen 2004). General objects were transformed into play attributes, turning the public space into an informal play space. This is in line with previous research showing that children play everywhere and temporarily appropriate public outdoor space to their liking (Ward 1978, Hart 1979, Moore 1986, Matthews 1992, Rasmussen and Smidt 2003, Hayball 2018).

In addition to perceiving physical characteristics, the children also indicated that they scan the social environment for potential play opportunities. This mainly concerned whether familiar, friendly playmates were present. How other people influence the possibilities for action within an environment, the so-called 'social affordances' (Fajen *et al.* 2008, Rietveld *et al.* 2013, Borghi 2022), is still a relatively unexplored area in scientific research into outdoor play. Only Hayball (2018) found similar results regarding children scanning the social aspects of their environment for play affordances and for social interaction.

Determining environmental factors

We spoke to 89 children who largely decided the topics of the conversation themselves. Despite the different personalities and ages of the children and some different neighborhood characteristics of the district they lived in, the children were quite unanimous about their wishes regarding the public outdoor space. The results showed that both the physical environment (number and variety of play spaces, types of play elements, hygiene, material) and social environmental factors (presence of other children, bullying, social safety) are important for children's outdoor play. Many of these factors are consistent with

previous studies on children playing outdoors (Matthews 1992, Chawla 2001, De Visscher 2008, De Vries 2009, Brockman *et al.* 2011, Carroll *et al.* 2015, Hayball 2018, Lambert *et al.* 2019, Brussoni *et al.* 2020, Lee *et al.* 2021, Visser and Van Aalst 2022, Russell *et al.* 2024).

The results may be in line with previous studies, but they are not identical. This study provided deeper insight into how Dutch children experience the public space for play in current society. It revealed that children prefer variety not only within playgrounds but also between playgrounds. It also showed that children seek challenges in several ways: they look for difficult, exciting, and exceptional play opportunities. In addition, children in this study emphasize other factors than in previous studies. For instance, they pay a lot of attention to the materials ('that seesaw really makes too much noise'), surfaces ('I really prefer artificial grass'), play elements where you can play together ('a family swing where you all go on it together'), and bullying ('He's annoying too. We're no longer friends with him').

An unexpected finding was the lack of attention for traffic safety in our study. Although the children sometimes talked about this, the traffic infrastructure seems more of a given to them. However, the importance of pedestrian-friendly and bicycle-friendly streets should not be underestimated. Other research shows that infrastructure geared towards active transport promotes children's accessibility, freedom of movement, and time spent outside (Hüttenmoser 1995, Blinkert 2004, De Vries *et al.* 2007, 2010, Michail *et al.* 2025). For the children interviewed, this may be self-evident because the districts studied have many wide sidewalks, car-free and low-traffic zones, and an extensive network of footpaths and cycle routes. These key conditions for child-friendly cities are often taken for granted in the Netherlands as this is standard in many residential areas.

Familiar or novel

From the results, it can be concluded that certain environmental characteristics determine not only the perception of the public outdoor space for play, but also its appreciation (Coeterier 1996, Hayball 2018). In other words, perception and valuation are closely linked. We see, for example, that children seem to appreciate play spaces the most where they perceive the most (potential) play affordances. Conversely, they are critical of the lack of variation in play opportunities within and between playgrounds. According to the children, it is too much of the same, and there is little challenge in it. An explanation for this can be that many formal play spaces possess elements focused on practice play that mainly consist of actions in which

one needs to gain control over oneself, the environment or certain materials. A new play element then becomes familiar through practice, which then creates opportunities for variation: a child who has successfully gone down the slide several times can, for example, try to slide down without hands or on his or her stomach. The familiar play element is thus made interesting and novel again. However, playing often stops when there are no more possibilities for variation (Rubin *et al.* 1983). This seems to be the case in many places.

