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Children's everyday recreational mobilities – growing up in a densifying Swedish small town

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ABSTRACT

Access to urban open space is of large importance for the child-friendliness of built environments and might also play an important role in children's sustainable recreational mobilities. Yet, little is known about how children's everyday recreation and associated mobilities are affected by planning projects and densification processes, where ideas of sustainable mobility often focus on a transit-oriented development (TOD) based on densification in areas around transport nodes. In this study, we examine the current rapid development of a small town in the south of Sweden, affected by TOD ideals. The case is studied through the perspectives of local children aged 10–11, focusing on their recreational mobilities and the current development, using walking interviews. The children described the current projects as happening fast, diminishing their spaces and increasing car traffic without their perspectives being included. Compared to a study conducted 5 years earlier in the same small town, the children appeared to find less places for them and to focus more on formal places programmed for their use. There are reasons to be critical to how densification is being realised in relation to sustainable recreational mobilities, if leading to continuous car dependence but with less access to sufficient and varied open spaces of interest to children. This study also shows the importance of including children of various ages in both research and practice to strive for sustainability.

Introduction

Child-friendly environments (CFEs) depend on a combination of several socio-physical factors, where access to open spaces plays a major role (Jansson et al. 2022). CFE has been defined as where children have many interesting opportunities for action, so called affordances (Gibson 1986/2015; Heft 1988), combined with independent mobility to be able to discover and actualise these affordances (Kyttä 2004), thus an interaction between places and mobility. Through their access to use a variation of outdoor environments, children develop for example competences, motivation and stewardship towards nature (Malone 2013) as well as perceived safety and sense of community (Pacilli et al. 2013). It has therefore been encouraged that research on CFE consider emotional, physical and intellectual development of children in a balanced way, including children's experiences (Han and Kim 2018). Also, a main knowledge gap for CFE today concerns the governance systems that can bridge

children's rights and the actual physical planning and environments (Cordero-Vinueza, Niekerk, and van Dijk 2023).

While children's independent mobility is important for their overall health, it has become very limited for many children, across several nations, over recent decades (Shaw et al. 2015). However, independent mobility among children is complex and affected by factors in the physical environment, social environment and children's socio-demographic characteristics (Marzi and Reimers 2018). The vast literature on children's independent mobility therefore range from various qualities of the built environment to the role of parents and other adults to the agency of children, often in relation to a local sense of community (Wales, Mårtensson, and Jansson 2021). Connected to independent mobility, the particular value of autonomous time with active travel and play in local neighbourhoods for children's well-being has recently been lifted (Weir 2023).

Concerning the considerable impact of the built environment on children's independent mobility (Bagheri and Zarghami 2020), solutions separating pedestrian routes or limiting traffic, for example dead-end streets, can be supportive (Sharmin and Kamruzzaman 2017; Jansson, Sundevall, and Wales 2016) while land use mix and high density built environments with much traffic may hinder (Bagheri and Zarghami 2020; Broberg, Kyttä, and Fagerholm 2013; Sharmin and Kamruzzaman 2017). A moderate building density can be a prerequisite in allowing children both independent mobility and a diversity of affordances in spaces to access, thus CFE (Broberg, Kyttä, and Fagerholm 2013). As children grow into adolescents, they tend to gain independent mobility (Pacilli et al. 2013), but often also find challenges in their use of public space including less places provided for them (Sundevall and Jansson 2020).

In the interaction between places and mobility for CFE, a variation of places with different qualities may have a specific value in creating affordances and attracting children to form a relationship to places (Chatterjee 2005; Kyttä 2004). Generally, children appreciate access to places that are both formal, like playgrounds and parkland, and informal, like woodlands and backstreets (Cele 2005). There can also be places and affording features programmed for specific uses, such as play equipment, or un-programmed, like boulders and trees (Sundevall and Jansson 2020). Yet another aspect of variation concerns the level of management and maintenance that can give different environmental characters and thereby various affordances (Jansson, Sundevall, and Wales 2016). There is a need to focus on the qualities of children's and adolescents' local environments, providing a diversity of affordances that promote activities and recreation and support independent mobility (Loebach and Gilliland 2010). In a planning perspective, a basic prerequisite for varied places is having access to sufficient outdoor spaces (Broberg, Kyttä, and Fagerholm 2013; Jansson et al. 2022). They can then be developed to include environmental qualities supporting several types of affordances, such as cognitive, functional and social, or actualised and potential (Guo, Shi and Chen 2023).

