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Co-producing, curating and reconfiguring dwelling patterns: a design anthropological approach for sustainable dwelling futures in residential suburbs

Teresa Palmieri, Liesbeth Huybrechts and Oswald Devisch

Faculty of Architecture & Arts, Hasselt University, Belgium.

The increasing polarization of sustainability debates has enhanced the need for designers to re-engage with the politics of sustainable futures. This paper particularly explores these debates in (Flemish suburban) dwelling contexts, where sustainable development strategies such as densification and depaving trigger conflicts between dwellers, policy-makers, designers and organisations. We researched how a design anthropological approach could enable design researchers to go beyond polarization by collaboratively researching the politics of how dwelling futures are being shaped in people's everyday lives. We particularly explored the co-production, curation and reworking of dwelling patterns as an approach that can combine the situated approach of design anthropology and the dialogical approach of participatory design in engaging with the politics of everyday dwelling and dwelling futures.

Keywords: design anthropology, participatory design, sustainability, design process(es), design methods

The acceleration of urbanization and the recognition that our (sub)urban lives are responsible for most of the use of resources and waste production has enhanced the global debates on the development of more sustainable ways of urban living (Swyngedouw & Kaika 2016). Today, in these debates, sustainability is often presented as a universal matter of concern. However, when the debates on sustainability enter the concreteness of people's daily lives and are represented by (spatial) policy plans which indicate how these urban futures should look like, they often trigger contestation and even polarization (Swyngedouw & Kaika 2016; Swyngedouw, 2020). This tension between these global debates and concrete dwelling experiences, is the result of an increasing depoliticization of sustainability debates which too often present singular and "fit-for-all" vision, achieved through compromises and "techno fixes" (Swyngedouw, 2011; Mazé, 2013). Often removed from the struggles and practices of our everyday urban lives, these universalizing visions on sustainable futures are in conflict with the actual multiplicity of possible futures which emerge from people's everyday lives. Also, at this moment, too little possibilities are offered to publicly debate these tensions (Swyngedouw

& Kaika, 2016). In this context, design and design research are often mobilized as “problem-solvers” which need to fix the conflicts that are encountered in future-making processes in collaboration with citizens, with an eye on shaping consensus around particular policy ambitions and visions (Mazé, 2013).

Often discouraged with this role as “fixers”, design researchers have started to re-engage with the politics of sustainable futures (Fry, 2009; Mazé, 2013 & 2016). Fry (2009) has for instance proposed to understand design for sustainability as a process which always requires contextualization and negotiation. Mazé (2013, 2016), has suggested that design needs to address sustainable futures as contested and emergent in order to recognise that visions on the future – including those of designers – emerge from the present and particular standpoints which can influence what we consider as priorities, as possible, negotiable or immutable. This encourages designers to redefine their engagement in sustainable debates, by exploring ways to collaboratively open up dialogues on contextual and dialectical definitions of sustainability without – too quickly – trying to close those dialogues down through “design solutions” (Fry, 2009; Mazé, 2013).

Design anthropology has been explored by designers as a way to engage with these open-ended participatory future-making processes “*as part of the social (re)production of daily life*” that can support the engagement with futures as a multiplicity of – often conflicting – possibilities embedded in people’s daily lives (Kjærsgaard et al., 2016). For this reason, we decided to adopt this design anthropological approach in our own research on participatory ways for supporting the retrofitting of suburbs into more sustainable urban environments. However, we experienced that documenting, debating and working with this multiplicity did not turn out to be enough to unveil and critically reflect on the politics of how dwelling futures are being shaped in people’s everyday life. Because of the length and scale of sustainability debates in a dwelling context, we also needed to engage with how sustainability projects develop through time and unfold in larger socio-material and political contexts with a continuously changing group of actors. This motivated us to search for a design anthropological approach that could enable dwellers and the policy makers and organisations they engage with, to initiate and continue collective, situated and dialectical dialogues themselves. In this paper, for reasons we will explain later, we explore co-producing, curating and reconfiguring “dwelling patterns” as an approach which explores two questions: *How can “dwelling patterns” be developed as a design anthropological approach to participatory future-making to (1) contextualize sustainable dwelling futures in people’s everyday lives while (2) understanding, exploring and debating them as also part of their larger socio-spatial and political context with actors at different scale levels?*

We explore these questions via the case study of a future-making process in a Flemish suburb. Here, the paths leading towards more sustainable futures for dwelling are increasingly contested. On the one

hand, the unsustainability of dispersed urbanisation is at the centre of institutional visions on the future of dwelling which promote more compact and collective ways of living. On the other hand, people still like the suburban dwelling culture of a single-family house with a garden in a green and quiet residential area (Bervoets & Heynen, 2015; De Decker, 2011; Van de Weijer, 2014). We present how, through “dwelling patterns” we have entered in an ongoing dialogue with a diversity of actors – being inhabitants, civil servants, experts – via a multi-stage process which made space for heterogeneity of experiences, interpretations and proposals both with attention for the level of the individual actors and the scale level on which they operate. We will discuss how this approach enabled us to rethink design anthropology’s potential to contextualise ongoing debates on sustainability’s futures in people’s everyday life and re-politicise these debates. We conclude by considering how this approach can inspire other design researchers to explore their own ways for engaging with the politics of sustainable dwelling futures.

1 Design anthropology in participatory future-making

Design anthropology’s focus on future-making is in identifying and scaffolding potential for change by producing knowledge on existing and emerging cultures and possible futures (Smith & Otto, 2016; Kjærsgaard et al., 2016). Participatory design is concerned with democratic change by staging socio-material conditions for exploring controversial issues and by ‘drawing things together’ to work with heterogeneous communities to collaboratively and locally make futures (Ehn et al., 2014; Binder et al., 2015; Luck, 2018a). Participatory design has used anthropological approaches mainly by means of ethnography (Blomberg, J. & Karasti 2013; Smith & Kjærsgaard, 2015). In participatory processes in the everyday realm, designers and researchers have been employing ethnographic-based methods (e.g. “snippets”, “fragments”, “snapshots”) for supporting everyone in a design process –including designers– to have a more empathic understanding of each other’s experiences and perspectives and the dynamics that happened around them to co-design alternatives (Brandt et al. 2008; Halse, 2010; Mattelmäki et al., 2011; Malmberg, L., & Binder, 2010; Heylighen, 2019).

