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A smart city for all citizens: an exploration of children's participation in Norway's smartest city

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ABSTRACT

In recent years, a 'participatory turn' has emerged as a remedy to counter top-down and techno-centric smart city development approaches. While this shift in smart city policies and strategies offers promise, it also presents challenges. This paper scrutinizes the participatory shift within smart city policies and initiatives in Stavanger, Norway, a pioneer and driving force for smart city development in Northern Europe. Using a qualitative case study of the Lervig Smart Park project, with a particular focus on the inclusion of children and youth, we investigate the methods of participation employed and the stages at which children are integrated into the planning process. Our findings underscore the beneficial outcomes of including children and youth in the Lervig Park design process, yet also reveal significant limitations, especially in the perception of children as capable political subjects and the absence of suitable methodological tools for their engagement across planning phases.

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Introduction – the participatory turn in smart city projects

The smart city concept has received tremendous attention in urban studies and urban planning in the past decade. Originally a concept introduced by technology companies and techno-optimistic policy-makers, and later widely adopted by policymakers and city administrations, the social sciences and humanities have grappled with the implications of the implementation of smart city strategies and initiatives around the world (Cardullo, Di Feliciaantonio, and Kitchin 2019; Clark 2020; Coletta et al. 2019; Halpern and Günel 2017; Karvonen, Cugurullo, and Caprotti 2019; 2020). From the onset, criticisms have focused on its top-down and technology fixated to complex and enduring urban problems i.e. technological quick-fixes based on mainly digital technologies. Smart city initiatives around the world have therefore received intensive scrutiny from critical scholars, and rightly so. In recent years smart city policies and strategies in Europe have increasingly shifted towards so-called people-centred smart cities emphasizing the importance of citizen participation – most notably in the EU's new mission on Climate Neutral and Smart Cities.

The labels 'people-centered' and 'participatory' however, are often vaguely defined in smart city strategies and agendas, and the extent to which these are just labels slapped on a project for political legitimization represents a valid concern. Furthermore, the participatory turn in smart city discourses is not without problems or challenges as it enters an already long-held debate about the crisis of

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participatory planning in planning studies (Albrechts, Barbanente, and Monno 2019; Eriksson, Fredriksson, and Syssner 2022; Håkli and Kallio 2018; Inch 2015; Monno and Khakee 2012; Purcell 2009). The vagueness of what a people-centred smart city is, who the ‘people’ are, and the extent and depth of citizen participation are thus areas that require future scrutiny.

This article contributes to this debate through a detailed case study of a ‘smart city’ project in the City of Stavanger in South-Western Norway around the establishment of a new ‘smart’ park in one of the city’s eastern neighbourhoods called Lervig. Our focus is specifically on the inclusion and participation of children-as-citizens, in the Lervig Smart Park project. We examine this through the perspectives of experts and stakeholders that interacted with the children and/or the project. Through the case study, the article is interested in furthering debates on planning initiatives that seek to enrol politically marginalized groups into smart city projects. What methods of participation are used? Whose participation do they target and where in the planning process are they thought to participate and exert influence?

While our primary focus lies on children’s participation, it is essential to acknowledge other significant strands of literature, related to citizen participation in Smart cities, that we have excluded from our current investigation. One such important area is the literature pertaining to digital rights in people-centred smart cities (e.g. Calzada 2021; Calzada, Pérez-Batlle, and Batlle-Montserrat 2021; Shaw 2017), which holds relevance to the broader context of Smart city citizenship. While this debate is also relevant for the case of Stavanger, what we identify in Stavanger is primarily a shift from technology focus to citizen participation in urban planning. Thus, rather than a focus on digital rights, what we observe is a broader focus on democratic participation and citizen rights in smart city projects in Stavanger.

The focus on children in smart city projects is important for several reasons. First of all, children are often not included directly in planning processes and thus represent an underrepresented population in smart city projects specifically and in urban planning in general. Children are rarely considered at all as stakeholders, or their participation is through adult ‘representatives’ and other experts that speak on behalf of children. We argue that children’s participation in urban planning process is important for several reasons as we will outline below. These can be based on the view of children as reflective and capable citizens with the right to exert influence as relevant stakeholders. Secondly, children’s participation in urban planning processes constitutes an early exercise in the formation of democratic citizenship that does not start at the time of legal voting rights but should be considered an ongoing and lifelong formative process.

The aim of this study is to identify in what way children’s participation has been described, planned or included in official documents and actual projects. Secondly, our aim is to use this case study to reflect critically on the substantive aspects of the participatory turn in smart city policies and practices. Is it merely spin or has the rhetorical shift to participation altered the ways that smart city projects are designed and implemented? The article is structured as follows. Firstly, we discuss the theoretical and analytical framework drawing on critical scholarship on smart cities, mainly in a European context. We then discuss how the participatory turn in smart city strategies seeks to counter critiques of the top-down nature of early smart city projects, but in doing so must relate to ongoing debates about the crisis of participatory planning. Thirdly we discuss the role of children in urban planning processes and the need to see children as legitimate and capable political subjects. The following sections present the case study of Lervig Smart Park in Stavanger and our analysis of the process of including children in the planning and design of the park. The article ends with reflections on the participatory turn in smart city projects and the role of children’s participation in urban planning.

Literature review: smart cities and the crisis of participatory planning

Research on smart cities has exposed a tendency towards centralized, top-down implementation where participation and co-creation are precluded (Späth and Knieling 2020; Rogan 2019).

Smart cities have, in short, reproduced existing inequalities and created new ones according to its critics (Vanolo 2014; Willis 2020). They have also been associated with increased surveillance (Wood and Mackinnon 2019; Offenhuber 2019; Mosco 2020), especially of vulnerable populations (Coleman 2020) who are also routinely subjected to what Safransky (2020) calls ‘algorithmic violence’. Finally, smart cities have largely been driven by government and corporate rather than citizen interests (Cowley and Caprotti 2019; Marvin and Luque-Ayala 2017). In response, calls for a ‘right to the smart city’ have been made, aimed at developing principles and practices capable of promoting and safeguarding social justice, equality, and inclusion (Cardullo, Di Feliciaantonio, and Kitchin 2019; Foth, Brynskov, and Ojala 2015; Willis 2019). The development of planning policies and participatory methods capable of doing this represents a significant challenge to policy makers and planners.