Children's mobility and transport have several dimensions and geographies, and has been studied though various more or less integrated concepts, including children's everyday mobility (Joelsson 2022) and independent active mobility (Johansson et al. 2020), or specifically school travels (Mehdizadeh, Nordfjaern, and Mamdoohi 2020), while the leisure and recreational aspects of children's mobilities are less studied. While children are sometimes included as a group in studies of recreational mobilities, is it through their caretakers' perspectives rather than their own (Qviström, Fridell, and Kärrholm 2020). However, the perspectives of children are of particular importance to include, as their meaning making concerning everyday mobility is affected by their embodied, sensual, visceral and imaginary experiences (Joelsson 2022). Today, little is known about children's sustainable recreational mobilities per se, as well as how they are related to spatial planning and current planning ideals.

Current spatial planning discourses are much affected by ideals of compact cities, appearing as a reaction against modernist planning (McFarlane 2016), and later seen as a strategy for sustainable development (Bibri, Krogstie, and Kärrholm 2020). This often includes a focus on densification processes, mainly realised in the form of infill in existing built areas (Schmidt-Thomé et al. 2013).

Densification has been associated with multiple sustainability goals such as land protection, carbon emission reduction and stimulation of socio-economic effects (Wicki and Kaufmann 2022). One particularly successful planning concept connected with densification is transit-oriented development (TOD), based on ideas of urban growth by public transport systems, connecting land use and transportation (Ibraeva et al. 2020). TOD "calls for a (re)unification of transport and land-use planning, with public transport (PT) acting as the backbone for sustainable development, expressed in compact urban form at public transport nodes (i.e. stations)" (Qviström, Luka, and De Block 2019, 786).

Such discourses have also been criticised for seeing sustainable mobilities as equal to densified areas around public transport nodes, where focus on density, diversity and design (as originally coined by Cervero and Kockelman 1997, with later additions of destination accessibility and distance to transit, forming 5 "Ds"; Ewing and Cervero 2001) have been described as replacing much of the ideas of developing sustainable communities (Jamme et al. 2019). While the ideas of TOD can be traced back to the nineteenth century, there is since the late twentieth century a specific focus on urban regeneration and/or expansion, affecting current planning (Knowles, Ferbrache, and Nikitas 2020). The results of TOD realisations have been shown to be quite diverse, as they are context-dependent and complex (Ibraeva et al. 2020). They have for example been found to support aspects of social sustainability through social capital (Kamruzzaman et al. 2014), but also to encourage unsustainable behaviours such as development of new car dependencies for leisure travel (Qviström, Bengtsson, and Vicenzotti 2016). Residents in TODs have shown a complexity in travel mode choice behaviours, where many factors influence the sustainability of travelling, including individual life events (Shen et al. 2023).

A main problem appears to be that many TOD development projects fail their expectations in various ways, and outcomes with less than half of the travel movements being sustainable (walking, cycling or public transport) have been labelled TAD (transit adjacent development) (Hale 2014). TADs can be hard to separate from TODs, also being located close to PT nodes, but they are described as more suburban developments concerning street structures, with lower densities and land uses that are more segregated (Kamruzzaman et al. 2014). Both CFE and TOD are concepts that aim towards environments supporting sustainable mobilities, decreasing the use of fossil fuels and private cars, but with different foci: on children's independent mobility (CFE) and public transport nodes (TOD). However, there is little knowledge on how the two concepts might relate, and whether TOD-influenced densification can support CFE through sustainable recreational mobilities among children. There is a need for more studies that can explore if TOD and other types of densification processes can be more supportive to children and families in particular (Bierbaum and Vincent 2013) and specifically for more intervention studies of how children's activities and mobilities are affected by changes in the built environment (Marzi and Reimers 2018).

This study aims to reveal how densification and development of built environments into densifications around public transport nodes affect mobility and recreation among children aged 10–11, though their perspectives. In particular, we focus on three research questions:

- What do the recreation and mobility patterns of the children in a densifying small town look like?
- Which factors are limiting or supporting children's sustainable recreational mobility?
- How do the recreation and mobility patterns of children change during local development realisations?