In the field of design anthropology, these ethnographic based methods have been criticized for lacking a more critical engagement with the cultural frameworks and the socio-political contexts within which future-making processes take place, focusing too much on “the local, the descriptive and the empirical” at the expenses of inquiring into and reframing how futures are imagined and constructed (Kjærsgaard & Boer, 2016; Smith & Kjærsgaard, 2015). For this, design anthropologists have suggested engaging with the contextualization and analysis of possible futures and how they emerge within their socio-material and political contexts (Kjærsgaard & Boer, 2016; Smith & Otto, 2016). This can provide the critical distance from which implicit frameworks, taken for granted assumptions and perspectives can be revealed and reflected upon for problematizing and reframing what is considered possible (Smith &

Kjærsgaard, 2015; Smith & Otto, 2016). This critical distance can be supported by speculative concepts which do not only focus on “familiarization” but also on estrangement and the exploration of emergent realities to provoke other – critical – ways of thinking (Kjærsgaard & Boer, 2016; Halse, 2008, Smith & Otto, 2016). Design anthropologists thus have defined more interventionist strategies to move beyond the descriptive attitude of ethnography, in order to establish other points of discourse within dominant conversations on the future (Kjærsgaard et al., 2016; Smith & Otto, 2016).

This paper further explores this line of research, namely to strengthen the political aspects of design anthropology and investigates how we can support the reframing of dominant conversations not only on the micro-scale level of people’s everyday life but in more complex networks of actors at different scale levels and over time (Huybrechts et al., 2017). To involve this diversity of actors we are inspired by democratic dialogues which, in participatory design, have been developed as designerly ways for supporting everyone in a future-making process to equally participate and steer debates and engage in them not only verbally but also via artefacts as triggers and facilitators of conversation (Huybrechts et al., 2016 and 2018; Roosen et al., 2020). We have particularly explored the participatory technique of making, for facilitating actors at different scale levels to concretely express and work with their ideas on present and future ways of living without the necessity of particular (design) skills (Brandt et al. 2013; Hillgren et al. 2011). We have employed making as a way for creating a common ground for participants to engage in collective discussions (Brodersen et al. 2008) with the intent of exploring dilemmas and opportunities about possible futures (Hillgren et al. 2011; Binder et al. 2015).

Hence, we have experimented with the concept of “dwelling patterns” as a strategy to facilitate the contextualization of dwelling futures by revealing, making tangible and public a diversity of (un)sustainable ways of living and the standpoints and assumptions that characterise them (Kjærsgaard et al., 2016; Smith & Otto, 2016; Akama et al. 2015). We developed dwelling patterns as open-ended, incomplete and situated design representations based on people’s everyday life to enable a deliberate ongoing discussion between different scale levels, the micro-political scale level of people’s everyday life and the meso- and macro-scale level of institutions, organisations and companies by means of making. We will now expand on how we have conceptualized and advanced patterns to facilitate ongoing dialogues between actors at different scale levels in the particular context of dwelling.

2 Conceptualizing and giving form to “Dwelling Patterns”

Our exploration of “dwelling patterns” emerges from our understanding of dwelling environments as ongoingly being shaped by people’s dwelling (Ingold, 2000; Pink et al. 2017). As articulated by authors exploring dwelling, dwelling environments are sites where everyday life goes on and are characterized by continuously changing socio-material configurations (Ingold, 2000; Pink et al. 2017). Ingold’s

(2000) “dwelling perspective” exemplary presents environments as never complete, but as continuously being built as long as people dwell in them. He describes how the forms and meanings of dwelling emerge from people’s practical, contextual and relational engagement with their surroundings by means of their capacities to improvise with the materiality of their environments and imagine how things could be different for life to go on (Ingold, 2000). Pink et al. (2017) have further explored this perspective in the realm of ethnographic and design explorations of practices of home making. They have described homes as environments which are characterized by changing configurations of people, things and processes emergent from mundane activities and imaginations of everyday life and the larger socio-material and political infrastructures and processes in which they are enmeshed. The development of dwelling environments is thus a messy and uncertain process which is ongoingly shaped by the dwelling practices of people and the ideas of future they involve which are part of and interact with larger socio-spatial and political contexts (Ingold, 2000; Pink et al. 2017). This interplay makes dwelling a context with potential for collaborative future-making in relation to important societal issues such as sustainability (Pink et al. 2017; McKinnon & Sade, 2019).

For accounting of dwelling’s processual character, we elaborated on the method of design patterns, which has been used in co-design in order to involve people in giving shape to their environments (Ehn, 2008; Crabtree et al., 2002; Lee 2013; Dearden et al., 2002). Patterns, different from other design formats (e.g. typologies, components, ontologies...) are particularly suited to address continuously evolving subjects, because they enable people’s appropriation of design solutions and findings in their everyday lives (Ehn, 2008). In Alexander’s ‘A pattern language’ (1977) – which inspired many explorations of patterns in participatory design – patterns have been explored as design solutions derived from people’s everyday life to support people to improve and transform their everyday built environments at different scale levels. For facilitating the appropriation of these patterns, they have been described in terms of context of use, problematic situations and possible solutions (Ehn, 2008) and they have been developed as public, scalable and compatible (Alexander et al., 1977). However, even if Alexander’s patterns, and design patterns in general, are made to be further combined in new constellations, they are too little contextualized in and too much abstracted from everyday life. This has led to critiques about patterns being presented as “right design solutions” which often confirm, other than challenge dominant conversations on ways of living (Bhatt, 2010; Dawes & Ostwald, 2017; Dovey, 1990). So, where these patterns are suited to be used in ongoing conversations on different scale-levels about dwelling, they miss the design anthropological strength of grounding them in particular contexts and in that sense re-politicizing the design potential of these patterns. Also, paradoxically, while they are designed to be reused by others, they are too often used as fixed building blocks, as “best practices” and in that sense miss the open-endedness which can support a more dialectical dialogue to emerge by enabling reformulation of the patterns from a multiplicity of perspectives. In this research, we have

therefore redefined dwelling patterns as formats for supporting actors at different levels to continuously reframe dominant conversations on dwelling futures by facilitating them to contextualize and discuss their perspectives on this issue. As such, the patterns we work with are not “best practices” derived from people’s everyday lives, but practices which have the potential and translated in ways which can support ongoing debates on dwelling futures between actors at different scale levels.

We now present how we have developed dwelling patterns in a multi-stage process of co-producing, curating and reconfiguring very particular and contextualised dwelling patterns with actors, active at different scale levels, to debate more sustainable futures for dwelling in the Flemish suburb.