The critique of smart city projects as technology-centred, top-down implementation, and their democratic deficits have led urban governments to rethink the smart city concept to emphasize greater citizen engagement through participatory approaches (Cardullo and Kitchin 2019; Charnock, March, and Ribera-Fumaz 2019; March and Ribera-Fumaz 2019). This ‘participatory turn’ in smart city projects is evident in both the academic literature as well in revisions of smart city strategies. At the global level, the United Nation’s New Urban Agenda (2015) makes a commitment to developing smart cities (§66), including the use of platforms and citizen-centred digital governance tools for broadening participation. It also positions participation and inclusion as a key priority, especially where the most vulnerable urban dwellers are concerned (§13b, §148; §155). The people-centred smart city has become a popular term in Europe as evidenced in the revisions of EU strategies (European Commission 2014, 2021a) and many recent EU-funded smart city projects are now labelled as people-centred and participatory by design (European Commission 2022). Across Europe, several policy initiatives have also acknowledged the technology-centred and technocratic origins of smart city projects. The national Roadmap for Smart and Sustainable Cities and Communities in Norway places participation and inclusion at the centre (Design and Architecture Norway 2019). Participation and co-creation are also highlighted in the European Mission on Climate Neutral and Smart Cities (European Commission 2021b) which continues the, at least symbolic, shift from a techno-centric to a citizen-centric approach to smart city development (cf. Calzada 2019).

The participatory turn in smart city discourse may address some of the critiques regarding the techno-centric and top-down nature of smart city projects, but the shift to people-centred and participatory rhetoric opens up for new questions and dilemmas. Who are the ‘people’ to be centred? And what participatory methods are required to engage the ‘people’? The participatory turn in smart city projects means entering another long-held fraught and contentious area of urban planning that some have labelled the crisis of participation in urban planning (Legacy 2017; Monno and Khakee 2012; Purcell 2016). It is beyond the scope of this article to outline this long-running debate in urban planning research comprehensively, and instead we highlight three aspects of this debate that are of interest to our study.

Participatory planning processes have been criticized for being designed with an imagined average citizen in mind (Cameron and Grant-Smith 2005; Marston et al. 2017). In fact, this imagined average is a shorthand for resourceful, middle-class, well-educated citizens who often tends to resemble the middle-class socioeconomic profiles of policy-makers and planners themselves. This is of particular interest in a Norwegian context where the ideal of equality is a strong current of national self-understanding. The fear of treating groups or populations ‘differently’ based on gender, race, age, or sexual orientation runs counter to the idealized notion of Norway as an equal society which translates into an imagined sameness (Gullestad 2002). Defining citizens from a notion of sameness means that those targeted for participation in practice constitutes a very small group of people who can hardly be recognized as representative of the population.

The second element of the crisis of participatory urban planning of interest is that when marginalized groups and populations are envisioned to participate in urban planning processes, the

methods for participation are inadequate (Inch 2015). This is of course not surprising since they have been designed and developed for an imagined average, or to put it bluntly, they have been designed for the engagement of an already vocal white middle-class. The ideal of imagined sameness results in a lack of imagination when it comes to rethinking participatory methods that are designed for populations that may be reluctant to participate due to distrust in government or lack the resources or confidence to speak up at public hearings or at workshops. In Norway in particular, equity-oriented approaches in planning are still in an emerging phase. Developing new methods is crucial in the context of the crisis in participatory planning, where participation is often reduced to a tokenistic practice of legitimizing decisions, rather than an open-ended process where the knowledge and ideas of citizens are taken seriously (Legacy 2017; McAuliffe & Rogers, 2018).

A third element of the crisis of participation that we wish to highlight here is the question of whether participation in smart city projects is simply attempts to secure already existing power and legitimacy for policies already adopted (Arnstein 1969). This raises questions regarding what parts of the planning process that are open to participatory decision-making. Inch (2015) argues that participation often becomes subordinate to already established political or administrative objectives and goals. This reduces citizen participation to post-political forms of planning (Swynedouw 2014). The institutionalization of participation within the existing logics of government, as an appendage to the planning process intended to legitimate the already determined end goal, means that participatory planning as an empowering and emancipatory practice is no longer the aim (Monno and Khakee 2012). As a result, inclusion often becomes tokenistic (Monno and Khakee 2012) leading to limited successes in reshaping the social-spatial orders of urban development (Albrechts, Barbanente, and Monno 2019; Umemoto 2001).

What we have attempted to outline above is that the participatory turn in smart city projects is not without caveats. While people-centred and participatory smart city projects seem to have become the norm in recent years, at least in strategies and policies, such a shift is not without challenges. Even if we take this discursive shift at its word, and not only as a thinly veiled legitimization exercise on behalf of smart city proponents, questions remain about who gets to participate, how, and when? These are not challenges limited to smart city projects but rather highlight how the participatory turn in smart city agendas is anything but simple.

Children's participation

Whereas 'real participation' involving a certain degree of decision-making power is also possible, the emergence of the focus on children's participation has also warned and reflected on tokenistic forms of inclusion (Hart 2008; 2013; Reddy and Ratna 2002). Within participatory planning in Norway, children are one group that is rarely seriously involved in urban planning processes. This is particularly noteworthy in smart city projects where children are rarely considered. The lack of participation in designing, planning, and implementing smart city projects represents a missed opportunity, but also a significant democratic deficit. Children are citizens without the power to formally decide on urban developments that often will impact their future. This is particularly relevant when it comes to technology-centred smart city projects. Yet, children are users and consumers of digital technologies in the same way as adults and thus their role as relevant constituents, in their own right, needs to be considered. Secondly, the formation of political subjectivities and agency through learning from early childhood constitutes an important element of becoming a citizen (Häkli and Kallio 2018; 2019). Thus, our argument is that the participation of children in smart city projects should be considered important due to the fact that children are citizens in their own right and that participation in political processes from early childhood is important as learning spaces for democratic citizenship.