Methods

Case study

In this project, we examine the current rapid development of a small town in southern Sweden, with around 5600 inhabitants at the time of the study in May (late spring) 2019. It is a case where modernist welfare planning ideals implemented during the 1960s and 1970s have shaped what can be

described as a child-friendly environment, as defined through children's high independent mobility and the access to many affordances (Kyttä 2004), as well as with several other socio-physical qualities giving children access to varied open spaces (Jansson et al. 2022). In the small town through traffic by car is rather limited, as in the 1960s it was mainly planned with main roads placed around the housing areas and dead ends, often in the shape of cul-de sacs, within. As the small town was developed further, particularly in the 1990s, it first kept much of the modernist character. The housing areas consist of detached houses, some attached houses, as well as multi-family housing. Multi-family housing is particularly common in a comparatively dense area from the 1990s at the western side of the railroad dividing the small town, with safe underground crossing. Within the built environment, schools and varied green and open spaces are centrally placed and possible to reach through bike and walking lanes. Despite the clearly welfare directed and child-friendly planning, the plans from the 1960s and 1970s for the small town are mainly describing this in the spatial solutions (plans), rather than in wordy explanations.

The small town has previously been the object of research studies aiming at understanding children's independent mobility connected to their everyday physical activity (Johansson et al. 2011), to their agency (Wales, Mårtensson, and Jansson 2021), and to the landscape management and planning (Jansson, Sundevall, and Wales 2016). These studies revealed high levels of independent mobility among local 10- and 11-year-olds, much due to the planned structures of the built environment (Jansson, Sundevall, and Wales 2016), while there are also social factors such as sense of community that might have a positive effect (Wales, Mårtensson, and Jansson 2021). In particular, the empirical studies conducted with data collection in May 2014 (Jansson, Sundevall, and Wales 2016; Wales, Mårtensson, and Jansson 2021) form a basis for comparison, as they show children's use and perspectives of outdoor environments 5 years prior to the current study, capturing a period of rapid change in the small town's built environment.

The ongoing development of the small town from the 2010s is based on ideals that can be referred to as TOD, with the proximity to the local train station as main argument for densification and expansion around this public transport node. However, much of the implications of the densification more reassemble TAD, with a rather suburban character. During the 5 years prior to this study, a proportionally large amount of new housing, mainly detached houses with small gardens but also multifamily housing, has been constructed both as infill on green spaces and former built areas and as new development on arable land. There are also several plans for more densification including both infill and urban sprawl, some of which concern building on green spaces close to schools, including sports grounds and a popular sledding hill, which have met active local protests delaying their realisation. The infill developments on several open spaces in the small town are to be balanced by a new larger park in the eastern parts of the small town next to new housing, all on former arable land. Other current changes related to ideals of TOD include the development of a new larger train station and more tracks. With the new housing constructions, the number of inhabitants in the small town increased more than 30%, from around 4250 in 2010 to around 5600 in 2019.

Procedure

The two authors first met the children aged 10–11 in a fourth-grade class at one of the local schools during a lesson. Those ages have been included in similar studies (Cele 2005) as they are often communicative, take interest in their local environments and have gained some independent mobility, at least in a Swedish context (Björklid and Gummesson 2013; Jansson, Sundevall, and Wales 2016). The first meeting included a presentation and a brief, general classroom discussion on outdoor spaces and their development and use. Some days later, walking interviews in the form of child-led walks (Loebach and Gilliland 2010; Jansson, Sundevall, and Wales 2016) were conducted, with totally 16 volunteering children, with 4 groups of 3 children in each and 1 with 4 children. Each walking interview lasted around 2 h and was recorded on two digital audio recorders. The groups

were gender-mixed, including children defining themselves as non-binary. The children had been given permissions to participate by their parents through the distribution of information and written consent letters, and they were also informed of their participation being voluntary and that they could withdraw from participating at any time. During the walks, the children were encouraged to lead the way and to show places of their interest and use. The interviews were supported by a simple interview guide and circled around their preferred activities, places and current patterns of recreational mobility including transport. Photos (20–60 per interview) were also taken of places that the children showed an interest in and specific aspects or features they wanted to highlight. Directly after each interview, notes capturing the general impressions of the walks were taken by both authors.