3 A case study: debating sustainable dwelling futures through “dwelling patterns”

Today, dominant visions and debates on more sustainable futures in Flanders focus on the transformation of the residential landscape towards more collective and compact ways of living (Beleidsplan Ruimte Vlaanderen, 2018). This is in contrast with the Flemish suburban housing culture. Although dispersed urbanisation has a huge impact on the environment and the climate, the majority of the Flemish people still wishes to live in a single-family detached house in the suburbs (Bervoets & Heynen, 2015; De Decker, 2011; Van de Weijer, 2014). Attempts to transform residential subdivisions often trigger inhabitants’ protests and the blocking of projects, which reinforces the idea that residents of suburbs are “careless” towards the societal costs of their way of living. These projects are typically based on ‘urban’ dwelling models, such as co-housing, urban agriculture or creative industry, and collide with the suburban housing dream.

Our case study, Vosselaar, is a typical suburban town characterized by green quiet residential areas and a daily outbound commuting of its inhabitants for work. The case study was selected because of a particular interest of the municipality in exploring how to transform the town into a “green village”. However, how to develop this vision is an ongoing and contested debate on a municipal level because it entails densification, more collective ways of living, the reduction of car-centrality, the hardening of soil and outbuildings to preserve and restore open space. This clashes with how residents and potential newcomers currently like to live. Hence, we proposed the municipality to help us choose a case study of a typical residential subdivision where to set up a participatory future-making process to bring further understanding on the ways people live in the suburbs and to open the dialogue from there on more sustainable dwelling futures (see Figure 1).

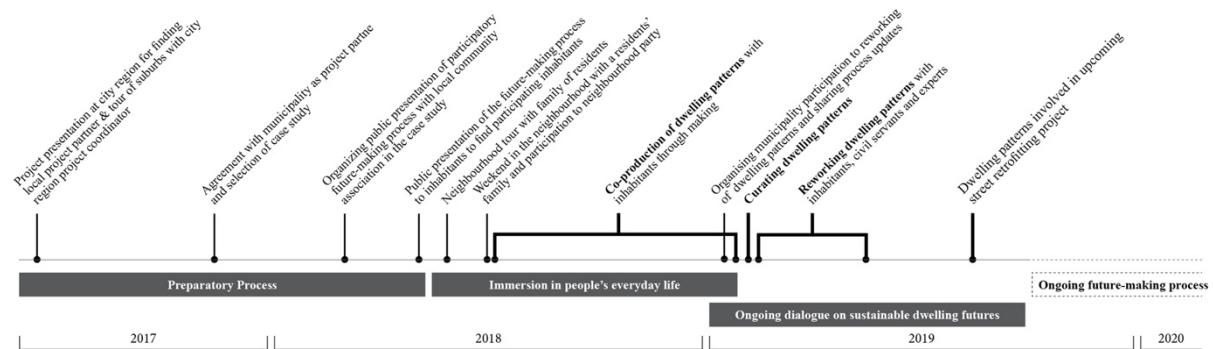


Figure 1 Timeline of participatory future-making process

The municipality proposed to engage with the “Witte Wijk”, a residential subdivision which was originally developed in the 60’s as a social housing project for large workers families. Today, it is not a social housing neighbourhood anymore and the – increasingly larger – houses are today privately owned. As the original homeowners are ageing, the green surroundings and the large plots are attracting middle-class families which see this neighbourhood as a space to develop their suburban housing dream (see Figure 2).



Figure 2 The residential subdivision

To find possible participating inhabitants to the future-making process, we invited residents to an evening presentation at the local community house. At the end of the presentation, 20 inhabitants (out of around 30) decided to participate. They were inhabitants of different ages and of different household types (i.e. ten young families with children; one young couple; four middle aged people with older children, three elderly people, two of which living alone). The majority of them were Belgian people with life histories connected to the neighbourhood. Two of the young families had recently moved from other countries (Germany and France) and two participants were from a nearby country (the Netherlands). However, the future-making process remained open for other inhabitants to join at any time.

We used “dwelling patterns” to open up and structure dialogues on more sustainable dwelling futures with the involved participants – residents, civil servants, local experts and us design researchers – in three ways: 3.1 we co-produced the patterns with inhabitants to enable a thorough understanding of (un)sustainable ways of living in people’s everyday life, 3.2 we consciously curated a selection of them to contextualize possible dwelling futures for suburbs and their possible interactions with larger socio-spatial and political contexts and 3.3 we facilitated their reconfigurations with actors at different scale levels to support their ongoing contextualization and exploration in the larger socio-spatial and political context over time.

3.1 Co-producing dwelling patterns

To support a more nuanced understanding about people’s suburban dwelling, we first explored the co-production of dwelling patterns in conversations with each of our 20 participating inhabitants. By means of average sketch models of homes and plots and colour coded components, red for presenting existing ways of living and blue for dreams and projections, we engaged inhabitants in the discussion and materialization of existing and imagined (un)sustainable ways of living (see Figure 3 and 4). This activity was carried out at people’s homes which provided opportunities for discovering their everyday lives. The emerging dialogues were partly guided by us, design researchers, questioning inhabitants about individual and collective uses of their dwelling environment and dwelling practices, about desired changes for their houses, plots and neighbourhood, and about their dreams for their future lives in the suburb. However, priority was given to inhabitants for narrating the stories that mattered to them about their present ways of living and what they imagined for their futures, imaginations which we allowed to emerge from daily life through making (Brandt et al. 2013). The dialogues were also audio recorded to further support later analysis.