The first point of discussion is anchored on the tenet which views children as citizens in their own right, possessing rights in political decision making. This is backed by the United Nation's

children's rights convention (UN 1989). Children's agency and capacity to participate at different levels have also been documented (Coles 1998; Ennew 1994; Hart 2008, 2013; Reddy and Ratna 2002). In Norway, a set of laws contained in the Planning and Building Act (Norwegian Government 2008) establish that "The municipal council shall see to it that a special arrangement is established to safeguard the interests of children and youth in the planning process" (Section 3-3). Further, it highlights that "The municipality has a special responsibility for ensuring the active participation of groups who require special facilitation, including children and youth. Groups and interests who are not capable of participating directly shall be ensured good opportunities of participating in another way" (Chapter 5). This set of relatively new laws has demanded and encouraged municipalities to ensure children's participation in matters concerning their near environment.

The second important aspect regarding children's participation leads us to further pedagogical reflections on the participatory methods for children's participation. Engaging children in political processes requires different pedagogies and methods than those used with adults (i.e. See Clark 2005; 2017) to ensure their participation. Hence, involving children requires careful and deliberate planning with a focus on pedagogical approaches that allow children to engage as reflective and political subjects. Participation is not only potentially beneficial for cities but for children themselves. Socio-constructionist theories from the field of educational sciences point out that both practical activities and social contexts serve to foster learning processes in young children (Lave and Wenger 1991; Rogoff 1990; 2003; Vygotsky 1978; 1986). Thus, projects and activities with a participatory design can also become learning spaces for children's democratic participation and the acquisition of knowledge and competencies.

For the case study of Lervig Smart Park, we thus focus on how the participatory turn in smart city projects play out as the city of Stavanger seeks to make smart city projects more inclusive by involving children in the planning process. The case study of Lervig Smart Park aims to shed light on the motivation for involving children in the planning process, how the planning process was designed to allow children to become involved and at what stages children were invited into the planning process. Through the case study, we wish to shed light on the potentials and pitfalls that involving children in smart city projects in particular but also reflect on the more general aspects of children's participation in urban planning.

Methodology

The case study is based on twelve semi-structured qualitative interviews and conversations with key stakeholders of different backgrounds involved in the Lervig Smart park project. These are local authorities (2), project coordinators (2), project leaders (2), staff members (2), an advisor, neighbour to the project (1), and teachers (3) from local schools. Data was gathered between the months of February to October 2021. Data coming from interviews was coded, using in-vivo and value coding methods of analysis (Leavy 2014; Saldaña, 2014). Interviews and conversations were conducted online and in person. The questions in the interview guide explored are organized under three main segments: i. understanding and perceptions of the Smart city concept, ii. knowledge and experiences on children participating in Smart city projects in the Rogaland region, particularly in Stavanger Smart city, iii. experiences, perspectives, and opinions on children's involvement in the design of Lervig Smart park.

Complementarily, a content-analysis approach (Drisko and Maschi 2016; Stemler 2000; Weber 1990) has also been used in this study, by means of examining relevant documents to Smart city development in Norway and in Stavanger. Among these, the 'Stavanger Smart city roadmap' and the 'Roadmap for Sustainable cities and communities in Norway' were given special attention. Additionally, the official website that acts as one of the main digital communication channels of the Stavanger Smart city office and the published reports have been used (Stavanger municipality 2021b).

Methodological limitations of this study are largely connected to the Covid-19 situation and national and local health regulations. This caused that we could not approach children directly in order to learn from them about their experiences and opinions regarding the participatory process. Therefore, our article does not claim to represent the experience of children directly. Our study has focused on gaining knowledge of how children's participation was perceived and interpreted by stakeholders who approached and interacted with the children.

Stavanger smart city

Stavanger is considered to be 'Norway's smartest city' (Aftenbladet 2019a). Located in south-western Norway, it is the fourth largest city in Norway with a population of approximately 130.000 inhabitants. The city is also a major centre for the Norwegian offshore oil and gas industry. The introduction of the smart city policy discourse in Stavanger can be traced back to Stavanger's participation in the EU Smart Cities Lighthouse Project *Triangulum* in 2014. When the oil industry experienced a severe crisis in 2014-2015, smart city was quickly posited as an opportunity to diversify the economy from its heavy reliance on a single sector while also improving public services (Wathne and Haarstad 2020).

A Roadmap for Smart Scity Stavanger was launched in 2016, presenting the vision, goals, and priority areas for the city (Stavanger city council 2016). The roadmap emphasizes that to the core of the city's smartening are citizens. Further, it establishes that Smart city projects must include citizens and users in the development of solutions and be based on their needs. In 2017, the municipal government established a smart city office with a mandate to implement the strategy of the Roadmap and work across sectors to foster innovation and lay the foundation for new economic development. Most early projects were focused on testing and demonstrating new digital and IoT technologies without too much success in capturing the hearts and minds of citizens (Øvrebekk 2019).

Today, the notion of 'smart' is increasingly focused on *smartening* design and planning processes in ways that engage with citizens and foster social innovation through co-creation. In this regard, Stavanger follows the shift made at the European level. It is acknowledged that without the involvement of citizens, valuable and creative contributions for better solutions and services would be missed (Stavanger city council 2016, 9). Stavanger has focused on smaller-scale local innovation, and citizen participation through what the city calls 'co-creation', a method to design with the input of users and other stakeholders (Stavanger Municipality 2018).

Currently, there are sixteen Stavanger Smart city projects (Stavanger municipality 2021a) at different stages of implementation. From these, seven projects to date have directly sought to involve children in different age groups. These projects are: Agile piloting – Lervig park, Smart city talents, Technology SMART, Smart Art, AV1Robots, Youth Lab and My Neighborhood. Our study focuses on one of the projects, Lervig park.