Policy implications

In addition to the pedestrian- and cycle-friendly infrastructure mentioned above, children mentioned numerous factors that could make public outdoor spaces more play-friendly. By improving these factors, children's playing behavior can be stimulated, which can indirectly improve their health. Our research shows that it is not only about quantity, but also about the variety of the affordances. The children we spoke to, aged nine on average, are fed up with the play possibilities in many playgrounds and seek new entertainment that the physical environment cannot always offer them. Therefore, for this age group, municipalities should install play equipment that is more challenging (more difficult, faster, and higher), and achieve greater variety by using different materials, play elements, surfaces, and heights.

Another implication is that cities must preserve or create unplanned residual spaces that children can fill in according to their own imagination. The built environment in the districts studied is tightly ordered and rigid, due to the strict separation and allocation of functions in residential blocks, infrastructure, and fully equipped, designated play areas. The adaptability and responsiveness of these planned places are low, which means that children are less connected to their environment in a personal and reactive way and less likely to create their own play environments (Matthews 1992, Jones 2000). By leaving some areas undefined and adding, for example, loose materials, adaptable surfaces, and greenery, children can tailor these spaces to their own needs.

Strengths, limitations, and contributions

Our findings strengthen previous research by identifying, from children's perspectives, specific physical and social environmental factors that influence how they perceive and value public space for outdoor play. The added value of this research also lies in the methodology used, whereby the children were approached as experts and co-researchers. By giving the children

a digital camera, letting them determine the route during walks, and using their own photos as a starting point during the group discussions, the children were able to choose what they wanted to talk about or show. An additional advantage is that these kinds of activities appeal to children. Photography in particular offered the children an alternative way to capture and convey their perspectives (Loebach and Gilliland 2010). In addition, it was easier for the children to point out context-specific items, to recall events, and to tell stories.

In applying the above methods, we also encountered some limitations. For example, the digital cameras during the walks sometimes proved counterproductive for the children's attention, as they became overenthusiastic and started taking photos of everything. This meant that it was not always clear which photos were related to the research. This is in line with the conclusion of Wang and Burris (1997) who said it is relatively easy to collect photos, but on the other hand concluded that it is much more difficult for researchers to analyze them. Therefore, only the photos that the children had explained were used in the analysis. In the end, the photos were used more as a tool to start the conversation than a goal in themselves.

In addition, the photos and conversations revealed that children found it easier to photograph physical play elements. 'Children photograph (only) what is photographable,' as Barker and Smith (2012, p. 95) pointed out. This probably also influenced the large number of photos we received of formal play spaces compared with informal play spaces (grass fields, pavements, streets, squares). During the walks, there was more attention to this, but as in other research (Loebach and Gilliland 2010), the children mainly led us to clear, recognizable play spaces. To gain more insight into how informal play spaces are used and experienced, it is desirable to conduct (participatory) observation research.

Finally, it should be noted that this study, like many of the references it cites, was conducted in urban residential areas of a developed country. The extent to which the findings also apply to rural settings and low-income countries is unclear. It can be assumed that the Dutch urban planning (e.g. relatively higher building density, large number of formal play spaces, child-friendly infrastructure) and sociocultural context (e.g. cycling culture, protective parenting principles) have an influence on children's (play) behavior.

Conclusion

In conclusion, this study shows that children perceive their environment in diverse ways. On the one hand, they engage with the play opportunities offered to them in public spaces, and on the other hand, children are creative in transforming public spaces into play areas. So, what adults define as a play area is, in fact, a limited

subset of all possible play areas in a neighbourhood. This means that the playability of a living environment should not be measured solely by the number of dedicated play objects. The shared perception among children may be related to the social affordances. So, both the common interpretation and variations of possible interpretations of the environment enhance playability.

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GH elaborated on the research methodology, was present at all focus groups and walks for data collection, analysed the data, and wrote the manuscript. GH and SdV were responsible for the research design. SdV and MvD commented on and revised the draft text.

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Ethics

The research methods have been submitted to and approved by the ethics committee of The Hague University of Applied Sciences. The parents gave prior permission for their children's participation via a consent form. The consent form included information about the purpose of the study, that all children could withdraw from the study at any time, and consent for data usage for publications.

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