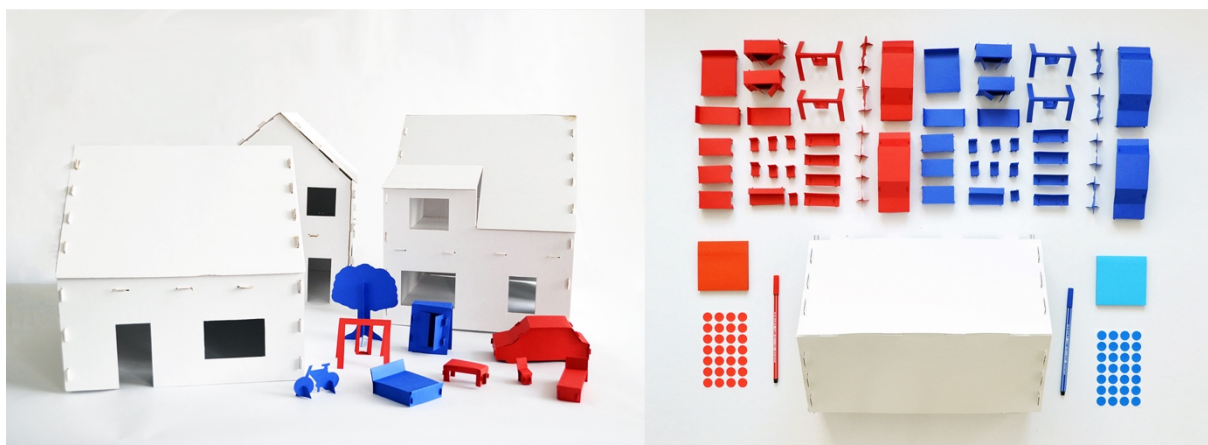


Figure 3 Artefacts for supporting dialogues with inhabitants

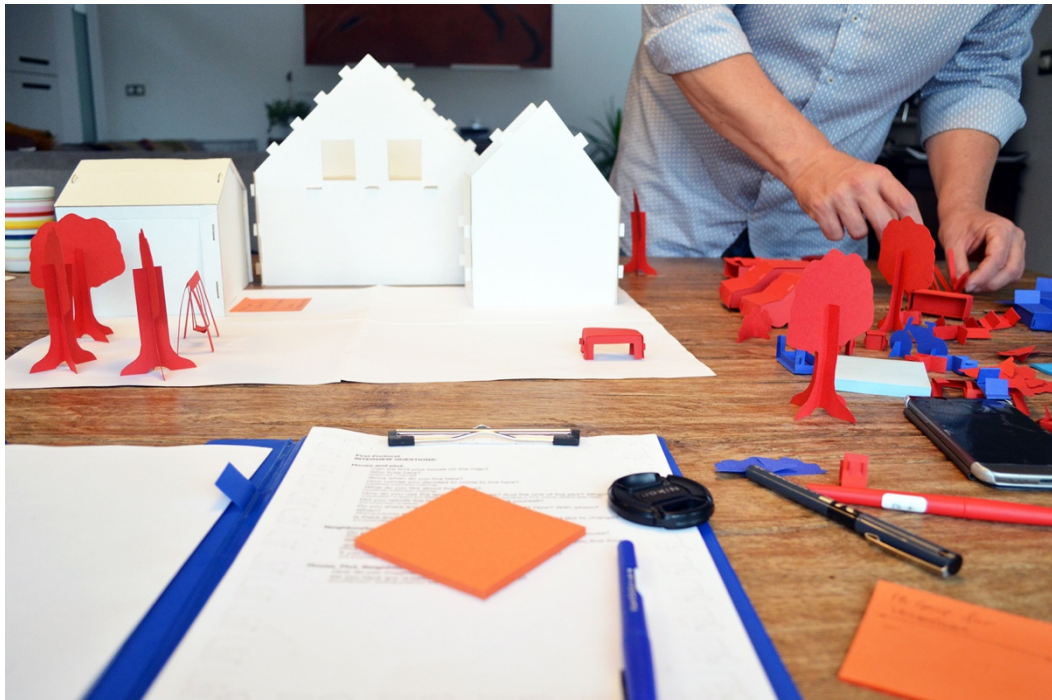


Figure 4 Co-producing dwelling patterns with inhabitants

The emerging stories confirmed many known ways of dwelling in suburbs however, they also enabled us to encounter some emerging potential for change. For instance, critiques on residential subdivisions often relate to individualistic ways of living. However, we learned about some more collective dwelling practices. Some inhabitants share at the level of a street: *“our neighbours use our swimming pool...we have a lot of vegetables and people around us can use them...we have a lot of things for the garden and if they need them we can just lend them”*. Some others organize “walking dinners”, street barbecues and playstreets which were mentioned as contributing to the social cohesion that makes the community work: *“if you don’t know each other, you can easily get frustrated...but if you know each other then it is very easy and you can just discuss things”*. However, not everyone feels that collective practices are characteristic of the neighbourhood, and on the contrary, some residents think that sharing is hard to establish because, as a resident explained, the neighbourhood is located in *“a quiet, conservative region”* where it takes time *“before it is possible to share something or have a more collective life”*. This made her often doubt about sharing in the neighbourhood despite her interest. Some stories on collective dwelling were related to inhabitants anticipating their life as elderly in the neighbourhood when it would perhaps be convenient to share their houses with someone else to age in place. However, as an inhabitant explained, co-living in the residential subdivision is not supported by local politicians who did not follow-up on his particular demand for a co-housing project in the neighbourhood. Residential subdivisions are also often criticized for lacking diversity and relations with their green surroundings, their mono-functionality and car-centrality. However, it turned out that some inhabitants are trying to reduce the use of cars: *“to go grocery shopping I always use the bike, I have a car, but I*

don't use it very often, so the car could be shared". Another inhabitant explained he organised carpooling with few colleagues for driving to work. For many inhabitants, streets should transform into living environments with less traffic where children can play safely and where nature can find more space. We also discovered many practices of supporting nature and of growing vegetables and breeding animals in people's gardens which an inhabitant explained relate to the history of the neighbourhood: in the past, large plots were developed for supporting people to produce their own food. We discovered more diversity also by learning about practices of home-working and of sharing spaces in the neighbourhood with local community associations.

These particular stories enabled a modest shift in the dominant conversations on alternative futures for dwelling in suburbs. For instance, they showed that sustainable practices, such as sharing space and goods, are also part of people's lives and imaginations or that there is more diversity in suburbs than we would expect at first sight even if this still does not represent the "most common" suburban way of living. However, these stories did not yet travel outside of people's individual lives and they barely (or only in modest ways) interacted with each other and with the municipality or were connected with larger discourses on sustainable futures. To work with these stories, we decided to organise them into patterns. Patterns were therefore derived from existing dwelling practices and imaginations about the future of dwelling, deeply rooted in everyday suburban dwelling stories.

3.2 Curating dwelling patterns

Next to the co-production of the content of the patterns, we worked towards curating the stories we encountered by organising their narrative and visual structure and collecting them in an open-ended catalogue. This could connect them to the larger socio-spatial and political context and enhance the stories' role in facilitating the contextualization of dwelling futures (see Figure 5). Curating involved selecting, translating and deconstructing.