Lervig smart park

Lervig park is a green urban area located east of the Stavanger city centre. The park is located in a former industrial area currently undergoing extensive redevelopment into a residential zone consisting mainly of apartment buildings. The process to make Lervig park 'Smart' started actively in 2019, and the participation of citizens in its design was central to demonstrate a new emphasis on co-creation (Stavanger municipality 2019b). In the design of Lervig park, different methods have been used by urban planners, designers, and landscape architects in order to engage adults and children of different ages. The process of designing Lervig park followed an approach (Stavanger municipality 2019a) where children of different ages were invited to participate in the conceptualization phase.

In order to engage children of different ages in the design process and gain their input about their wishes and suggestions about features and elements the park should have, the municipality initiated a range of different activities (Nessa 2019; Stavanger municipality 2019a; 2019b; Stavanger Municipality et al. 2020). The activities included a drawing contest for small children (Aftenbladet 2019b), a clay workshop for young children, an ‘innovation week’ for teenage participants, the ‘have a seat’ decorative mosaic art project, and a home-based workshop. This workshop consisted of families creating a collage at home and choosing between three main proposals for Lervig park: as a recreational place, a meeting place, or with a focus on concrete activities.

Findings

In our interviews, urban planners and local stakeholders stressed the wish to develop children’s sense of connection to the park and responsibility for the environment as a main motivation for the participatory process. They hoped that engaging children in participatory activities would elicit a feeling of responsibility for protecting the biodiversity of the park and caring for its facilities. Different participatory activities had been scheduled during the design stage of the park, as to gather input from children. However, the outbreak of COVID-19 in 2020 brought some impediments, leading to the cancelation of a physical workshop with children. A home-based workshop replaced this but yielded only six answers from families with children. In general, our study participants reported that families were often busy and difficult to engage in their participatory activities.

Through our interviews, participants reflected on the main challenges to the participation of children, such as: inadequate representation of children, power positions (i.e. adults and experts deciding what is best and arbitrarily deciding, sometimes quickly excluding children’s input) and time and money constraints to ensure their participation. Other challenges to actual participation were: involving children in a ‘decorative’ or tokenistic way, without actually considering their input; low self-esteem, motivation, and shyness (in some children) affecting their participation and engagement; having a foreign background (i.e. immigrant children) or lower socio-economic status; and adults’ own lack of knowledge on the right methodologies and ways to communicate with and listen to children.

It was stressed that having someone who understands children, knows how to address them, and communicates with them was a factor that would guarantee a successful engagement and participation of children. It was recalled that in previous projects that sought to engage children, mistakes were made by having children of different ages sit in a room and listen to different adult stakeholders such as politicians. This did not provide children the same amount of comfort, spontaneity, creativity, and freedom they needed to express their opinions and elicit ideas. Collaboration with intermediary actors was seen as extremely important to facilitate the inclusion of children in the envisioned co-creational, participatory process for Lervig park. Private and public stakeholders, such as schools, kindergartens, private and non-profit companies, and organizations were reported to have come together in this process.

Taking a citizen-centric perspective has meant, for some stakeholders, to open up to collaborating with projects such as Lervig park, where local inhabitants give their opinions and input in the design stages. This decision is backed by an understanding that, as with any other municipal project, Smart city projects can affect the lives and everyday of citizens. Companies and entrepreneurs cooperating with the park reported to see children as important end-users of the services and facilities they will provide. It was therefore said that listening to their input was important and reinforced democratic forms of participation, increased user satisfaction, reduced contestations, and ensured the feasibility and acceptance of the changes to be implemented.

Children and youth were reported to have more creative and different opinions, preferences, and perspectives than what adults had anticipated. Some adults compared this to their experiences from previous projects, where the input from children and youth challenges existing approaches and solutions. Both children and adults were reported to have had positive educational or learning

outcomes. They highlighted the ability to collectively reflect on the environmental and social issues facing the area in which the park is located. Children identified local problems and proposed creative solutions. Older children pondered over the effects a particular design of the park could have on neighbours and on biodiversity. Students brainstormed ideas for the park and stressed the importance of having more green areas to preserve biodiversity and healthy ecosystems.

Overall, it was noted that children's curiosity, enthusiasm, and sense of awe were perceived as important to engage them in urban planning and in the design of green spaces. This kind of early engagement made children's participation consistent and recurrent, as some children reported to their teachers their interest in participating in other Smart city initiatives and gain new experiences.

Various study participants underlined the potential that Smart city projects can have for fostering civic education. It was said that democratic participation processes serve to inform children of some of the important matters that will affect their surroundings and allow them to have a say on such matters. It was emphasized that if children can be informed by adults in a transparent way, observing that their input and opinions can be taken seriously as much as those of adults, this could, later on, contribute to foster an active and responsible citizenry. Equally, it was stressed that early participatory experiences of children in the planning of urban green areas can potentially enhance the degree of environmental commitment and engagement in other projects.

Project communicators, leaders, and head teachers facilitated the initial dialogue with older schoolchildren. Further, for headteachers, the participatory experience meant that Smart city projects can have the potential to be a catalyst for meaningful childhood experiences of sustainability. It was reported that 'visiting and spending time in the park could lead to important experiences and teachings about nature, biodiversity and sustainability knowledge (...)' and 'valuable informal teachings and discussions regarding the biology and the ecosystem could take place at the park, as well as the fostering of a caring attitude towards local fauna and flora'.

While children were considered as sources of inspiration on how to design the park and its features, they were not equally considered as co-creators in the planning and implementation stages. Some teachers referred to a lack of clarity from the municipality's side regarding the real outcomes of children's participation, was noticed. Various children wished to know how their ideas would actually be taken into consideration and materialized or, if not, why they were discarded. Older children communicated to their head teachers their disappointment at not clearly knowing the outcomes of their participation and project. Teachers saw this as a factor that may make children less engaged in future projects.

