



Delft University of Technology

**Together we make places**

**Designing connections in urban space**

Slingerland, G.

**DOI**

[10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8](https://doi.org/10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8)

**Publication date**

2022

**Document Version**

Final published version

**Citation (APA)**

Slingerland, G. (2022). *Together we make places: Designing connections in urban space*. [Dissertation (TU Delft), Delft University of Technology]. <https://doi.org/10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8>

**Important note**

To cite this publication, please use the final published version (if applicable).  
Please check the document version above.

**Copyright**

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

**Takedown policy**

Please contact us and provide details if you believe this document breaches copyrights.  
We will remove access to the work immediately and investigate your claim.

*This work is downloaded from Delft University of Technology.*

*For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.*



# Together we make places:

Buurt huis



"Real estate and homeless people, it won't get any extremer."



"... and then I married this Arabic man, I was so happy!"



"These stories create empathy: people get to know about each others existence and their ideals."



## Designing connections in urban spaces



BRU BAR



GEERTJE SLINGERLAND

Together we make places: Designing connections  
in urban spaces



# Together we make places: Designing connections in urban spaces

## **Dissertation**

for the purpose of obtaining the degree of doctor

at Delft University of Technology

by the authority of the Rector Magnificus, prof. dr. ir. T.H.J.J. van der Hagen

chair of the Board for Doctorates

to be defended publicly on

Friday 18 February 2022 at 10:00 o'clock

by

Geertje SLINGERLAND

Master of Science in Design for Interaction, Delft University of Technology, the Netherlands

born in Dirksland, the Netherlands

This dissertation has been approved by the promotor.

Composition of the doctoral committee:

Rector Magnificus,	chairperson
Prof. dr. F. M. Brazier,	Delft University of Technology, promotor
Prof. dr. S. G. Lukosch,	University of Canterbury, New Zealand, promotor
Prof. dr. T. Comes,	Delft University of Technology, promotor

*Independent members:*

Prof. dr. S. Bødker,	Aarhus University, Denmark
Prof. dr. K. Willis,	University of Plymouth, United Kingdom
Prof. dr. ir. M. J. van Dorst,	Delft University of Technology
Prof. dr. P. J. Stappers,	Delft University of Technology
Prof. dr. M. E. Warnier	Delft University of Technology, reserve member

*Other members:*

Prof. dr. J. C. McCarthy,	University College Cork, Ireland
---------------------------	----------------------------------

Prof. dr. J. C. McCarthy has contributed significantly to the preparation of this dissertation.

Systems Engineering Group  
Faculty of Technology, Policy and Management  
Delft University of Technology  
The Netherlands



This research has been funded through the first flow of funds.

Typeset by the author with L<sup>A</sup>T<sub>E</sub>X using kaobook style copyright ©Federico Marotta

*Keywords:* Place-making, Participatory Design, Communities, Design interventions

*Printed by:* Gildeprint

*Front & Back:* Cover designed by Janna Kool

Copyright © 2022 by G. Slingerland

ISBN 978-94-6366-499-8

An electronic version of this dissertation is available at  
<http://repository.tudelft.nl/>.

### GUESTHOUSE

This being human is a guest house.

Every morning a new arrival.

A joy, a depression, a meanness,  
some momentary awareness comes  
as an unexpected visitor.

Welcome and entertain them all!

Even if they're a crowd of sorrows,  
who violently sweep your house  
empty of its furniture,  
still, treat each guest honorably.

He may be clearing you out  
for some new delight.

The dark thought, the shame, the malice,  
meet them at the door laughing,  
and invite them in.

Be grateful for whoever comes,  
because each has been sent  
as a guide from beyond.

- BY JALALUDDIN RUMI



## Acknowledgements

More than ten years ago I started my journey in Delft, having no clue that it would end with this book. I started my Bachelor in Industrial Design Engineering not having any idea that PhDs existed. At this time, I still thought that the professors spend all their time on teaching and I could not imagine myself to perhaps at one day step into their shoes. Now we are ten years later and I am on the verge of obtaining my PhD. While the four years of research have been one of the most rewarding and inspiring experiences of my life, I am also pretty sure it is the most challenging thing I have ever done. There are many people I would like to thank and express my gratitude to, who have helped me to complete this journey.

My promoters and supervisors Frances Brazier, Stephan Lukosch and Tina Comes have been extremely committed and helpful in the research and contributed greatly to my personal development. Frances, thank you for your caring and optimistic attitude. Stephan, thank you for your pragmatism and constructive feedback. Tina, thank you for your rigour and critical view on my work. I have learned a tremendous lot from all three of you, both on a professional and personal level. I am really grateful to have had you as my supervisors and could not have wished for better ones!

Starting my PhD also meant that I was moving from IDE to a new faculty: TPM. While at first I found the offices at TPM really boring compared to the big hall and StudioLabs in IDE, I gradually got fond of the building and it started to feel like home. All the great people at TPM, particularly in our MAS department and the Systems Engineering group specifically played a big role to make me feel comfortable. I want to thank all great colleagues from our group for the random chats, supportive suggestions, and constructive feedback during section meetings. Martijn, I want to thank you for all your support. You have been very generous in helping me out with my research and I really appreciated that you always came by my office to see how I was doing. Isabelle, Rado and Indushree: thank you for all the fun, cries, and your listening ears when I needed it. Supriya: thank you for being such a great friend and colleague, and for being my paranymph. Vittorio: thank you for being such a friendly office mate. We have not seen each other that much lately because of the restrictions, but I always enjoyed when we were in office together. Natalie: thanks for the yoga sessions you gave during the first lockdown, they really helped to keep me sane. Özge: thank you for all your practical suggestions for the final phase of the PhD and your help with my Rubicon proposal. To all colleagues at SE: I really enjoyed to work with you and I am going to miss you all. I hope that at some point I will be back!

During my PhD I have actively sought collaborations with students and other academics. These collaborations have enriched my research and also stimulated my learning and thinking process. First, I want to thank all the students who collaborated with me or who I supervised: Carmel, Cindy, Julia, Mina, Danny, Nitin, Eusebio and Rico. Thank you for your critical questions, your curiosity and your enthusiasm for the research we did. Working with you has been a very inspiring experience for me. I want to thank Igor for offering me the opportunity to develop modelling skills and in that way exploring a completely new avenue of research. It was very challenging for me, but I really appreciate that you gave me this opportunity. I will also remember all the great talks we had about keeping sane in this crazy academic world and the importance of mental health. I have learned so much from working together with you and I will never forget this.