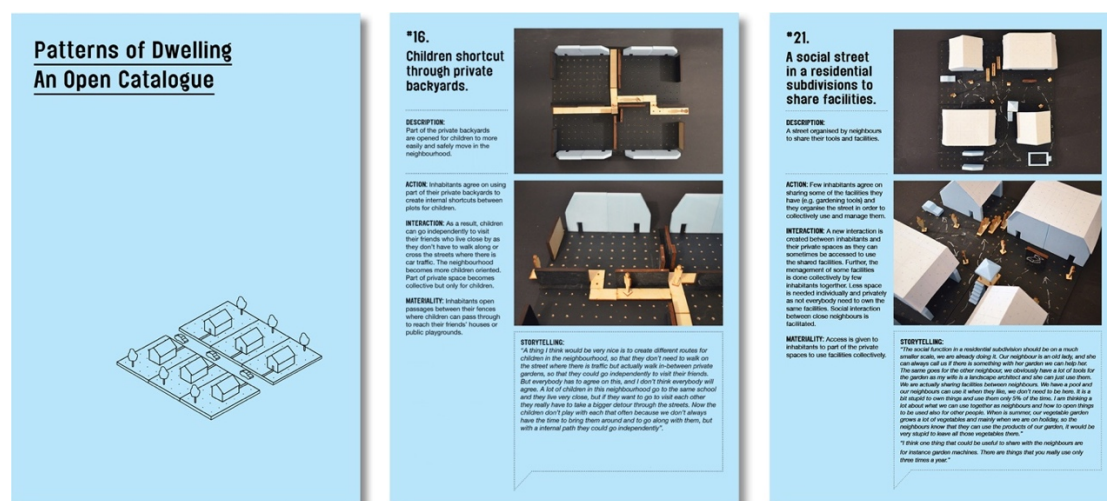


Figure 5 Open-ended catalogue of dwelling patterns

First, we carefully selected stories which related with – or at least with part of – larger-scale and longer-term discourses on sustainable dwelling futures such as presented in Flemish spatial policy visions (Beleidsplan Ruimte Vlaanderen, 2018). For instance, we selected stories which could relate to policy visions on more efficient, collective, temporary and mixed use of space, more robust open space, alternative mobility, social cohesion, diversity of housing and depaving. We believed that our selection could particularly divert from the dominant – often stereotypical – representations of life in suburbs which we came across in our research work by actively relating the everyday of people to the larger socio-political discourses and vice versa. By balancing between familiarity and estrangement (Halse, 2008; Kjærsgaard & Boer, 2016), the actual and the potential (Kjærsgaard et al. 2016; Halse, 2013) the collection aimed at challenging dominant and polarized conversations on more sustainable futures and making space for dialogue between different positionings. This selection consisted of 25 stories. They presented co-living and co-housing situations in single-family houses, small housing units for elderly and smaller households on existing plots, practices for improving nature in people's gardens, sharing between residents and other local actors and spaces for inhabitants to work in the neighbourhood. They also showcased stories related to the collective use of public spaces in the neighbourhood, for flea markets, dining, playing, producing food and nature. Some others described streets as spaces for playing, nature, walking and cycling.



Figure 6 Translating stories about inhabitants supporting nature into a dwelling pattern

Secondly, we translated this selection into a collection of dwelling patterns (see Figure 6). This required us to coherently illustrate patterns and make them compatible with one another. For this, we all presented them with a number, a title and a short narrative description of a few lines and two images. The numbers were not used to give them a particular order but for enabling everyone to follow the evolution of ongoing dialogues. Presenting the patterns through the same visual language was meant to support understanding and looking at them not as disconnected fragments of stories from people's everyday lives, but as part of a collection and, hence – more importantly – as part of a larger socio-spatial narrative emerging from the neighbourhood. We made the images representing the patterns via a prototyping toolbox (see Figure 7) we developed which comprised a number of figurative and abstract

components developed through a modular open-source system OpenStructures. On the one hand, we combined and used the components to represent the patterns via a number of familiar and recurring suburban elements (e.g. houses, fences, garages, pools, children outdoor toys, garden sheds, cars, bikes, vegetable gardens...) which could become shared starting points for discussion. On the other hand, the components could, as the patterns, be reconfigured by everyone in the process to collectively explore possible alternatives.



Figure 7 Prototyping toolbox

Thirdly, we deconstructed each pattern (see Figure 8). It was meant to support a more in depth understanding of the dwelling patterns and contextualize them in the micro-political and socio-spatial context of the residential subdivision and in larger dynamics. We did this visually and narratively. Developing the patterns' images via the toolbox enabled us to also show them as disassembled into their different parts. Narratively we presented the patterns by describing its actions, interactions, materiality and storytelling. The actions zoomed in on how the pattern could be developed, which included the actors involved in it and related activities, negotiations and processes. The interactions described how the pattern triggered a debate on the socio-spatial and political level, for instance, interactions between inhabitants, or between them and other larger scale actors, between individual and collective use or private and public space and with larger scale discourse on dwelling (e.g. biodiversity, sharing...). The materiality more pragmatically tackled the retrofitting of the neighbourhood for realizing the pattern. The storytelling section brought together quotes from the conversations we had with inhabitants while co-producing patterns which further enabled the reader to sense the context of the pattern.