From the perspective of urban planners interviewed in this study, not all ideas children provided were feasible, as factors such as size, accessibility, practicality, time for execution, and finances impeded their realization. For instance, it was reported that some children's ideas such as a floating restaurant, a bridge over the water, climbing walls, and a sauna were considered as non-feasible to implement in the park (Soltani 2019, 49). One of our study participants expressed that experts and authorities, at times, 'excluded children's out-of-the-box ideas and supported already established priorities', while another participant added that 'pre-determined ideas of what adult experts deemed as aesthetic [in the park's design] could also have acted as constraints, dictating what was considered as feasible'.

Planners and architects acknowledged the importance of co-creating spaces with the input of the actual users, such as children. Nonetheless, in practice, these architects and planners reported uncertainty on whether children could actually have meaningful opinions or input. Especially regarding young children, it was reported that finding other methods to include them, going beyond drawing or handing an invitation to take part in a site-recognition visit to stimulate ideas to obtain their input was challenging. Further, as seen by urban planners and project leaders participating in this study, the use or the design of new methodologies and strategies to facilitate the involvement of families with small children -an unrepresented group- is still lacking.

At the time of writing this article, more than two years after the different activities with children, youth, and other stakeholders took place, the park still remains to be fully developed. Only some benches, some tables, and barbecues exist within the park. Some of the pilot installations made during the early implementation phase have been removed and a major construction site infringes on the park's edges. According to the city, a final plan for Lervig Park was approved in 2021 and the park is planned to be fully developed in 2023.

Analysis

Lervig Smart Park was one of the first smart city projects in Stavanger that prioritized citizen engagement over testing and piloting new technological solutions. In fact, digital technologies, sensors, and IOT systems only received marginal attention in the project. Instead, collaboration between municipal departments, involvement of a broad range of stakeholders, and inclusion were focus areas. Thus, the Lervig Park project signals a shift in the meaning of 'smartness', from digital technologies to cross-sectoral collaboration and direct citizen participation. This is very much in line with the Nordic Smart City roadmap, which Stavanger was heavily involved in developing, that in many ways redefined smart to refer to process innovation rather than the deployment of technological solutions.

Wathne and Haarstad argue that smart city as a policy and strategy should be considered '*... a polymorphous urban strategy employed to reframe local contexts and reshape leverage for locally driven solutions*' (Wathne and Haarstad 2020, 132). They go on to argue that an urban development strategy such as smart city enables local agents to reframe pre-existing targets within a larger discourse to access funding and resources (Haarstad and Wathne 2019; Wathne and Haarstad 2020). This argument aligns well with what we found in the Lervig Park project. The participatory turn in smart city discourse, most concretely felt locally through the simultaneous development of the Norwegian Smart City Roadmap and the Lervig park project may have increased the attention to citizen engagement and participation. This allowed different pre-existing agendas within the city administration and external stakeholders to shift attention from technological solutions to planning processes. The wish to experiment with participatory planning approaches and inclusion of hitherto underrepresented groups was as such not the invention of the smart city policy and strategy but was to a certain extent enabled by reframing these agendas within a smart city discourse. The participatory turn in smart city discourse in Stavanger thus opened up for other agendas than a technological one. Public concerns such as a sense of belonging, ownership of public areas, environmental consciousness, learning, and inclusion became what defined smartness rather than technological solutions.

The inclusion of children and youth in the design of Lervig park has had both rewarding and beneficial outcomes but also shows limitations. According to the perspectives of those interviewed for this study, including children, allowed city planners and other adults to discover new perspectives, creative ideas, and new ways to rethink some of the elements of the park and its design. Children appeared excited about the ability to shape their immediate urban environment. Perceptions that children's familiarity and engagement with Lervig park through their participation could elicit a sense of present and future caring for the park, encouraging visits to it, were also conveyed. From stakeholders' reported experiences, most children and teenagers participating in the development of the park were quite engaged in the different activities and workshops for Lervig park and willing to participate in other coming activities. Most study participants also shared the view that children were citizens with agency that were likely to work in the region in the future and contribute to its development. This indicates that encouraging children's genuine interest, reflexivity and democratic decision-making in affairs concerned with sustainability and local initiatives at all ages is indeed possible and important in sustainable urban development.

The case shows that smart city projects have the potential for the development of children's democratic competencies and learning, as the different subjects and challenges they address may

demand certain reflexivity and a practical and theoretical understanding of the problems they seek to address. According to the different stakeholders, better knowledge about city planning, problem-solving skills, sustainability, cooperation, reflective capacity, and creativity have been encouraged and supported in the co-creation process of Lervig park. For instance, the *young entrepreneurs' project* brought schoolchildren together to brainstorm ideas. Lervig park, a real case study, allowed for an initial exploration of this area's challenges, to then work on developing possible solutions. Other findings related to the field of educational sciences also deserve attention. We argue that the participation of children of all ages in the context of Lervig park, the different activities they were involved in, along with social interactions, became a catalyst for children's learning. In line with sociocultural learning theories (Lave and Wenger 1991; Rogoff 1990; 2003; Vygotsky 1978; 1986), we pose that sociocultural and contextual learning facilitated the development of cognitive skills through meaningful interactions. The smart park and related activities became learning arenas that facilitated meaningful interactions. In their interactions, it is well-known that children change by virtue of the experiences they have. These everyday experiences serve also to prepare them for lifelong learning (Scrimsher and Tudge 2003, 296).

On the other hand, challenges regarding the ways in which children were invited to participate can also be identified. Regarding the participation of small children and the local newspaper invitation encouraging them to send a drawing of their 'dream park', yet the call yielded just a few answers. We find that this might possibly be related to a problem of not using more direct channels to communicate with the children and explaining to them the goal and possible impact the drawings can have, eliciting their curiosity and awareness. In communication with kindergartens regarding their participation in affairs concerning the city, some expressed that having enough time frames to incorporate different activities was an important factor in whether they decided to participate or not. In some cases, multiple pedagogical and everyday activities decided in advance made it challenging to accommodate or promote additional activities such as participation in the Lervig Park project. Recruiting children into participatory planning requires careful planning not only in terms of the methodology of the actual participatory activities but also in recruitment strategies. Conventional communication channels such as newspaper outlets or community message boards fail to engage with children directly. Strategies of how to include schools, kindergartens, youth clubs, and other institutions who are in daily contact with children would have enabled planners to have a more direct communication channel with children rather than only through their parents.