Other collaborators I would like to thank are Erwin Rouwenhorst and Dymphna Faas from the Municipality of The Hague. You helped me to get started in Bouwlust and provided me with the valuable connections in the city. One of them was Astrid from Haags Verhaal. Astrid and Mieke, I really enjoyed our collaboration and I am grateful for the support you gave me to research your Haags Verhaal initiative. I feel we found a fruitful way of working together from which we both benefitted. I also want to thank Redouan from the community centre in Bouwlust and that includes Gwen and Nicolai from TU/e as well. Although our research did not go as planned due to the COVID-19 lockdown, I enjoyed working with you and I am grateful that we could work together. Nicolai and Gwen, I enjoyed our discussions and I hope we keep on collaborating in the future. Fingers crossed that our paper will find its way.

While my research started in The Hague, later I also did some work in Rotterdam, together with the Veldacademie, Cultureel Denkwerk and C.B.S de Akker. I want to thank Marthe, Eric, Xavier, Stoffel and Reinout for the joint research in Rotterdam. The research with the children from De Akker was one of the most rewarding and inspiring experiences during my PhD. I am very proud of the work and research we have done here. Reinout and Marthe, working with you in the context of BoTu2028 developed my knowledge on governance and resilience for which I am very grateful. I hope we can continue this collaboration.

Next to my colleagues and collaborators, I had a great support network of friends and family who were there for me during this journey. Many of them thought I was crazy to do a PhD but I would not have been able to do it without them. B68, Serieus?, Hete PEpers, MGD'18 and coaches: thank you all for your support and giving me a place to blow off steam and put my mind to something else. Vief & Gert: you are both family and friends and I am very happy that I could always talk to you about what was going on. Kim: thank you for the weekly walks we did and your listening ear. COVID-19 really renewed our friendship. Annemieke, Arie, Tobi, Eva and Meyke, your home was always a good escape for me for taking a break and slowing down.

Then, last but definitely not least, I want to thank my parents, my sisters, and Jorrit for their never-ending support and trust in me. I do not think any of us expected that my journey in Delft would end with a PhD. I am very happy that you supported my decision to go for this academic path instead of a 'normal' job. Eva: I am sorry I never left you alone in Delft but I hope you enjoyed all our HIIT sessions, snackbar Kockie dinners, Mc lunches, hot chocolates and everything else we did together as much as I did. Roos: thank you for your free and open mind, your fun and crazy spirit that would always cheer me up when needed. I hope I can keep on returning the favour when you need it. Jorrit: you are the one that has had to suffer most from my decision to do a PhD because you were my first go-to person to express my fears and frustrations. I am so grateful for your patience, trust and love. THANK YOU.

Geertje Slingerland

ps. Using the invitation card, can you find the six interventions, included in this thesis, on the cover design? Would this work in your neighbourhood? I love to hear your insights!

# Contents

Contents	ix
<b>1. Introduction</b>	<b>1</b>
1.1. Defining place-making: From space to place	2
1.2. Place-making in the urban space	4
1.3. Three cornerstones of place-making	6
1.4. Research objective	7
1.5. Research approach	8
1.6. Research questions	15
1.7. Outline	16
1.8. Publications that underlie this thesis	17
<b>I. THEORY BUILDING</b>	<b>19</b>
<b>2. Participation in place-making: A literature review</b>	<b>21</b>
2.1. Introduction	21
2.2. Enabling place-making through interventions	21
2.3. Organising participation in place-making	30
2.4. Research challenge: Participatory place-making	36
<b>3. A framework for participatory place-making</b>	<b>39</b>
3.1. Introduction	39
3.2. Method	39
3.3. Review results	45
3.4. The Participatory Place-making framework	49
3.5. Conclusion	56
<b>II. DESIGN INTERVENTIONS</b>	<b>57</b>
<b>4. Physical space</b>	<b>59</b>
4.1. Intervention 1: Location-based games	61
4.2. Intervention 2: Co-creation with children	91
4.3. Reflection on physical space	115
<b>5. Social connection</b>	<b>117</b>
5.1. Intervention 3: Community storytelling	119
5.2. Intervention 4: Distributed Participatory Design	141
5.3. Reflection on social connections	161
<b>6. Institutional support</b>	<b>163</b>
6.1. Intervention 5: Playable cities	165

6.2. Intervention 6: Asset-based community development . . . . .	181
6.3. Reflection on institutional support . . . . .	203

**III. SYNTHESIS** **205**

<b>7. Design guidelines for participatory place-making</b>	<b>207</b>
7.1. Introduction . . . . .	207
7.2. Evaluation method . . . . .	208
7.3. Results . . . . .	210
7.4. Discussion: Reflection on the principles . . . . .	215
7.5. Guidelines to design for Participatory Place-making . . . . .	219
7.6. Conclusion . . . . .	221
<b>8. Conclusion</b>	<b>223</b>
8.1. Research questions revisited . . . . .	223
8.2. Contributions . . . . .	227
8.3. Future research . . . . .	228

**Bibliography** **231**

**Summary** **257**

**Samenvatting** **259**

**About the author** **263**

**List of publications** **265**

# Introduction

# 1.

Cities of today are confronted with major transitions, ranging from the energy transition to the digital transition, from migration to poverty. These developments require citizens to work together and take collective action within their neighbourhood community (Meerow, Newell, & Stults, 2016; Comes, 2016). An important condition for this is that citizens are engaged with their local community (Adler, Goggin, & Bush, 2005; Asad, Le Dantec, Nielsen, & Diedrick, 2017; de Lange & de Waal, 2013), meaning that they are part of the neighbourhood social network (Hampton & Wellman, 2003; Adger, 2006) and know what is going on (Erete, 2015). Unfortunately, many big cities suffer from fragmentation: citizens do not interact with their neighbours (Gaventa, 2004; Atkinson & Kintrea, 2000) and do not feel part of their neighbourhood community (Volda, Harmon, Al-Ani, & Bren, 2012). Overcoming this fragmentation is therefore high on the agenda, and many cities have started to experiment with policies to increase social cohesion and establish strong communities.

Place-making initiatives have gained momentum to this purpose, first introduced in the 60's, to foster strong communities in the city. Jane Jacobs (1961) and William Whyte (1980) brought place-making to the attention of urban planners, by showing that liveable neighbourhoods result from combining different functions, such as residential and industrial, in one area instead of creating mono-functional neighbourhoods which was the common perspective at that time. Combining different types of residents and industries would lead to a lively and dynamic neighbourhood, especially when combined with a street design that has space for spontaneous social encounters. These ideas reflecting the importance of public space design to support social interactions and serendipitous meetings between residents were further developed through the notion of third spaces (Oldenburg & Brissett, 1982), Projects for Public Spaces (Whyte, 1980), and the work of Jan Gehl (2004) in Europe. Other seminal ideas came from Lynch (1960), who explored how residents perceived the city, and found that they look at it very differently compared to urban planners. A paradigm shift is taking place centralising public spaces and people in place-making, ultimately to foster liveable cities.