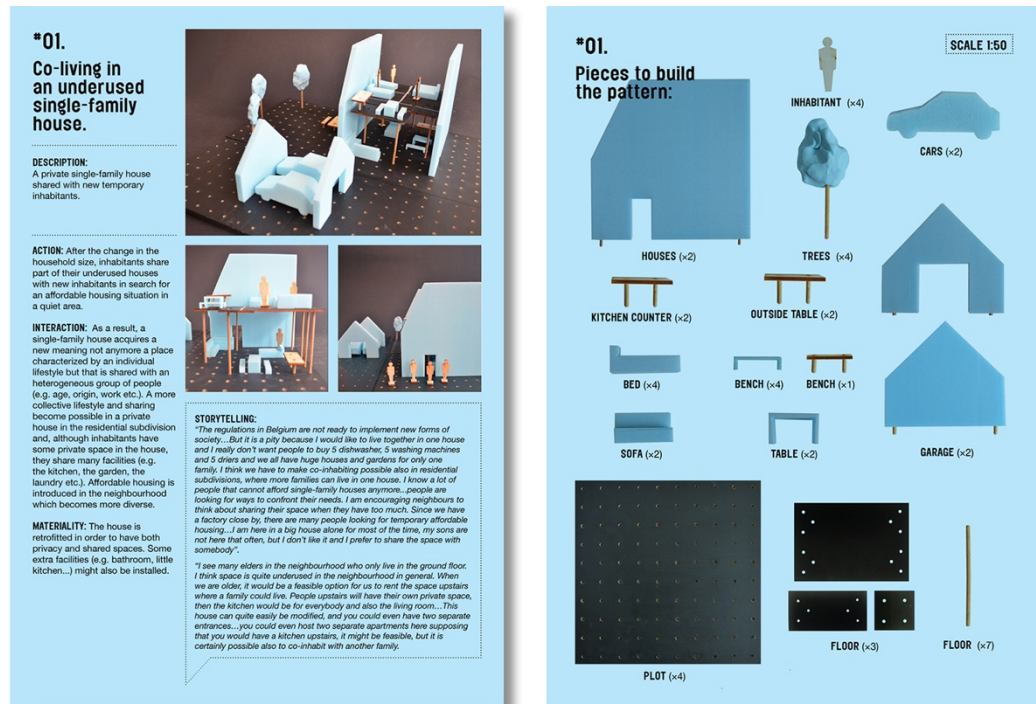


Figure 8 Deconstructing pattern on co-living

For instance, Pattern number 1, “Co-living in an underused single-family house” (see Figure 7) presented how inhabitants could temporarily share their house in case of downsizing of their household for example when children move out (i.e. action). It showed this could result in more collective living, in more diversity of inhabitants and affordable housing in the neighbourhood (i.e. interaction). For this, single-family houses would need to be retrofitted in ways which could accommodate the needs of diverse residents and provide privacy and sharing (i.e. materiality). Some residents already aspired to arrange their houses to enable co-living when older and an inhabitant actually tried to share its underused house with some temporary residents looking for affordable housing. His project was not approved by the municipality because, according to him, local politicians do support this kind of collective living but not in the residential subdivision (i.e. storytelling). Another example, Pattern number 18, “Backyards for collectively improving nature” (see Figure 6) presented an inhabitant-lead initiative of collectively planting local species of plants in people’s gardens shaped around a common interest about improving green in the neighbourhood (i.e. action). It described that the pattern could trigger the sharing of skills and knowledge between inhabitants and support the development of more robust green open areas (i.e. interaction). In the neighbourhood, the pattern could take the form of green corridors (i.e. materiality). It also reported how many inhabitants already individually or collectively planted local species of plants or were interested in doing so (i.e. storytelling).

The patterns were included in an open-ended catalogue. Catalogues have been used in co-production processes in urban developments to enable people to choose between a number of existing possibilities

(Sennet, 2018: pp. 249-250). What we added was that we re-politicized the catalogue by not laying “*out a coherent account of what is really out there*” (Halse, 2008: p.101) nor presenting a guidebook on best practices for people to draw from for improving their environments. It consciously was an incomplete and open-ended collection of contextualized existing and imagined dwelling patterns which could help to open up the debate on sustainable futures and to continue it in increasingly complex networks of actors at different scale levels.

3.3 Reconfiguring dwelling patterns

By means of the prototyping toolbox, this continuously expanding network of actors could also reconfigure the catalogue to trigger and structure ongoing situated and dialectical dialogues on dwelling. This reconfiguration was carried out in participatory workshops. We first invited inhabitants to reconfigure patterns in relation to more sustainable futures on the scale level of the neighbourhood and after civil servants and local experts to reconfigure them towards more sustainable futures on a town level. In the workshops, we specifically presented the catalogue as an open-ended and incomplete collection of insights of possible futures, emerging from people’s everyday life in the suburb which could be changed, reinterpreted and combined. The prototyping toolbox provided people with the opportunity to tangibly do this to express their perspectives on (un)sustainable ways of living and share them via a common language. In order to avoid restricting people to choose between determined options, as aforementioned, the toolbox itself was open-ended because its components could be reassembled in numbers of configurations. Open-endedness and incompleteness were coupled with the contextualization via everyday stories told through the patterns. The patterns in that sense provided a base from which participants could explain their perspectives on sustainable futures, but at the same time triggered them to problematize each other’s perspectives against the particular socio-spatial and political context. In the following paragraphs, we present the process and results of the participatory workshops we carried out.

3.3.1 Living together in the neighbourhood

In all, 18 (out of the 20) inhabitants who participated in the co-production of patterns decided to participate in their reconfiguration. Some of them invited other neighbours, hence, three more inhabitants joined the process. The aim of the workshops was, on one hand, to share our findings as curators of the catalogue and, on the other hand, to support inhabitants to collaboratively re-interpret them. Also, to accommodate the needs of some other inhabitants, we later on organised a second workshop at a resident’s house. We present the process and results of the two workshops together.

First, we presented the open-ended catalogue of dwelling patterns. Participants recognised familiar stories in it but they were also surprised by what the collection of patterns was revealing, because it

proposed a reality which they did not associate with the suburb. This interplay triggered them to start exploring and engaging with the dwelling patterns in the catalogue. We invited participants to select one or more dwelling pattern(s) they were interested in and which they could explore from their perspective on more sustainable futures for the neighbourhood. We did not suggest what a sustainable future meant, but we invited participants to explore patterns collaboratively to reflect on, share and discuss their ideas on (un)sustainable ways of living against the particular collection of patterns we presented. We also asked them to rebuild and tangibly change the selected dwelling patterns through the prototyping toolbox. Interestingly, not everyone decided to work on patterns coming from their own stories but they worked on patterns deriving from other residents' stories because they aligned more with their ideas on sustainable futures. Tangibly reworking the patterns in groups and exploring the actions, interactions, materiality and storytelling of patterns in the catalogue facilitated inhabitants to experience each other's visions on same or different patterns and to contextualize and negotiate their positions (see Figure 9).



Figure 9 Inhabitants exploring dwelling patterns

For instance, a group of inhabitants of different age groups worked on pattern number 10 about co-housing (see Figure 10). Their first concern was to create a better balance between sharing and privacy while also focusing on a “more efficient” use of space. Therefore, they transformed the multi-family houses presented in the pattern into one-family houses and developed smaller housing units for elderly in-between plots. According to the group, existing houses are in fact already suited for families, whereas they are not for smaller households and especially for elderly. The group also introduced other shared facilities: more shared space for children and shared cars, bikes and parking spaces. Their second matter of concern was elderly isolation in the suburb. Therefore, they together reconfigured the “interaction”

of the patter to focus on social cohesion between inhabitants of different age groups. A participant enacting himself in the reconfigured pattern explained this interaction as: *“I could take care of her”* referring to an older inhabitant, and, *“she could take care of your children when you have to go and you can perhaps shop for her when you go for yourself”*, referring to another younger inhabitant.



Figure 10 A group of inhabitants reconfiguring a dwelling pattern on co-housing

In another example, people combined multiple patterns to develop one which demonstrated their idea of sustainable streets. Starting from dwelling pattern 19, showcasing a playstreet, and pattern 20, presenting an inhabitant dream to cut and re-wild some streets, the group developed “green living streets” which worked with those streets in the neighbourhood which could not be cut but could anyway be improved. They presented narrower streets and collective parking lots to create more space for inhabitants, children, green and cycling. They imagined the municipality could develop this project, but inhabitants could participate by planting local species of plants in their front gardens to collectively develop a greener suburb (see Figure 11).