A low engagement from families was also seen as a challenge to adequate levels of representation. This shows that careful consideration of how to reach children and when to plan activities is of important. This might come from the busy schedules working parents in Norway often have during the week. Possibly, planning activities on weekends that could engage both parents and children simultaneously may help to better access this group. Further, we find that following the model of involving different key intermediary stakeholders to communicate with and encourage the participation of children and youth is also, to a large degree, effective, and should thus be encouraged. Several successful workshops in partnership with artists and initiatives like 'Young entrepreneurs' that partner with schools and in which the activities are planned in accordance with school schedules and in close collaboration with teachers and other professionals with expertise in childhood learning can attest to that.

It is clear from our case study that the children involved were eager and willing to participate in shaping their urban environments. However, the study also identifies significant shortcomings in how children's participation is effectuated. Two core shortcomings this study finds are 1. the value that children's participation is given and 2. the methodological choices made by planners. The first shortcoming pertains to the fact that children were only invited into the 'creative' parts of the design phase, not as decisionmakers but mainly as sources of inspiration. Their input became repositories of inspiration, but children were not involved in the later stages. Children were not invited to prioritize what proposed design elements they deemed as most important, nor were they invited into the ensuing decision-making phases. This provides an example of how the

participatory turn in smart cities enters the challenges of participatory planning in general. As Arnstein (1969) noted more than 50 years ago, participation is not only about consulting stakeholders. Participation also entails allowing stakeholders to engage in negotiation on trade-offs. Children in the Lervig Park project were not envisioned to participate in this phase. As illustrated by teachers' perceptions, decision makers can arbitrarily prioritize some pre-conceived ideas and proposals, while dismissing new ideas coming from children. Children are often not adequately informed about the reasons for this. When children, who had eagerly waited for updates, do not often hear back more after their participation, particularly in regards to the outcomes (of their participation) and the progress in the implementation process, they lose motivation. From these interviews, it became clear that the planners and architects did not envision that children should take part in the decision-making phases based on a mix of doubt of their capability to engage in meaningful ways and also uncertainty about how methodologies to do so. This attests to the continued persuasion that children are not capable political subjects.

The other shortcoming identified is in the methodological aspects of participatory approaches. City planners and architects expressed a lack of knowledge and uncertainty regarding alternative engagement methods or varied methodologies (e.g. Clark 2005, 2017) that would allow children to express themselves in matters concerning urban planning. This may act as a roadblock to effective children's participation. Methodological choices for children's involvement should stem from a previous dialogue with child institutions such as schools, kindergartens, parents, and children themselves. A first step to adequately involve children could start by: (i) adults' informed acknowledgement or recognition of children as capable individuals with enough agency to express their demands and (ii) the observation that lack of adequate methodologies and time for the involvement of small children can undoubtedly have a limiting effect in their participation. Here urban planners can considerably learn from the field of educational sciences on children's participation – both in terms of pedagogy and didactics. This is not necessarily a matter of urban planners being called to become education experts, but a call for awareness of adequate participatory methods and cooperation with childhood and education experts to effectively engage with children in decision-making processes.

Overall, our analysis finds that the inclusion of children in the Lervig Smart Park project is still in a nascent phase where questions of recruiting children, methods for how to engage the children, when to engage them, and how to involve children in decision-making processes remain unresolved. While children's input was encouraged in the ideation phase and the participating children showed great enthusiasm and creativity in this phase, their role in the decisive processes of prioritizing and selecting concrete initiatives was lacking. This lack of transparency and inclusion in later stages shows a major shortcoming in the project's design for participation.

Conclusion

This study has examined how the participatory turn in smart city strategies has played out in the city of Stavanger, Norway. Stavanger quickly adopted smart city as a policy in the wake of becoming one of the EU Lighthouse Smart Cities in 2015. Initially, the emphasis was on testing and piloting technological solutions, but over time, the smart city approach has embraced co-creation and broader stakeholder involvement. The participatory turn in smart city projects has reignited the importance of democratic participation in urban planning, with potential implications for environmental responsibility and learning, inviting further exploration in future studies.

Lervig Smart Park is not revolutionary nor in its aim or scope. However, the participatory turn in smart city discourse has opened up new ways of envisioning planning processes in Stavanger and enabled more stakeholders to be involved. There is, however, still a long way to what Cardullo, Di Felicaantonio, and Kitchin (2019) have labelled the right to the smart city. Participation is still at the level of consultation rather than partnership if we are to follow Arnstein's ladder of participation. Here, we have identified challenges both in terms of recruitment of populations not usually

involved in urban planning processes but also a lack of knowledge and awareness of methodologies for more inclusive participatory practices among city planners and architects. This shows that several points of the critique in the crisis of participation literature remain highly relevant, and a participatory turn in smart city projects does not, by default, lead to more inclusive planning processes.

As a way forward, we propose that future participatory urban planning initiatives involving children can benefit from an approach that integrates alternative multi-method strategies over time, tailored to children of specific age groups and backgrounds, as suggested by Clark (2017). These methods have been demonstrated to significantly enhance children's participation. These encompass standard practices like interviews and observations to more diverse approaches such as map-making, photography, book creation, and walking tours. Allocating ample time, particularly with younger children, and occasionally repeating activities can significantly enhance their participation. While some artistic methods were employed in the Lervig Smart Park project, they were often limited, hastily executed, and of short duration. Insights drawn from both scholarly and field-based sources (e.g. Clark 2005, 2017; Derr, Chawla, and Mintzer 2018; Sutton and Kemp 2002) highlight the importance of integrating multiple artistic methods suitable for both younger and older children, such as photography, video documentation, three-dimensional modelling, storytelling, writing, murals, and collages. In addition to adopting diverse multi-method approaches, we advocate for the incorporation of ethnographic methods. This entails establishing a foundation of trust with children before initiating participatory activities, followed by deploying observation techniques to glean valuable insights into how children engage with and utilize their surrounding spaces.