Analysis

The recordings made during the walks were fully transcribed together into one text document per interview (altogether over 200 pages of text). The majority of the walks was recorded on both recordings, while some sections contained parallel conversations as the children split up and moved around, talking about different topics with different interviewers. It was not always possible to define who said what, and thus, transcripts and quotes do not separate children by gender. The photographs and notes were used as a support to recall each route taken and where children's statements regarding their immediate surroundings were made, if this was not made clear by the recordings.

The analysis of the transcripts was thematic, based on coding as inspired by Braun and Clarke (2019), including discussions of content of the codes, theme generations and overall structure and narration of the data. The transcripts were read and reread, generating codes focusing on anything the children brought up connected to their local environment, places they like and dislike, what activities they do in their everyday life and how they connect to mobility and transport, what their opinions are on current developments, on the green space management provided by the local government (through contractors) and on living in the small town in general.

As the children often interrupted each other or jumped from one topic to another, codes were generated to convey the entire relevant message, with interruptions and "drifts-offs" included to explain as much of the context as possible. Finally, the codes were grouped into a range of subthemes ending up forming four main themes, reflecting both the research questions and the empirical material.

Results

The interviewed children described the current urban development as happening fast, diminishing their spaces and increasing car traffic without their perspectives being included. A number of factors that limit or support their sustainable recreational mobilities were found, including the need for a variation of sufficiently large spaces where the children feel that their use is accepted and allowed. Many of the children frequently travel outside the small town, mainly by car, to reach recreational facilities and activities, some of which have been removed locally due to the last years' densification projects. Compared to the results of the study made 5 years earlier (Jansson, Sundevall, and Wales 2016), the children had become more focused on having formal spaces programmed for specific uses such as playgrounds and sport facilities and showed more paved spaces and less abandoned areas during the walks.

The children experienced several problems for their recreational mobility and use caused by the increasing densification, in terms of the ongoing processes being disturbing during construction, places and affordances disappearing and having to share existing spaces with more people, as three main issues.

The qualitative analysis resulted in four main themes: recreational mobilities and mobility patterns; space and places; processes; and social conditions.

Recreational mobilities and mobility patterns

The children described having individual, but rather similar, recreational mobilities and mobility patterns. They are all engaging in outdoor and indoor activities to a varying degree and perform a wide range of both spontaneous and extra-curricular activities, within and outside the small town.

All the interviewed children except one girl and one boy described taking part in extracurricular, organised activities, for example football, taekwondo, floorball, dancing or playing the piano. Each child typically mentioned one or two different formally organised, weekly recurring activities, some had even 3 or 4. Soccer and dancing are common, both activities being available locally within the small town. The children mainly bike or in some cases walk to the facilities providing these activities.

Some of the organised activities are instead taking place outside the small town, often because there are not the facilities or organisations for them locally. The children then go to various surrounding towns depending on the activity. The majority of these children are given a ride by car by their parents, whereas a few state that they in some cases go by bike together with their parents to activities in the adjacent communities, when they have the time and the weather is suitable. Public transport was described as very rarely used for these travels.

The children were overall familiar with their local environments, and most of them demonstrated having a high level of independent mobility, although knowing their closest neighbourhood better than other parts of the small town. Despite the independent mobility overall being rather high among the children, they were still feeling limited, mainly by motor traffic. *Child: It is quite sad that one may drive cars in here now, because it is like, some cars drive by really fast*.

Some of the children explained that they like to bike around as an activity: They go by bike, alone or with friends, on tours within the small town. Some describe it as "taking a round", meaning that they do this as an activity in itself rather than just as a means of travel. Two of the children said that they do this to better learn their way around, consciously choosing paths or roads they have not been to before to see where they end up. *Child: I mean, I don't really have one favourite place, I actually think everything [here] is really nice. I like to just bike around, kind of*.

Space and places

Places that the children talked about using, and that caught their attention and interest, were of various types and included shops, streets, green spaces, playgrounds, sport facilities, the school grounds and urban places such as streets and squares. During the walks, they showed playgrounds, sport facilities, urban spaces, parkland and abandoned places. One boy showed his favourite place in the small town, being an urban square with a small set of steps. He takes his mountain bike down the steps, enjoying the bumping on the way down (see Figure 1). The same boy uses a speedbump on a street as a small ramp, to make his bike jump as far as possible. A girl who practices parkour explains how she uses the walls of her urban surroundings to jump at and do tricks.