The place-making Europe network, for example, unites urban planners, designers, and researchers to “accelerate place-making as a way to create healthy, inclusive, and beloved communities.” (Placemaking Europe, 2021). This is especially needed in cities, as their infrastructure often lacks opportunities for residents to meet

- 1.1 Defining place-making: From space to place . . . 2
- 1.2 Place-making in the urban space . . . . . 4
- 1.3 Three cornerstones of place-making . . . . . 6
- 1.4 Research objective . . . 7
- 1.5 Research approach . . . 8
- 1.6 Research questions . . . 15
- 1.7 Outline . . . . . 16
- 1.8 Publications that underlie this thesis . . . . . 17

and socialise (Oldenburg & Brissett, 1982; Lentini & Decortis, 2010; Wood et al., 2019), for example because freeways are built through inner cities (Jacobs, 1961) or because of a lack of greenery and open spaces (Cilliers & Timmermans, 2014). Furthermore, cities house a diverse set of people in a dense context, developing heterogeneous neighbourhoods where residents vary in their interest, religion, and background. This heterogeneity and density complicates a sense of community belonging (Mansuri & Rao, 2004), and results in residents feeling less at home in their neighbourhood (Cilliers & Timmermans, 2014). In light of this, residents of cities are often only bound together based on their locality, and not on common interest or practices (McMillan & Chavis, 1986; Obst, Zinkiewicz, & Smith, 2002). On top of this is the high volatile nature of cities, because residents frequently move in and out of neighbourhoods, further complicating the sense of community and sense of place (Atkinson & Kintrea, 2000; Mansuri & Rao, 2004).

Place-making brings an approach to deal with this fragmentation and lack of community feeling in cities, by transforming neighbourhoods from spaces to places where residents feel at home and part of the neighbourhood community (Lepofsky & Fraser, 2003; Wood et al., 2019). Public spaces are natural environments for place-making to happen, when they support social interactions between citizens (Oldenburg & Brissett, 1982; Lentini & Decortis, 2010; Dörk & Monteye, 2011). These so-called third places strengthen a sense of community and involvement of citizens in their neighbourhood (Soukup, 2006). According to Strydom, Puren, and Drewes (2018), place-making may even create positive social change. In this context, an interest has grown around place-making and its potential to create a sense of belonging within neighbourhood-based communities (Kalandides, 2018). This increased interest has also spurred the research into place-making, for example to further understand how technology can support place-making (Harrison & Tatar, 2008), and how place-making interventions can be evaluated. But let us first start by exploring what place-making actually is.

### 1.1. Defining place-making: From space to place

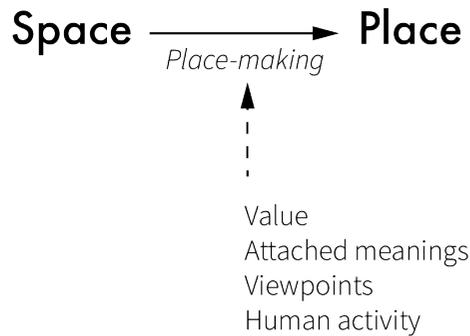
*“Places are spaces that you can remember, that you can care about and make part of your life. The world should be filled with places so vivid and distinct that they can carry significance. Places could bring emotions, recollections, people, and even ideas to mind.”* (Lyndon, 1983, p. 2)

Above the emergence of the term place-making was introduced from the work of Jacobs (1961) and Whyte (1980), who were among the first to signal the importance of people and public

spaces to achieve place-making. Since then, many researchers and practitioners have thought about the relation between spaces and people. Philosopher Edward Casey discussed the role of place in our daily lives and inspired cultural anthropologists to study how people-place connections are established (Casey, 1996; Soukup, 2006). Indeed, place-making is about how people connect to places (Strydom et al., 2018) and researchers study why existing settings have meaning to some and not to others (Beza & Hernández-García, 2018). Places are made through “people using the space to perform the necessities of daily life” (Cilliers & Timmermans, 2014, p. 413); people perceive a space using different senses and their perception is influenced by memories or experiences that creates a meaning for the space (Cilliers & Timmermans, 2014). Hence, places result of a complex process of multiple actors and practices (Crivellaro et al., 2016).

Harrison and Tatar (2008) theorise the construction of place to aid designers create technologies which support place-making. In their view, and resonated by Cilliers and Timmermans (2014), place-making is the process of adding value and meaning to a space, for it to become a place. To illustrate this point, Harrison and Tatar (2008) compare the relationship between space and place to relationship that exist between the notions of “house” and “home”. House here is similar to a space, in that one can describe it using abstract properties such as size or orientation. A home can be described with similar properties, but may also be a property of a house, in the sense that a house can be home-like. As such, the notion of home is one that seems to have a particular value or meaning added to it, in comparison to a house. This is very similar considering space and place, echoing Tuan (1997, p. 6): “what begins as undifferentiated space becomes place as we get to know it better and endow it with value”. Figure 1.1 abstracts this movement from space to place as place-making, whereby place-making is constructed through value, attached meanings, viewpoints, and human activity (Harrison & Tatar, 2008; Paay & Kjeldskov, 2008; Cilliers & Timmermans, 2014).

For example, let us consider a public park in a city with open grass fields, trees, and walking paths. Tracy, a young woman who lives on walking distance from this park, visits the park every week to walk with a friend. She builds a relationship with the park through the walking ritual she has with her friend, and the space of the park gains value for her because the space enables her well-being, exercise, and friendship. John is another resident who visits the park, and he always goes to the same spot in the park and brings a mat for his gym exercises. John modifies the space in the park with his sports mat, and associates the park with physical activity and exercise. The park gains value as it becomes



**Figure 1.1.** Moving from space to place through place-making.

his place to become fit and stay healthy. On the grass fields, Luke is playing with his friends, and they are using all objects they can find in the park to do a parkour. For Luke, the space of the park is a place to play and to have fun: enjoyment is the meaning and value of the park to him. Finally, Karen is a resident who lives in the neighbourhood of the park, but she never visits it. She has a garden and usually enjoys herself there. If she would go to the park, it probably would have no meaning for her, she would just see a grass field with trees: it is space and not a place.