In closing, this study sheds light on the evolving landscape of participatory smart city strategies and underscores the pressing need for more inclusive planning practices. By embracing a multifaceted approach to participation, we can strive towards more meaningful engagement, especially concerning children, and work towards higher levels of participation in a more inclusive manner.

Disclosure statement

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References

- Aftenbladet. 2019a. Stavanger er Norges smarteste by. Available at: <https://www.aftenbladet.no/lokalt/i/y3Gk7g/stavanger-er-norges-smarteste-by>.
- Aftenbladet. 2019b. Vil at barn skal tegne den nye Lervig-parken på Storhaug. Retrieved from <https://www.aftenbladet.no/lokalt/vmol7V/vil-at-barn-skal-tegne-den-nye-lervig-parken-paa-storhaug>.
- Albrechts, L., A. Barbanente, and V. Monno. 2019. "From Stage-Managed Planning Towards a More Imaginative and Inclusive Strategic Spatial Planning." *Environment and Planning C: Politics and Space* 37 (8): 1489–1506. <https://doi.org/10.1177/2399654419825655>.
- Arnstein, S. R. 1969. "A Ladder of Citizen Participation." *Journal of the American Institute of Planners* 35 (4): 216–224. <https://doi.org/10.1080/01944366908977225>.
- Calzada, Igor. 2019. "Deciphering Smart City Citizenship: The Techno-Politics of Data and Urban Co-Operative Platforms." *Revista Internacional de Estudios Vascos/International Journal on Basque Studies* 63 (1-2): 42–81. <https://doi.org/10.13140/RG.2.2.24498.35524/6>.
- Calzada, I. 2021. "The Right to Have Digital Rights in Smart Cities." *Sustainability* 13 (20): 11438. <https://doi.org/10.3390/su132011438>
- Calzada, I., M. Pérez-Batlle, and J. Batlle-Montserrat. 2021. "People-Centered Smart Cities: An Exploratory Action Research on the Cities' Coalition for Digital Rights." *Journal of Urban Affairs*, 1–26. <https://doi.org/10.1080/07352166.2021.1994861>

- Cameron, J., and D. Grant-Smith. 2005. "Building Citizens: Participatory Planning Practice and a Transformative Politics of Difference." *Urban Policy and Research* 23 (1): 21–36. <https://doi.org/10.1080/081114042000335296>.
- Cardullo, P., C. Di Feliciaantonio, and R. Kitchin. 2019. *The Right to the Smart City* (First edition). Bingley: Emerald Publishing.
- Cardullo, P., and R. Kitchin. 2019. "Being a 'Citizen' in the Smart City: Up and Down the Scaffold of Smart Citizen Participation in Dublin, Ireland." *GeoJournal* 84 (1): 1–13. <https://doi.org/10.1007/s10708-018-9845-8>
- Charnock, G., H. March, and R. Ribera-Fumaz. 2019. "From Smart to Rebel City? Worlding, Provincialising and the Barcelona Model." *Urban Studies*, 004209801987211. <https://doi.org/10.1177/0042098019872119>.
- Clark, A. 2005. "Listening to and Involving Young Children: A Review of Research and Practice." *Early Child Development and Care* 175 (6): 489–505. <https://doi.org/10.1080/03004430500131288>
- Clark, A. 2017. *Listening to Young Children. A Guide to Understand and Use the Mosaic Approach. Expanded Third Edition*. London and Philadelphia: Jessica Kingsley Publishers.
- Clark, J. 2020. *Uneven Innovation: The Work of Smart Cities*. New York, NY: Columbia University Press, p. 328.
- Coleman, Roy. 2020. "Surveillance as an Urban Way of Life." In *The Routledge Companion to Urban Media and Communication*, edited by Zlatan Krajina and Deborah Stevenson. New York: Routledge.
- Coles, R. 1998. *The Moral Intelligence of Children*. New York, NY: A&C Black.
- Coletta, C., L. Evans, L. Heaphy, and R. Kitchin. 2019. *Creating Smart Cities*. New York, NY: Routledge.
- Cowley, R., and F. Caprotti. 2019. "Smart City as Anti-Planning in the UK." *Environment and Planning D: Society and Space* 37 (3): 428–448. <http://doi.org/10.1177/0263775818787506>.
- Derr, V., L. Chawla, and M. Mintzer. 2018. *Placemaking with Children and Youth: Participatory Practices for Planning Sustainable Communities*. New York: New Village Press.
- Design and Architecture Norway (DOGA), Norwegian Smart City Network, & Nordic Edge. 2020. Roadmap for Smart and Sustainable Cities and Communities in Norway. Design and Architecture Norway.
- Drisko, J. W., and T. Maschi. 2016. *Content Analysis. Pocket Guides to Social Work*. New York, NY: Oxford University Press.
- Ennew, J., et al. 1994. "Time for Children or Time for Adults." In *Childhood Matters. Social Theory, Practice and Politics*, edited by J. Qvortrup, 125–143. Aldershot: Avebury.
- Eriksson, E., A. Fredriksson, and J. Syssner. 2022. "Opening the Black Box of Participatory Planning: A Study of How Planners Handle Citizens' Input." *European Planning Studies* 30 (6): 994–1012. <http://doi.org/10.1080/09654313.2021.1895974>.
- European Commission. 2014. Smart Cities and Communities Lighthouse Projects | Programme | H2020 | CORDIS | European Commission. https://cordis.europa.eu/programme/id/H2020_SCC-1-2016-2017.
- European Commission. 2021a. EU Mission: Climate-Neutral and Smart Cities [Text]. European Commission – European Commission. https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en.
- European Commission. 2021b. *100 Climate-Neutral and Smart Cities by 2030 - Info Kit for Cities*. Brussels: European Commission. https://research-and-innovation.ec.europa.eu/system/files/2021-11/ec_rtd_eu-mission-climate-neutral-cities-infokit.pdf.
- European Commission. 2022. Projects | Smart Cities Marketplace. <https://smart-cities-marketplace.ec.europa.eu/projects-and-sites/projects?f%5B0%5D=lighthouse%3ALighthouse%20projects>.
- Foth, M., M. Brynskov, and T. Ojala. 2015. *Citizen's Right to the Digital City*. Berlin: Springer. 10, 978-981.
- Gullestad, M. 2002. "Invisible Fences: Egalitarianism, Nationalism and Racism." *Journal of the Royal Anthropological Institute* 8 (1): 45–63. <https://doi.org/10.1111/1467-9655.00098>.
- Haarstad, Håvard, and Marikken W. Wathne. 2019. "Smart Cities as Strategic Actors: Insights from EU Lighthouse Projects in Stavanger, Stockholm, and Nottingham." In *Inside Smart Cities: Place, Politics and Urban Innovation*, edited by Andrew Karvonen, Federico Cugurullo, and Federico Caprotti, 24. New York: Routledge.
- Häkli, J., and K. P. Kallio. 2018. "On Becoming Political: The Political in Subjectivity." *Subjectivity* 11 (1): 57–73. <https://doi.org/10.1057/s41286-017-0040-z>.
- Häkli, J., and K. P. Kallio. 2019. "Theorizing Children's Political Agency." In *Establishing Geographies of Children and Young People*, edited by T. Skelton, and S. C. Aitken, 271–293. Singapore: Springer. https://doi.org/10.1007/978-981-287-041-4_1
- Halpern, O., and G. Günel. 2017. "Demosing Unto Death: Smart Cities, Environment, and Preemptive Hope." *The Fibreculture Journal* 29. <https://doi.org/10.15307/fcj.29.215.2017>.
- Hart, R. A. 2008. "Stepping Back from 'The Ladder': Reflections on a Model of Participatory Work with Children." In *Participation and Learning*, edited by A. Reid, B. B. Jensen, J. Nickel, and V. Simovska, 19–31. Dordrecht: Springer.
- Hart, R. A. 2013. *Children's Participation: The Theory and Practice of Involving Young Citizens in Community Development and Environmental Care*. London: Routledge, 220 p.
- Inch, A. 2015. "Ordinary Citizens and the Political Cultures of Planning: In Search of the Subject of a New Democratic Ethos." *Planning Theory* 14 (4): 404–424. <https://doi.org/10.1177/1473095214536172>.