A comparison with the outdoor places that the children showed in 2014 with the 2019 data (see Figures 2 and 3) reveal a few differences. Compared to the study 5 years earlier, the children in 2019 were less focused on abandoned places and parkland, and more on urban, paved places and sport facilities. Overall, they showed more formal, programmed and specifically designed places. The informal and abandoned places had also become fewer during the local TOD development that has taken place in the interval between the studies. One example of a place that was taken for construction was a BMX track that had been made by children in a green space:

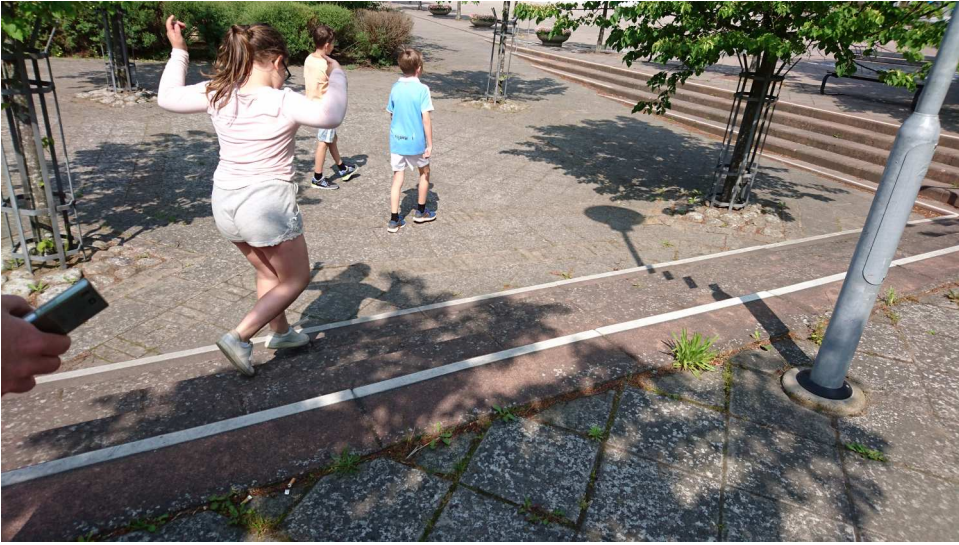Interviewer: Is there anywhere to ride BMX bikes?

Figure 1. One child's favourite spot, used for going down with a mountain bike.

Figure 2. Places visited during the study in 2014 (Jansson, Sundevall, and Wales 2016).

Figure 3. Places visited during the present study, in 2019.

C1: No, not

C2: We had it, by the houses there before, but they demolished it to build houses there. I thought [the BMX track] was pretty good

C3: Yes, it was good

C1: It was like this …

Interviewer: Did you use it before?

All: Yes

(…)

C2: You need to go quite far [now], to be able to ride on a good track.

Examples of informal, un-programmed places much appreciated and used by the children include several green spaces, where various uses are possible. This included running and jumping over varied landforms, being in or climbing on vegetation, and finding wildlife by water (see Figures 4 and 5). Water ponds caught interest in all parts of the green and open spaces, including in the new, larger park which otherwise did not (yet) afford much of interest to the children. A spot that is a common favourite is "the stone lake" in the western part of the small town, a place where large natural boulders have been used to take up the height difference between two lots (see

Figure 4. By one of the local playgrounds, the well-established greenery provided several opportunities for play.

Figure 6). This is an example of a place in the small town that is not programmed for any specific use, but that the children claim to use.

The importance of having sufficient physical space for themselves in the outdoor environment was frequently mentioned by the children. This included both space to be able to get away or being alone, and finding room for their preferred activities without having to compete with others about the space. In particular, they were concerned about the developments around their school, with loss of interesting spaces and opportunities they already perceive as relatively crowded. Also, children living in the densely built western part of the small town feel significantly more "out of places" and in competition for places with others than in the more green eastern part where there are structures from the welfare planning ideals, such as walking and biking lanes within and between residential areas, and also the new park.

The children often expressed that there was a lack of space, including crowding in areas where many users, ages or functions meet as well as a lack of places, preferred facilities and equipment that they could use. Often they wished for rather formally programmed places and functions, such as pump tracks and playgrounds, which would assure space for their particular age group. Their experiences were that they were not allowed everywhere, sometimes clearly related to their age:

C1: Me and my best friend, when she was here in [the small town], I was showing her around and we walked around there, and then an old woman came and just "You can't be here!"