These examples of residents in and around a public park show how various human activities (walking, sports, play), meaning and value of spaces (enjoyment, well-being, friendship) make places, and that these can differ between individuals (Kalandides, 2018), due to prior experiences, location, memories, events, or associations. This thesis explores what these values, meanings, viewpoints, and human activity can be, where they come from, and how they can be constructed or supported through design and technology. As the thesis focuses on the city domain, the next sections dive into urban place-making.

## 1.2. Place-making in the urban space

In the city domain, place-making is often applied to upgrade urban spaces (e.g. neighbourhoods) to healthy and liveable places where residents feel at home (Gonsalves, Foth, & Caldwell, 2021; Madden, 2011; Strydom et al., 2018). Jane Jacobs started to point out that the design of public spaces can contribute to social and liveable cities. Place-making is seen by urban planners as a methodology to design public spaces that serve the community (Thomas, 2016; Cilliers & Timmermans, 2014). This means that neighbourhoods are transformed to places where residents like to reside and where they easily meet each other (Oldenburg & Brissett, 1982; Lentini & Decortis, 2010; Wood et al., 2019),

establishing place-making through “lived spaces”: places with function and meaning (Lefebvre, 1991). Recently, technology also started to play a role in achieving place-making, introducing the term ‘digital place-making’ (Halegoua & Polson, 2021; Gonsalves et al., 2021). Place-making in the urban space is supported through public spaces, community, and institutions, hence these are further explored below.

### 1.2.1. Lively and social public spaces

Public space is the first constitute of place and place-making and partially overlaps with the loci defined by Harrison and Tatar (2008) or the location in the place diagram of Agnew (Cilliers & Timmermans, 2014). The affordances of the physical environment enable citizens to connect with a place (Lentini & Decortis, 2010) and with each other (Balestrini et al., 2016). Benches on a public square, for example, can be a simple intervention to support social interaction (Jacobs, 1961). These benches offer residents a place to sit down, pause, and potentially engage in a conversation with other people passing by. Further, suitability for place-making is influenced by the location of a place (Martí, Serrano-Estrada, & Nolasco-Cirugeda, 2017). Place-making approaches acknowledge that the infrastructure of a place is connected to how people experience it (Innocent, 2018), thus the elements in the surrounding *physical space* is a factor to be considered in place-making.

### 1.2.2. A sense of neighbourhood community

From lively and social public spaces, citizens may start to experience a stronger sense of neighbourhood community. According to Friedmann (2010), public spaces come to life through social practices. Carroll and Rosson (2013) add that places define communities and the other way around. In this perspective, place-making results from the social interactions that people have in a certain place, for example their neighbourhood (Lentini & Decortis, 2010; Harrison & Tatar, 2008). Through social interactions, residents start to experience being part of the neighbourhood community, which enriches the connection with the place (Carroll & Rosson, 2013). Spaces become places through social practices (Fang et al., 2016; Beza & Hernández-García, 2018). Hence, *social connection* influences and impacts meaning of places.

### 1.2.3. Governance of place-making

Formal institutions (such as the local government) also play a role in place-making processes (Friedmann, 2010; Foth, 2017b). Cil-liers and Timmermans (2014) outline the extensive list of groups that may be involved in place-making: from families, teenagers and young children, to business, tourists and local authorities. Place-making is a collaborative engagement that requires active involvement of all interested stakeholders (community members, local authorities, commercial partners, academia, etc.) (Strydom et al., 2018; Thomas, 2016). These individual residents, formal, and informal organisations should all be included in the design of place-making in cities (Beza & Hernández-García, 2018). Place-making asks for specific consideration of how participation of city stakeholders is organised, and how responsibilities and roles are divided between formal and informal institutions and organisations (Peacock, Anderson, & Crivellaro, 2018). On the one hand, governments need to respond to place-making movements from bottom-up (Crivellaro et al., 2015), and encourage and guide local initiatives for place-making (Friedmann, 2010; Stokes, 2020). On the other hand, citizens taking ownership of their neighbourhoods require negotiation with institutions (Peacock et al., 2018). Therefore, *institutional support* is another foundation that needs to be considered for place-making.

### 1.3. Three cornerstones of place-making

From this prior defining of place-making, three cornerstones for place-making interventions are identified, namely 1) *physical space*, 2) *social connection*, and 3) *institutional support*.

- ▶ **Physical spaces** represent the tangible environment of citizens such as streets, squares, benches, and trees. Physical spaces support place-making because they accommodate objects or affordances that may confluence with events and people to make place from space. In this context, the nature and infrastructure of physical spaces affect place-making.
- ▶ **Social connections** are essential to place-making as they endorse a sense of community in the neighbourhood. Places become meaningful through the social experiences that are lived in these spaces. People and events are constructs to support social interactions for place-making.
- ▶ **Institutional support** relates to the role of (local) institutions in place-making and is essential to advance and sustain initiatives of place-making. For example, local governments need to support place-making processes, whether initiated from top-down or bottom-up. The shape and form of this

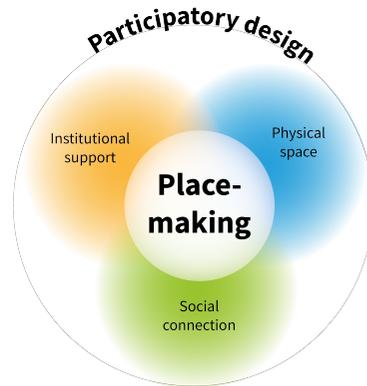
support influences to what extent place-making can be achieved.

So far, this thesis outlined place-making in urban settings and aims to further understand how urban spaces can become places through place-making interventions. This objective is specified in the next section.

## 1.4. Research objective

From 1990's, place-making processes started to incorporate the human-scale (Gehl, 2004), bottom-up initiatives (Cilliers & Timmermans, 2014), community participation (Beza & Hernández-Garcia, 2018; Friedmann, 2010), and the value of democracy (Strydom et al., 2018). This means that residents are included in defining interventions for place-making, to fit the community's needs (Kalandides, 2018). The underlying assumption of place-making now is that resident communities have the right and capacity to participate in place-making (Beza & Hernández-Garcia, 2018; Kalandides, 2018). Some researchers (Cilliers & Timmermans, 2014; Kalandides, 2018; Beza & Hernández-Garcia, 2018) have started to talk about *participatory place-making*, involving participatory (planning) approaches in place-making. This already stems from the work of Lynch (1960), who highlighted that local boundaries used by urban planners (to indicate different zones) were not experienced at all by citizens. Citizens have a very different and unique way to look at their neighbourhood, which is rarely included in urban planning practices. Research also recognise that through participation, citizens already establish a sense of place (Cilliers & Timmermans, 2014; Corcoran, Marshall, & Walsh, 2018). However, citizen participation is often neglected in place-making (Cilliers & Timmermans, 2014) and is still open to debate (Kalandides, 2018).