- Stavanger municipality. 2019b. Lervig Park. Report on residents' involvement. https://www.stavanger.kommune.no/siteassets/kultur-og-fritid/tur-og-natur/parker-og-friomrader/lervig-park/beboerinvolvering_rapport-us.pdf.
- Stavanger municipality. 2021a. Smart City Projects. Accessed June 2021. <https://www.stavanger.kommune.no/en/samfunnsutvikling/stavanger-smart-city/smart-city-projects/>.
- Stavanger municipality. 2021b. Stavanger Smart City. <https://www.stavanger.kommune.no/en/samfunnsutvikling/stavanger-smart-city/>.
- Stavanger Municipality, Leva and Urban Sjøfront. 2020. Lervig Park – Co creation (Official reports). <http://opengov.cloudapp.net/Meetings/STAVANGER/Meetings/Details/1364123?agendaItemId=225483>.
- Stemler, S. 2000. "An Overview of Content Analysis." *Practical Assessment, Research, and Evaluation* 7 (1): 17.
- Sutton, S. E., and S. P. Kemp. 2002. "Children as Partners in Neighborhood Placemaking: Lessons from Intergenerational Design Charrettes." *Journal of Environmental Psychology* 22 (1-2): 171–189. <https://doi.org/10.1006/jevp.2001.0251>
- Swyngedouw, E. 2014. "Where Is the Political? Insurgent Mobilisations and the Incipient "Return of the Political."." *Space and Polity* 18 (2): 122–136. <https://doi.org/10.1080/13562576.2013.879774>.
- Umemoto, K. 2001. "Walking in Another's Shoes: Epistemological Challenges in Participatory Planning." *Journal of Planning Education and Research* 21 (1): 17–31. <https://doi.org/10.1177/0739456X0102100102>.
- UNCRC. 1989. United Nations General Assembly 44, resolution 25, November, 20th, 1989. Convention on the Right of the Child. Resolution 44/25. <http://www.ohchr.org/Documents/ProfessionalInterest/crc.pdf>.
- United Nations. 2015. *Transforming our World: The 2030 Agenda for Sustainable Development*. New York: United Nations.
- Vanolo, A. 2014. "Smartmentality: The Smart City as Disciplinary Strategy." *Urban Studies* 51 (5): 883–898. <http://doi.org/10.1177/0042098013494427>.
- Vygotsky, L. S. 1978. *Mind in society* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.).
- Vygotsky, L. S. 1986. *Thought and Language*. Cambridge, MA: Harvard University Press.
- Wathne, M. W., and H. Haarstad. 2020. "The Smart City as Mobile Policy: Insights on Contemporary Urbanism." *Geoforum; Journal of Physical, Human, and Regional Geosciences* 108: 130–138. <https://doi.org/10.1016/j.geoforum.2019.12.003>.
- Weber, R. P. 1990. *Basic Content Analysis* (No. 49). California: SAGE Publications.
- Willis, Katharine S. 2019. "Whose Right to the Smart City?" In *The Right to the Smart City*, edited by Paolo Cardullo, Cesare Di Felicianantonio, and Rob Kitchin, 27–41. Emerald Publishing Limited.
- Wood, D. M., and D. Mackinnon. 2019. "Partial Platforms and Oligoptic Surveillance in the Smart City." *Surveillance & Society* 17 (1/2): 176–182. <http://doi.org/10.24908/ss.v17i1/2.13116>.