Interviewer: Oh, at that particular outdoor gym?

C1: Yes, at the gym

Interviewer: Why weren't you allowed?

C2: It's 14+

C3: But it's not a hard gym.

C2: It says you have to be fourteen to be there

C3: But I mean, that's not right, it's more like 4+

Figure 5. Green and blue spaces offered several things to do, including looking at wildlife.

Processes

The use was also much described as related to urban processes of various types, including construction of mainly new housing areas and roads, management of the open spaces and temporal arrangements in the small town. A change in the form of a festive, temporally arranged event, such as a football tournament, was often seen as only interesting and fun. More permanent changes engaged the children in more serious discussions.

The ongoing process of construction of mainly houses and housing areas in the small town was given much attention and awareness by the children. They tried to follow the local plans and developments and discussed and updated each other on the progress during the walking interviews. The children had many thoughts about it, where negative aspects dominated. The development of a larger train station and new tracks made transport on foot or by bike in the

Figure 6. "The stone lake", a well-used spot by children in the western part of the small town.

underground crossing more complicated and longer during a period of several years, which was disturbing the local mobility for some children. They also found the constructions of new buildings affecting their use of urban open space negative, both during construction and after, as places for their activities were lost.

C1: Because there's like no space now, because they're constantly building houses and houses.

C2: Yes, so what they remove should like, be built again, kind of.

C1: One doesn't have that many areas anymore, now there are only houses around, all the time.

Interviewer: Have areas disappeared?

C1: Yeah, that were kind of fun.

Some also described a stress in the constructions happening too fast and in many places at once:

> Child: Since so much is being built in [small town] then, it is so, one cannot possibly keep up with it all. First that was completed. I did not even notice that it was being built. I mean, last summer they had not even started building.
>
> Interviewer: But in what way can you not ´keep up´?
>
> Child: But it is so much, so one cannot keep up, just there, there, there, there, there, and there are constructions, and also there and there.

Some children had protested against the plans through written petitions, gathering signatures. They felt that the local government did not show interest in their perspectives, as they thought that some of the developments were not reasonable. For example, they described new constructions as being suitable in some places but not everywhere: "Why should they build just next to a school?"

> C1: Here I think they will build, but I don't understand why they have to demolish our things that we use and instead build houses there, if you are going to build houses, do it over there where it's not used for anything.
>
> Interviewer: Is it good to build here?
>
> C2: Yes, because it feels unnecessary to build, or to demolish a sledding hill and a sports field, where a lot of children are playing, instead you can just take an ordinary piece of land that is not used for anything, that is like, not use by anyone for anything.

There was an awareness also of management and maintenance aspects in the urban open space among the children. They identified needs to take care of the areas and to both do maintenance such as cleaning and weeding and also upkeep, e.g. of equipment. They noted management work in the small town and were both negative and positive to how that was done. One negative aspect was that functions were removed when the open and green spaces were simplified through management.

> Child: Here, it was bad because all of these [trees] here were great to climb on, but then they sort of sawed off all the good branches.
>
> Interviewer: Did they saw off all the good climbing branches here?
>
> Child: It was really stupid, because you can't put them back.
>
> Interviewer: Oh! Do you know why they did it?
>
> Child: I think there was something wrong with the tree, so it wasn't very good. It was like diseased branches that disappeared.

The children were in general displeased with litter spotted during the walks. They were vocally dismissive of littering, saying that it is not acceptable and bad for the environment. Some of the children also picked up litter and disposed it in nearby trashcans during the walks. One child explained that she had seen so much litter during our walk that she was considering going for a litter-picking walk in the future. A few children showed and explained a phenomenon that they disliked: adolescents throwing pebbles at streetlights, breaking them and leaving glass shards on the ground below.

Social conditions

The children's uses of the local open spaces were often described as conditioned by other users and uses there. They were disturbed by others such as adults putting up limiting rules, adolescents occupying places or places being vandalised. In other cases, it was the children themselves who were accused of being disturbing to others when trying to use spaces in the small town. One example

includes new apartment housing for elderly people built just next to the school, with outdoor environments attracting children to walk through or use. Signs had been put up to prohibit passage through the area, something one boy perceived as being directly aimed towards himself, calling the prohibition sign "his sign". In the same area, other children also felt limited by the ones who had recently moved in into infill projects:

Interviewer: What do you think, about the sledding hill and such?