The importance of engaging residents in place-making has only grown since digital technology entered the place-making arena. Some (e.g. Foth (2017b) or Gonsalves et al. (2021)) even start to define hybrid or digital place-making, when mobile phones or ubiquitous technology play a role in place-making processes. Such technology provides new ways for people to appropriate the world around them, and hence brings new opportunities to place-making. "What sort of technological interventions have what sort of effects on the construction of place?" (Harrison & Tatar, 2008). Participatory Design (PD) may help us answer this interesting and relevant question of Harrison and Tatar. Echoing Foth (2017a), PD should be applied in the context of (digital) place-making to establish inclusive place-making processes that are driven by the



**Figure 1.2.:** The three cornerstones to structure the research into place-making throughout this thesis.

community. Also Cilliers and Timmermans (2014) call for more creative approaches for participation in place-making to flourish. In this context, the thesis explores how the knowledge from Participatory Design and place-making may confluence to move from spaces to places in a more inclusive and community-driven way.

#### Research objective

The research objective of this thesis is to identify whether and how Participatory Design can facilitate place-making in cities through the physical space, social connections, and institutional support.

As illustrated in Figure 1.2, the earlier defined cornerstones construct place-making and provide the structure throughout the thesis as three perspectives to design interventions for place-making. As each city and neighbourhood is unique, a thorough understanding of its characteristics is essential to design place-making processes that are suited and embedded in the local context (Cilliers & Timmermans, 2014). Application of Participatory Design methods involve the local community and hence encircles the whole process.

## 1.5. Research approach

This thesis addresses the following research question:

#### Research question

How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?

The approach used in this thesis falls under the research frameworks of action research (Berg, 2004) and research-through-design (RtD) (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011). Qualitative methods such as interviews, intervention studies, observations, and contextual inquiry are applied to study how Participatory Design can facilitate place-making in urban settings. One of the underlying aims of action research is to involve people in the research and design of interventions (Foth & Axup, 2006), whereby research and action are combined (Brydon-Miller, Greenwood, & Maguire, 2003). In this thesis, this means that citizens are not treated as subjects to study, but are co-creators of the research as their input shapes the next research step(s). By inviting citizens to think along on place-making, and asking them to design place-making interventions themselves, deeper insights can be gathered on their latent needs and wishes (Sanders & Stappers, 2012, p. 67). While recognising that the main aim of doing research is to create new knowledge, this research also aims to use its outcome to benefit the participants, either direct or indirect through guiding designers and planners on how to engage with city actors in participatory place-making.

### 1.5.1. **Research philosophy**

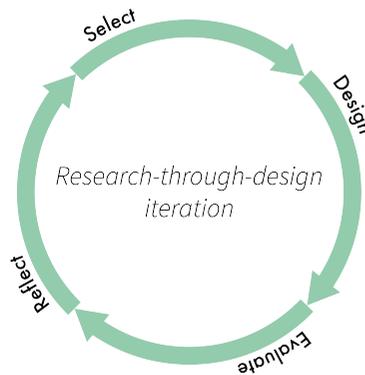
This research takes the advocacy and participatory worldview. In this paradigm, research is strongly connected to society, aiming to change or improve the lives of the research participants (Creswell, 2009; Brydon-Miller et al., 2003, p. 9). A limitation of this philosophical founding is the potential lack of scientific contribution, as this epistemology has its focus on applying research, leading to practical results (Johnson & Onwuegbuzie, 2004). This limitation is addressed by combining action research with research-through-design, which explicitly has new knowledge as the output of each of the research iterations (Zimmerman & Forlizzi, 2014).

Advocacy and participatory oriented research often starts from a social issue, in this case citizen engagement and a lack of neighbourhood community belonging in cities. In keeping with this worldview, collaboration with all relevant neighbourhood stakeholders, such as residents, community workers, or local organisations, is necessary to, in a participatory manner, design effective place-making interventions (Kalandides, 2018; Beza & Hernández-García, 2018; Friedmann, 2010). Therefore, all interventions studied in this research have been designed, developed, and/or evaluated with city stakeholders. The aimed contribution of this research both advances the scientific discourse, and has ties with practice, because it informs policy makers, urban planners, designers, and citizens how to jointly shape interventions

for place-making. The research thus aims to advance an action agenda for change, and this fits the advocacy and participatory worldview (Creswell, 2009).

### 1.5.2. Strategy: Research-through-design

The strategy used in this research is research-through-design (RtD) (Stappers & Giaccardi, 2011; Koskinen et al., 2011). RtD uses methods and processes from design practice to generate new knowledge (Zimmerman & Forlizzi, 2014, p. 167). This strategy is especially appropriate to research problems that are complex and dynamic, because such problems need to be considered from a holistic perspective (Zimmerman & Forlizzi, 2014). Further, RtD is used when the answer to a research question cannot be devised rationally but needs to follow from constructive design research in the field (Koskinen et al., 2011). Since the phenomena studied in this research are significantly influenced by the context around them (the neighbourhood), they need to be studied in situ and are hard to transfer to lab settings. As the neighbourhood context is constantly changing and complex (Salim & Haque, 2015), RtD is the appropriate strategy for this research.



**Figure 1.3:** Research-through-design strategy involves an iterative approach: intervention iterations based on a design goal lead to new knowledge. Each iteration is executed with four steps, advancing the design goal.

Stappers (2007) explains how research-through-design creates knowledge. Interventions or prototypes are created based on the design goal and the research goal, which contribute distinctively to the process. The research goal states what kind of knowledge the RtD process needs to generate, while the design goal articulates what kind of interventions can be created to contribute to the knowledge. By reflecting on these interventions and the process of designing them, insights are gained to fulfil the research goal.

This thesis addresses the following research goal and design goal:

#### Research goal

To gain new insights into how Participatory Design facilitates place-making in cities through the physical space, social connections, and institutional support.

#### Design goal

To design, in a participatory manner, place-making interventions that increase a sense of community and place in urban neighbourhoods.