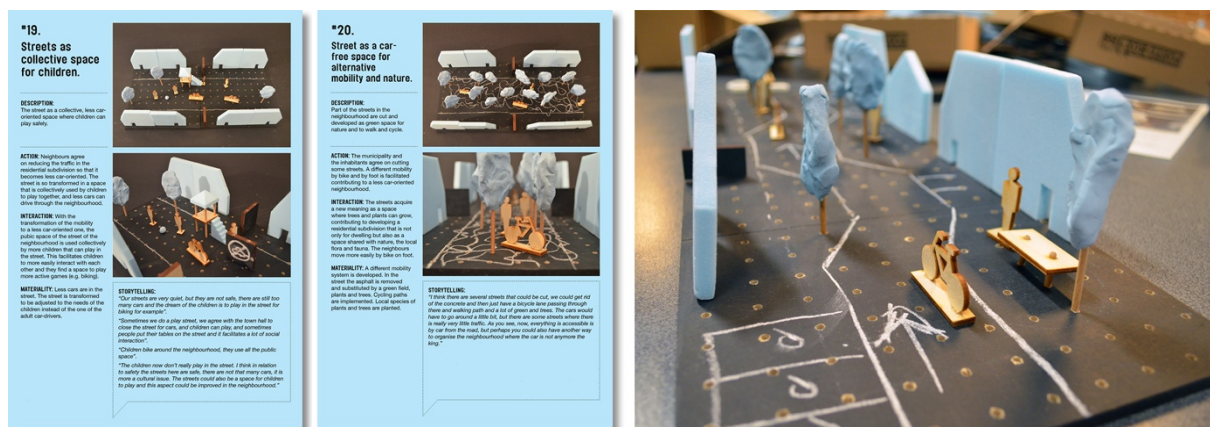


Figure 11 Inhabitants reconfiguration of green living streets by combining patterns on streets

Other groups reconfigured patterns about collectively improving green and using public space, about opening backyards and other ways of interpreting streets.

In the workshops, the reworked dwelling patterns were shared and debated between inhabitants. The presentation of the patterns was also supported by how we “deconstructed” the patterns in the catalogue,

which enabled a more in-depth conversation on how participants envisioned to develop the pattern. Sharing and discussing patterns brought further understanding on the perspectives on (un)sustainable dwelling underlying each particular reconfigured pattern. It triggered participants to give feedback to each other which we further supported by inviting them to consider how their proposals could interact.

3.3.2 *Living together in the town*

After, we organised a new workshop with civil servants and local experts at the municipality (See Figure 12). In the workshop, we shared and worked with an updated version of the catalogue which included the patterns which were reconfigured by inhabitants. The patterns disclosed the one they derived from and the “storytelling” section presented quotes from the dialogues emerged in the previous workshop. This “updated” version of the catalogue became the core of a debate on sustainable futures on the scale level of the town. In preparation for the workshop, we invited participants to share projects and visions they were working on for shaping the future of the suburb. We asked them to make explicit the challenges and issues these projects and visions were confronted with. We invited them to select one or more pattern(s) from the catalogue which could relate to these challenges. This activity triggered participants to contextualize their projects and visions in people’s everyday life in the suburb. Further, working in this way, participants were triggered to start to critically reflect on possibilities for more collective ways for developing more sustainable dwelling futures (See Figure 12).



Figure 12 Reconfiguring dwelling patterns with civil servants and local experts exploring streets’ retrofitting and open space

For instance, some participants explored local challenges on improving open space and reducing car-centrality. In the near future, streets will be retrofitted in the neighbourhood by reducing concrete, supporting biodiversity and alternative mobility. A local expert explained, “*We need to find places in the residential subdivision to let trees grow bigger*”. This motivated participants to explore dwelling pattern 29, “Green living streets” which was developed collectively by inhabitants and the patterns it derived from (i.e. pattern 19 and 20). This challenged their assumptions that improving open space and nature could only be achieved by transforming the public space. For instance, the municipality could enhance gardening practices of inhabitants supporting the local biodiversity by making rules which

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In another example, a civil servant concerned with the development of a greener village further explored pattern 10 on co-housing and how it was reformulated by inhabitants on the scale level of a block. First, he reconfigured it to match the municipality's top-down vision of housing in residential subdivisions, which does not support co-living practices. He explained, *"I have a lot of problems with co-housing in the residential subdivision on the long-term, so, I believe more in individual housing with shared outside space"* (See Figure 13). This perspective pertained to the idea of the municipality of concentrating densification and diversification of housing in the centre of the village while focusing on depaving in the suburban residential areas.

Figure 13 Reconfiguring patterns to negotiate the municipality vision on “green village” with co-housing patterns

Making this standpoint tangible through the reconfigured dwelling pattern triggered further dialogue on other, more collaborative opportunities for developing the vision for a “green village”. As presented by the reconfigured pattern, the municipality would like people to contribute to a robust open space and depaving by sharing and improving their plots. Towards this end, the municipality had recently stopped the possibility to densify in the neighbourhood, countering the practice of some inhabitants sharing part of their plots to build extra housing units. The visualized pattern triggered dialogues on how the municipality could support the improvement of green and open space while negotiating with people’s

agendas. One thought experiment was, for instance, to enable inhabitants to collectively develop one extra unit for elderly in a block, when sharing and improving private gardens to create larger open spaces.

The dwelling patterns developed in the workshop were also added to the catalogue and they were shared with the municipality. Later, a civil servant following the street retrofitting project, asked us to share the catalogue with the international company in charge of the project to ask them to contextualize their proposal through the catalogue. The company explored the catalogue to further formulate their proposals. In this way, the municipality used the catalogue to continue the dialogues we had during the workshops within a larger network of actors. These dialogues on how to retrofit streets are still ongoing today and will be continued in a new participatory process engaging the company, the municipality, inhabitants and an office for co-creation which could provide opportunities for further exploring dwelling patterns in a larger network of actors.

4. Discussion

In the paper we have explored how we can complement a design anthropological approach with a participatory design approach in order to re-politicise the debates on sustainable dwelling futures. The strengths of those two approaches were brought together in the co-production, curating and reconfiguring of dwelling patterns. In this section, we discuss our learnings from working with “dwelling patterns” in our case study and the opportunities and limitations of our approach to design anthropology and what this entails for the role of the design researchers. We structure this discussion in relation to the three main actions we developed: co-production, curation and reconfiguration.