C1: As long as they don't complain about us. They're building new houses over there and they're starting to complain about me because I make too much noise when I play ball.

Interviewer: Which ones, you mean the ones in the new houses?

C1: Yes, in the apartments over there.

C2: 55 + [a type of housing for people over 55], isn't it?

(…)

E: Well, I lived there before, and so when they moved in, I continued to play football, and sometimes I shoot over so it goes into their parking lot, and then they start complaining about me.

The children also brought up several positive social aspects concerning their outdoor environments in the small town. This included feeling at home in the area, taking part in local activities, knowing local people and feeling safe. However, some also felt unsafe and talked about crimes, vandalism and strange people in the area.

Discussion

This study was conducted with the aim to reveal how densification and development of built environments around public transport nodes affect mobility and recreation among children aged 10–11, though their perspectives. The research questions guiding the work have concerned what the children's recreation and mobilities look like, factors limiting or supporting, and the change during the local development. The study both includes a comparison of the two concepts TOD and CFE, and gives an insight into the development of a small town over time by following children's perspectives as their local environments are affected by densification projects. It thereby answers claims in previous literature, such as the need for studies of how children's activities and mobilities are affected by changes in the built environment (Marzi and Reimers 2018).

The results show how the possibilities offered locally do play a major role for children's everyday recreational mobility patterns, where access to various facilities and organised activities as well as green and open places and spaces are at the core (Jansson et al. 2022). They also show how ongoing development and densification of an environment can diminish spread, access and multiplicity of local open spaces, such as the collection into one larger park where variation and uses are yet limited, and does not appear to reduce car traffic for recreational mobility. These two aspects, diminishing open spaces and affordances, and continuous car dependence, appear to have a negative effect on the child-friendliness of the environment, including on the recreational mobility, as described in previous studies (Broberg, Kyttä, and Fagerholm 2013).

From the walking interviews with children, their relation to their everyday outdoor environment appears to be complex and their uses highly connected to their individual development including experiences that are, e.g. emotional (Han and Kim 2018), embodied and sensual (Joelsson 2022). Their reactions to changes in their environments and the many thoughts expressed about them, show how children's perspectives and experiences, including various aspects specific for their age group, are of interest to include and learn from in planning, design and management processes for CFE (Jansson, Sundevall, and Wales 2016; Han and Kim 2018). Still, as emphasised by for example Cordero-Vinueza, Niekerk, and van Dijk (2023), there appear not to be functioning governance structures for implementing children's rights into planning.

The study further revealed examples of how social and physical environmental qualities are intertwined in the creation of environmental child-friendliness (Jansson et al. 2022), with the role of various spaces affected by local people and their uses. The social aspects of access to the local environment and spaces include, e.g. social crowding and children's agency (Wales, Mårtensson, and Jansson 2021). Factors such as perceptions of bothering others or being bothered by others, adults, teenagers and younger children, constitute a direct or indirect source of concern for the children in the small town. This is similar to how Sundevall and Jansson (2020) describe crowding and the need for spaces for a range of various age groups, where adolescents in particular lack places where their use is clearly allowed. In this study, the diminishing access to varied green and open spaces appear to make children already at the age of 10 ask for more places that signal they are socially accepted for them to use. From children's perspectives, there can be a value in clearly being allowed to use places, which depends on them being interpreted as aimed for their particular age group. For children aged 10–11, this includes places offering enough challenges to be exiting but still not being claimed by others, such as older children.

The results reveal changes in the uses and attitudes to urban open spaces from the perspectives of children from the interviews made in 2014 (Jansson, Sundevall, and Wales 2016) and those made 5 years later, in 2019, during a time of local development processes. A major difference concerns the types of spaces that the children showed and interacted with during the walks, which had become more formal and programmed from the first study to the second. As children generally appreciate a variety of spaces that are both formal and informal (Cele 2005) or programmed and un-programmed (Sundevall and Jansson 2020), the increased focus on formal spaces, programmed for use by their age group, might be an attempt to safeguard access to space and places in the ongoing development process. This goes in line with the children's clearly pronounced lack of spaces and their experiences of crowding and of not being allowed to use places they wished, that appeared in the present study from 2019, but was not clearly pronounced 5 years before.