Each iteration in RtD initiates from new knowledge and produces insights as outcome (Stappers & Giaccardi, 2011). The steps to complete each iteration are described by Zimmerman and Forlizzi (2014) and abstracted in Figure 1.3. Each iteration *selects* a research problem that drives forward the design goal. This selection is informed by previous experience, insights from literature, or learnings from earlier iterations. The next step is to start the *design* activities. This can be design workshops, creating prototypes, or exploring ideas, and should finally lead to an initial framing of the problem and a proposed design intervention for participatory place-making. The third step is to *evaluate* this chosen framing and design. Throughout the process of designing and prototyping, insights are gathered on what worked and what did not work, and these challenge the created design and framing of the issue. The next step is to *reflect* on what has been learned, how insights are best disseminated, and how the next iteration can be informed. The final step is then to *repeat* this process.

### Selecting the interventions

By designing and studying, in a participatory manner, place-making interventions in urban settings (design goal), specifically focused on physical space, social connections, or institutional support, new insights are gained into how Participatory Design facilitates urban place-making (research goal). Six interventions for participatory place-making are studied in this thesis and an overview of them is provided in Table 1.1. The Table shows that different types of interventions were included, based on varying modes of participation, and located in multiple municipalities. The selection of interventions was guided by the three cornerstones of place-making and the framework presented in Chapter 3. While the differences between the interventions may complicate

comparison between them, they also allow to understand how participatory place-making manifests in different types of contexts and with different types of residents. As explained below in 1, the framework is used to compare and analyse the interventions on similar grounds, yet taking into account their differences in formulating the main outcomes.

**Table 1.1:** An overview of the six interventions (DI) that are studied in this thesis, outlining their location, the way participation was organised, and the rationale for including this intervention in the study.

<b>Intervention</b>	<b>Location</b>	<b>Participation</b>	<b>Rationale</b>
DI 1: Location-based games	The Hague (NL)	Citizens play-tested the game and designed challenges for the game based on their experiences	Understanding how elements of the physical space can support place-making using a game
DI 2: Co-creation	Rotterdam (NL)	Local organisations helped design the co-creation approach, children engaged in co-creation of their neighbourhood	Including the perspective of children in place-making
DI 3: Community storytelling	The Hague (NL)	Ongoing initiative in The Hague, citizens participate in its organisation and in the storytelling	Understanding the potential of storytelling to foster social connections
DI 4: Distributed PD	Northrock (Ireland)	Teenagers from Ireland participated in the summer school	Insights into establishing social connections and place-making in a distributed setting
DI 5: Playable cities	The Hague (NL)	Several local community participation activities to start dialogue between citizens and local government	Understanding ways to organise collaboration between citizens and government
DI 6: ABCD	Rotterdam (NL)	Citizens starting local initiatives to respond to the COVID-19 lockdown	Understanding what formal and informal organisations need to work together in the neighbourhood

### **Definition of intervention tools**

Interventions 1 and 2 (a location-based game and a co-creation method with children) use the physical space to establish place-making. The first intervention is the location-based game that uses elements of the physical space in a playful way to enhance place-making. **Location-based games** require players to visit particular locations to open game assignments (challenges). To solve the challenge, players need to make use of the physical space around them. The second intervention is a co-creation workshop

in which children from a primary school in Rotterdam are invited on a neighbourhood walk with researchers and develop ideas to improve the public space. **Co-creation workshops** scope a particular time and place where people come together to jointly develop ideas or designs for a particular issue. These workshops are prepared and facilitated by a dedicated person, who is independent of the participants.

Interventions 3 and 4 (a community storytelling initiative and a distributed participatory design summer school) achieve place-making through social connection. Intervention 3 is a community storytelling initiative ongoing in The Hague. **Community storytelling** is a facilitated practice of citizens telling stories about their lived experiences in the community, with the purpose of bringing people closer together. In the fourth intervention, Northrock<sup>1</sup> (Ireland) teenagers participated in a distributed participatory design summer school, designing digital arts about their community. **Distributed participatory design** uses principles from Participatory Design such as mutual learning, empowerment, and collaborative reflection, to organise workshops and sessions in a distributed setting. This means that participants are not together in one room, but participate remotely in both synchronous and asynchronous settings.

Interventions 5 and 6 (a playable cities approach and an asset-based community development programme) rely on institutional support to enhance place-making. Intervention 5 comprises eight participatory activities in The Hague, grounded in the frame of the Playable City, to engage citizens in place-making processes. **The Playable City** is a development countering the top-down smart city perspective and proposing smart city technology to be playful, open, exploratory, interactive, and participatory. The sixth intervention is a resilience programme based on the principles of asset-based community development outlined in a neighbourhood in Rotterdam. **Asset-based community development (ABCD)** considers assets central in community development. Assets are defined to include skills, knowledge and networks of local residents and voluntary associations, physical and economic resources of the place, resources of public, private and non-profit institutions, and stories and shared experiences of residents.

### Evaluating the interventions

After the six interventions are studied in-depth, a meta-analysis will be conducted to synthesise the insights of all six intervention studies. The interventions are evaluated using the Participatory Place-making framework that is established in Chapter 3. The synthesis of six intervention studies through a meta-analysis aids

<sup>1</sup> The fictive name Northrock is used for the purpose of anonymity

**Table 1.2.:** Research-through-design is used to study how Participatory Design can facilitate place-making through six interventions (Part II), informed by a framework (Part I), and synthesised at the end of the research to identify design guidelines (Part III).

<b>Part I</b>	Framework design	Framework for participatory place-making
	Physical space intervention study	Intervention 1: Location-based games Intervention 2: Co-creation with children
<b>Part II</b>	Social connection intervention study	Intervention 3: Community storytelling Intervention 4: Distributed Participatory Design
	Institutional support intervention study	Intervention 5: Playable cities Intervention 6: Asset-based community development
<b>Part III</b>	Synthesis	Design guidelines

to elaborate the developed theory (Ketokivi & Choi, 2014) with design guidelines and to explore the validity of the elements in the Participatory Place-making framework (Leung, 2015). Researchers with experience in Participatory Design and/or place-making are asked to evaluate each intervention using the framework for participatory place-making. These researchers value the elements in the Participatory Place-making for each intervention and judged which elements were most present. Involving these researchers also aids to discover the dependability of the framework: they can evaluate inconsistencies between the framework elements (Graneheim & Lundman, 2004). The evaluation further provides insights into the transferability of the framework, because they evaluate six interventions that were applied in different contexts (Graneheim & Lundman, 2004).

The iterative process including the six interventions builds new knowledge on place-making and Participatory Design, which is further outlined in Table 1.2. In Part I of the thesis, the first iteration in the research is documented: the design of a framework for participatory place-making. Then, six iterations follow in Part II, in which place-making interventions are studied that focus on physical space (intervention 1 and 2), social connection (intervention 3 and 4), or institutional support (intervention 5 and 6). The last iteration synthesises the insights from all evaluation studies using the framework and identifies design guidelines for participatory place-making.