Co-production

Often, we, design researchers, municipalities, experts and inhabitants rely on a generic understanding of the suburban housing culture when discussing dwelling alternatives which contributes to the polarization of sustainability debates. We tackled the lack of a more nuanced understanding of life in suburbs by intervening in people’s everyday life by means of scale models of houses and paper components to invite and trigger inhabitants to share how they live. We named this action “co-producing dwelling patterns”. Sometimes, we realized, dwelling practices remained intangible, because they were only temporary, they were not fully materially configured in the neighbourhood as part of ongoing projects, or they were part of inhabitants’ dreams, projections and aspirations which were themselves often not fully articulated. Discussing everyday (un)sustainable ways of living by interacting with the artefacts we prepared, provided means for potential – for instance related to more collective and diverse ways of living – to be revealed. Inhabitants and us worked with the models through the components we provided, we wrote on them and added keywords and drawings on post-its. Sometimes, inhabitants even

added plans of their ongoing projects to the model. The dwelling practices which inhabitants were uncomfortable showing through their houses could be shared through the artefacts. Therefore, co-production facilitated a more in-depth and tangible discussion on dwelling in suburbs. We also observed that it provided residents and us with the necessary “distance” from which to look at dwelling in suburbs otherwise which supported self-reflection for more diverse stories about dwelling to emerge and to start shifting our and inhabitants’ way of looking at the suburb. This process enabled a more active role for us, as design researchers, working with design anthropological approaches, in contextualizing (un)sustainable ways of living. We could not only support people in narrating about dwelling, but also expand dwellers’ imaginative horizon to reconsider how their ways of living take shape and how they could be different.

Curation

In our fieldwork, we also experienced that we needed to do more than co-producing stories about today’s and future dwelling. We needed to carefully curate the debate between actors operating on different scale levels and from different positions on these stories. We noticed that the ongoing contestation and polarization of debates on dwelling often discouraged inhabitants, policy makers and spatial experts to engage in public discussions on how the suburb could be different. We tried to motivate them to engage in collaborative and dialectical dialogues by curating a collection of dwelling patterns which carefully and consciously mediated between everyday ways of living in the suburb and the larger socio-political context in which they unfold. By translating our collection of stories into a catalogue of patterns, we provided participants with a common language necessary to explore alternatives as part of larger socio-spatial and political contexts.

Curating such a catalogue, we learned, had a “steering” component typical of interventionist design anthropological approaches (Smith & Otto, 2016). Because the “steering” conversations happened between actors at different levels it also required us to question ourselves about matters of advocacy (Ylipulli & Luusua, 2019). By making our selection of dwelling patterns, we deliberately and consciously took a position to shed light on marginalized dwelling practices within the subdivisions instead of on the most recurring ones, because of their potential for trigger discussion on possible change. By taking this position, which became tangible through the catalogue, we stimulated residents, local authorities and experts to enter into particular dialogues about dwelling futures which focused on more diverse and collective ways of living to be acknowledged, debated and possibly enhanced. To even further support this, we made explicit the criteria we advanced for selecting the patterns at the beginning of the catalogue and we developed the catalogue as open-ended so that these discourses could be continued and new one added over time by a larger diversity of groups. Nevertheless, this question suggested for us the need for further reflections on matters of advocacy when carrying out

interventionist practices – such as that of curating – in design anthropology that aims at reframing dominant conversations on sustainable futures.

Reconfiguration

Very early in our research, we realized that sustainability projects on dwelling futures involved many actors and developed through large time frames and socio-political contexts. This motivated us to explore the reconfiguration of dwelling patterns for enabling actors at different scale levels to continue the dialogues which were initiated in our research by themselves and over time. In the research, it facilitated situated and dialectical dialogues on more sustainable futures between a collective of inhabitants on the level of the neighbourhood, which were later on continued by civil servants and experts on the level of the town and after in the realm of a street retrofitting project involving an even larger diversity of actors and contexts. Mazé (2016) suggests that “*relating to futures through design is a political act*” because it involves the questioning of how things could be different. As such, the re-politicization of future-making should also involve handing over the question of how things could be different to others and their own explorations (Mazé, 2016). In our participatory workshops, we learned that reconfiguring dwelling patterns has potential for supporting collaborative and ongoing debates on sustainable futures in increasingly diverse and complex networks of actors and contexts and hence for re-politicizing them. It enabled actors to enter debates and create other points of discourses on sustainable dwelling futures because it provided them with a tangible and shared language (i.e. the patterns presented in the catalogue and the prototyping toolbox) and a framework (i.e. action, interaction, materiality, storytelling) through which they could be supported to collectively share, discuss and negotiate their visions on (un)sustainable ways of living. This, and the possibility to further add to the catalogue enabled emerging perspectives on (un)sustainable dwelling to be ongoingly contextualized in increasingly larger socio-spatial and political contexts and discourses on sustainable dwelling futures. Reconfiguration revealed for us that for re-politicizing debates on sustainable futures, it is not enough that only we, as design researchers, contextualize and problematize dwelling. We need to provide people with tangible approaches to participate in and continue this practice. Hence, design anthropologists can play an important role for supporting debates on sustainable futures not only by sharing their observations to develop other points of discourses and by intervening in people’s everyday life to discover and enhance potential for change but also for supporting keeping these debates alive over time engaging others to care about them.

5. Conclusion

The field of Design Anthropology has contributed to the contextualization and problematization of how futures are shaped in people’s everyday life. It has demonstrated its potential for re-politicizing debates on sustainable futures, which have the tendency to be performed in universalizing terms and which

hence often contribute to polarization. We have discussed how the approach of Participatory Design can further strengthen this potential by positioning this process of contextualisation in ongoing dialectical dialogues with increasing more complex networks of actors and contexts over time. As part of this approach, we have proposed “dwelling patterns” as design representations which contribute to the re-politicization of debates on sustainable futures by becoming “bridges” between the micro-scale level of people’s everyday life and the larger socio-spatial and political context in which dwelling unfolds. Also, we have presented the conscious curation of an open-ended and reconfigurable catalogue of dwelling patterns for supporting diverse actors to further engage in collective and dialectical dialogues about more sustainable dwelling futures to reframe dominant and universalizing conversations.

Our research, developing in the realm of suburban dwelling, also proposed “dwelling patterns” as a possible research approach which acknowledges dwelling environments as processes shaped by people’s ongoing – material and imaginative – engagement with their surroundings. We discussed how co-producing, curating and reconfiguring dwelling patterns can support exploring and tapping into people’s existing ways of living and their imaginations about dwelling futures. Working consciously with these dwelling patterns enabled us to understand dwellings’ processuality and how dwelling interacts with and is influenced by larger socio-spatial and political contexts and short- and long-term visions on sustainable dwelling futures at different scale levels.

By presenting a particular case on how we have worked with “dwelling patterns” and an “open-ended catalogue” we have shared our insights and learnings into how design anthropological approaches could be advanced for supporting designs’ re-engagement with the politics of sustainable dwelling futures. Of course, working with patterns is only one of the possible design anthropological approaches for supporting this, and dwelling only one possible context where to explore them. With this paper, we especially hope we have inspired other design researchers to reflect explicitly on how their own design anthropological approaches can engage with the politics of sustainable dwelling futures and open up possibilities for others to contextualize, problematize and explore these futures collaboratively and ongoingly.

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