The possibilities for children to find and reach recreational possibilities in various places in their close to home environments appear of main importance for CFE (Jansson et al. 2022), something that can be limited by both periods of constructions and of the results in more limited open spaces. A lack of access to a variation of outdoor spaces has previously been found to limit CFE (Broberg, Kyttä, and Fagerholm 2013; Jansson et al. 2022). Despite generally having gained much independent mobility growing older (Pacilli et al. 2013), the children in this study felt limited, mainly due to the lack of the valuable access to sufficient outdoor spaces (Broberg, Kyttä, and Fagerholm 2013; Jansson et al. 2022). The study also shows the value of these spaces containing a diversity of affordances that promote children's activities, recreation and mobility, as previously highlighted (Loebach and Gilliland 2010, Guo, Shi and Chen 2023). Overlooked aspects of this provision may include the need for qualities suitable also for children approaching adolescence, to promote their valuable independent mobility and overall health (Malone 2013; Pacilli et al. 2013). Children's sustainable recreational mobilities require having close access to sufficient and varied spaces and facilities with functions and signals allowing children's use in several ages, both during and after development of an area. The results of this study point at the risks that realisation of densification lead to changes that are not supportive to CFE and recreational mobilities among the studied age group, despite this being lifted as an important focus for TOD (Bierbaum and Vincent 2013). In the diverse results of TOD realisations in various contexts and complexities (Ibraeva et al. 2020), there is a need to safeguard qualities for both social sustainability (Kamruzzaman et al. 2014) and sustainable recreational travels (Qviström, Bengtsson, and Vicenzotti 2016).

There are reasons to criticise the realisation of densification projects for sustainable recreational mobilities if they, like in the studied case, diminish the access to varied green and open spaces and their recreational functions, inadvertently promoting car-dependence among the inhabitants (Qviström, Bengtsson, and Vicenzotti 2016). The development of the small town studied can be argued to have more of the characteristics of a TAD than a TOD, being more suburban, which can mean that the positive effects of TOD have not been reached (Hale 2014), as much of the local travel is still not

sustainable. However, this appears to be the case among several TOD residents, as many types of factors influence travel mode choice (Shen et al. 2023). Also, the children in the studied case appear to mainly profit from the suburban qualities from the welfare era with the remaining traffic separation and open spaces, rather than TOD qualities, with, e.g. much public transport and close access to facilities. Despite the focus on building near a local train station to support sustainable travel, the public transport does not appear to compete with the car when children go to sport activities in nearby towns when those activities are lacking in the own small town. Similar to Jamme et al. (2019), this study thereby shows the importance of not abandoning ideas of developing sustainable communities for focus on density, diversity and design only, in particular if not reaching the goals of TOD (Hale 2014).

This study has limitations, including being based on a single case area and a rather small amount of informants there, in just one selected age group. Child-led walks appear a very useful method for learning about children's perspectives on local environments, but could have been valuable to compare with measures such as of local travel behaviour. The collaboration with a local school was valuable for the study but might also lead to questions about ethics, as some children may have experienced the study as part of the teaching. More comparisons between cases, ages and development types, using comparable methods and measures of both densification and mobility, could be interesting for future research. In particular, it would be of interest to study cases that have implemented the TOD principles more thoroughly and study their relation to CFE.

Conclusion

This study shows the importance of children having access to a variety of spaces in their close to home environment to support their use of the everyday outdoor environment as part of their sustainable recreational mobility. It specifically shows how the age group 10–11 seeks particular qualities in their environments, associated with challenges that are both social and spatial. Densification projects can cause challenges due to the process, the loss of useful places and crowding as well as other aspects of sharing spaces with others. This is indicating that densification, if it entails diminishing usability for some age groups of places in green and open spaces and does not lead to reduced car dependence, can be negative for children's possibilities of finding places for play and other types of recreation, and for the sustainability of their recreational mobilities. Densification projects need to assure several qualities and aspects for sustainable development, including access to several types of affordances for children of various ages, instead of focusing on density and development per se. This may require participation of children to understand their perspectives as they grow older. Depending on how the concepts are being realised in the context of actual projects, the strives towards CFE and TOD might have different effects on the physical environment and on the possibilities for children of different ages, and for other groups, to develop sustainable mobilities.

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