## 1.6. Research questions

The main research question for this thesis is:

### Research question

How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?

As shown in Table 1.2, this question is answered through eight iterations of research-through-design, starting with the framework, then six interventions, and ending with a synthesis to draw guidelines for participatory place-making. This leads to a structure of three sub-questions, that cover these three separate parts of the research.

### Research sub-question 1

Which factors are needed to guide Participatory Design for place-making in a framework?

A literature review answers the first research question (RQ1). The review considers articles that study participatory interventions for place-making, and aims to distil core principles, mechanisms, and factors of place-making interventions. This literature analysis leads to a framework in which Participatory Design and place-making are combined and which guides the analysis of the interventions studied in the rest of the research.

### Research sub-question 2

What role do each of the three cornerstones (physical space, social connection, institutional support) play in interventions to facilitate participatory place-making?

Research question 2 (RQ2) is answered through designing, developing, and testing six design interventions for participatory place-making. Interventions that are on-going initiatives in neighbourhoods, as well as newly designed interventions are included (see Table 1.1).

### Research sub-question 3

Which guidelines can be identified to design interventions for participatory place-making in urban settings?

This third question (RQ3) is answered by synthesising the insights from all studied interventions in a meta-analysis, to identify design guidelines for participatory place-making interventions.

## 1.7. Outline

This thesis is structured in eight chapters; Figure 1.4 illustrates how the different chapters address each of the research questions in this dissertation.

**Part I** of the thesis builds up the theory on how participatory design and place-making can be combined, and answers RQ1 by developing a framework constructed from these two fields. Chapter 2 reviews literature on participatory design and place-making, and positions this dissertation within these fields. The notion of *participatory place-making*, introduced in Section 1.4, is further defined here. Chapter 3 presents the theoretical framework that is constructed from literature. The framework integrates the insights from literature on how to design interventions for participatory place-making. The framework is validated using the interventions in Part II.

**Part II** of the thesis presents six design interventions that are studied to understand how they facilitate participatory place-making (providing the data to answer RQ2). Chapter 4 presents two interventions that fall within the *physical space* cornerstone. The first intervention is a location-based game that fosters citizens connection with their living environment. The second intervention is co-creation with children, where children (re)design parts of their neighbourhood in a playful way.

Chapter 5 includes two interventions that focus on *social connection*. The third intervention uses community storytelling to invite groups of residents to share (personal) stories to enhance social relationships and a sense of community. The fourth intervention is distributed participatory design where social connection and place-making are facilitated in an online and remote setting.

Chapter 6 studies two interventions that concern *institutional support* for place-making. The fifth intervention is Playable Cities, in which different city actors make it work together using playful approaches. The sixth, and last, intervention is on asset-based community development, an approach where formal and informal actors collaborate making use of the strengths of the community.

**Part III** of the thesis synthesis all results to answer RQ3. Chapter 7 considers all results from this research and provides a meta-analysis of the interventions, using the framework that was developed in chapter 3, to identify five guidelines for participatory

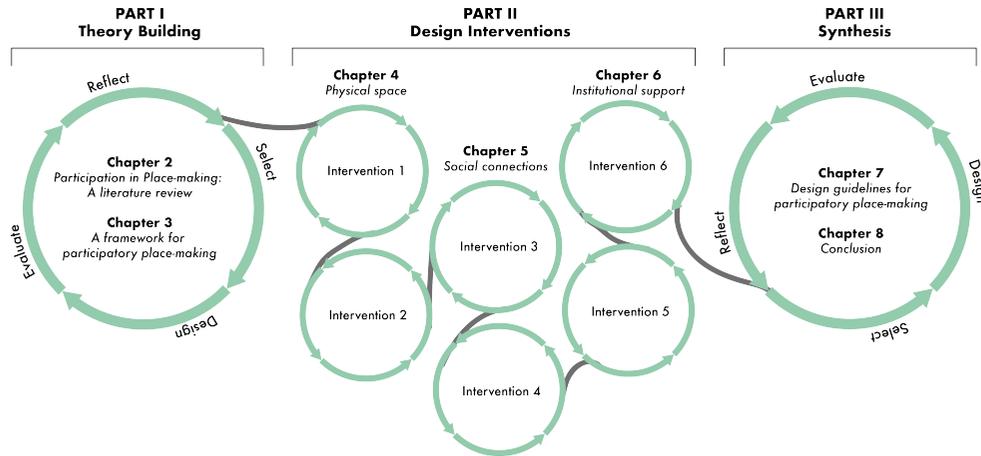


Figure 1.4.: Outline of the thesis, where Part I answers RQ1, Part II focuses on RQ2, and Part III covers RQ3.

place-making. Finally, chapter 8 concludes the dissertation by revisiting to the research questions and suggesting an outlook for future research.

## 1.8. Publications that underlie this thesis

Parts of this thesis are based on peer-reviewed publications or submitted articles: four journal articles and one conference article are published; two publications are currently being reviewed. The list below shows an overview these publications (ordered on publication date); it is indicated in the chapter itself on which publications it is based.

- ▶ **Slingerland, G., Lukosch, S., Comes, T., & Brazier, F.** (2020). Exploring design guidelines for fostering citizen engagement through information sharing: Local playgrounds in The Hague. *EAI Endorsed Transactions on Serious Games*, 18(2), 1-19.
- ▶ **Slingerland, G., Lukosch, S., & Brazier, F.** (2020). Engaging Children to Co-create Outdoor Play Activities for Place-making. *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 1 (PDC '20: Vol. 1)*, 44-54.
- ▶ **Slingerland, G., Fonseca, X., Lukosch, S., & Brazier, F.** (2020). Location-based challenges for playful neighbourhood exploration. *Behaviour & Information Technology*, 1-19.
- ▶ **Slingerland, G., Lukosch, S., den Hengst, M., Nevejan, C., & Brazier, F.** (2020). Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities. *Frontiers in Computer Science*, 2 (December), 1-16.
- ▶ **Slingerland, G., Kooijman, J., Lukosch, S., Comes, T., & Brazier, F.** (2021) The Power of Stories: A framework to orchestrate reflection in urban storytelling to form stronger communities. *Community Development*, 1-19.

- ▶ **Slingerland, G.**, Edua-Mensah, E., van Gils, M., Kleinhans, R., & Brazier, F. We're in this together: Capacities and relationships to enable community resilience. *Under review*.
- ▶ **Slingerland, G.**, Murray, M., Lukosch, S., McCarthy, J., & Brazier, F. Participatory Design going digital: Challenges and opportunities for distributed place-making. *Under review*.

**Part I.**

**THEORY BUILDING**



# Participation in place-making: A literature review

# 2.

*The research objective of this thesis is to identify whether and how Participatory Design can facilitate place-making in cities. This chapter positions the thesis and its objective in the current debate on place-making and Participatory Design. It outlines to which parts of the discourse this thesis aims to contribute and which knowledge gaps it aims to fulfil. The literature review on place-making and Participatory Design is concluded by identifying five knowledge gaps and the main research challenge to which this thesis contributes.*

2.1 Introduction . . . . .	21
2.2 Enabling place-making through interventions	21
2.3 Organising participation in place-making . . . . .	30
2.4 Research challenge: Participatory place-making	36

## 2.1. Introduction

To fulfil the objective of this thesis, which is to identify how Participatory Design can facilitate place-making in cities, this chapter reviews the literature on place-making and Participatory Design to start connecting these fields in answering the main research question. The chapter starts with a literature review on place-making, giving a short recap of how place-making is defined in this thesis, to then focus on place-making interventions. From these interventions, enablers and challenges to place-making are construed and ways to assess and understand the impact of place-making interventions are discussed. Since bottom-up approaches and citizen participation are gaining importance in place-making, the chapter concludes with identifying one of the main research challenges the field currently faces: how to organise participation in place-making and how these participatory place-making interventions work.

## 2.2. Enabling place-making through interventions

Place-making in this thesis is defined as the process to move from space to place (see Figure 1.1 in Chapter 1). This move from space to place, the place-making process, happens through value and meaning that is added to a space (Harrison & Tatar, 2008). These meanings and values that make a place are the essence of people-place relationships that are created in place-making (Strydom et al., 2018). Chapter 1 further structured place-making along three cornerstones (physical space, social connection, institutional support) through which place-making can be achieved. In this context, place-making interventions make use of a confluence of space, events, and people, for residents to create value or meaning

Parts of this chapter are based on: Slingerland, G., Lukosch, S., Comes, T., & Brazier, F. (2020). Exploring design guidelines for fostering citizen engagement through information sharing: Local playgrounds in The Hague. *EAI Endorsed Transactions on Serious Games*, 18(2), 1-19.

Slingerland, G., Lukosch, S., den Hengst, M., Nevejan, C., & Brazier, F. (2020). Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities. *Frontiers in Computer Science*, 2 (December), 1-16.

to a space and build their people-place relationship (Strydom et al., 2018).

In the city domain, researchers and policy makers gain interest in place-making, as a way to support engaged neighbourhood communities (Adler et al., 2005; Asad et al., 2017; de Lange & de Waal, 2013). Interventions can be installed in the physical space to enhance the place experience; inviting citizens to engage in activities that support their relationship with the place (Balestrini et al., 2016; De Waal, Suurenbroek, & Nio, 2021). Communities may, for example, organise the public space in a way that works for them (Crivellaro et al., 2016). Children have a natural way of recognising affordances in the urban space to design rule-based games in open play (Wood et al., 2019). But also adults will recognise benches on a public square as an affordance (or loci) for a conversation with a neighbour. Through this human activity in public spaces, be it open play or conversations, neighbourhoods move from spaces to places in place-making (Harrison & Tatar, 2008) as illustrated in Figure 1.1.

Such human activity can be supported with traditional objects in the public space (such as benches or greenery), but technology is also heavily explored to this purpose (e.g. from storytelling prototypes and applications (Lentini & Decortis, 2010; Angus et al., 2008) to location-based games (Saker & Evans, 2016; Pang, Pan, Neustaedter, & Hennessy, 2019)). Playfulness is often one of the principles of such technology, as studied in the notion of playable cities (Nijholt, 2017c). Location-based games like Pokemon Go similarly demonstrate the potential of technology to aid citizens in connecting with the physical space (Saker & Evans, 2016; Innocent, 2016; De Waal et al., 2021; Jones, Theodosis, & Lykourantzou, 2019). Such ubiquitous technologies move residents to explore new parts of their neighbourhoods (Saker & Evans, 2016), to learn about its history (Angus et al., 2008), or to access information about specific locations (Pang et al., 2019; Willis, Hoelscher, & Wilbertz, 2007; Ciolfi, Fitzpatrick, & Bannon, 2008). Augmenting the physical space with a digital layer enables new experiences of places (Saker & Evans, 2016), it increases the meaning of locations (Jones et al., 2019; Pang et al., 2019), and over time these places get more meaning and value (Stals, Smyth, & Mival, 2017). Place-making occurs when citizens connect with the physical space and this process can be fostered through (location-based) technology (Stals et al., 2017; Ciolfi et al., 2008; De Waal et al., 2021; Back et al., 2018).

Other place-making interventions use the mechanisms of community storytelling (Copeland & De Moor, 2018; Willis, Corino, & Martin, 2012) or participation (Fang et al., 2016). Sharing stories is seen as a way to strengthen communities (Copeland & De Moor,

2018). It supports place-making when stories are situated in the neighbourhood context and talk about past experiences (Willis et al., 2012). Technology can help make these past experiences tangible, for example augmenting the space with old pictures to show how it has developed (Strydom et al., 2018). Low-tech prototypes may also support citizens to discover, collect, and tell stories during urban walks or community events (Lentini & Decortis, 2010). When citizens participate in processes where they collaboratively explore issues in the neighbourhood, the neighbourhoods past, or the living space, they find stories of every day lived experiences (Copeland & De Moor, 2018) and build relationships with their neighbours, strengthening the community (Saker & Evans, 2016). Through this process, citizens experience ownership over their neighbourhood, and hence are more connected to it (van Rijn & Stappers, 2008). Place-making interventions open up the neighbourhood social network (Hampton & Wellman, 2003; Adger, 2006) and they will enable residents to gain knowledge about what is going on in their neighbourhood (Erete, 2015). In sum, five types of place-making interventions are recognised and are presented below.

### 2.2.1. Five types of interventions

Below are five different types place-making interventions, which have been applied in the urban context. These interventions types are compared using the three cornerstones of place-making (physical space, social connection, and institutional support) and using the five dimensions from Lentini and Decortis (2010), illustrating how people connect with places: geometrical and geographical, sensorial, cultural, personal, and relational.

#### Location-based games

Examples from literature: (Papangelis et al., 2017; Fischer & Hornecker, 2017; Innocent, 2018; Wood et al., 2019; Jones et al., 2019; Pang et al., 2019)

Place-making cornerstone: Physical space

Connecting dimensions: Sensorial, Geometrical and geographical

Location-based games (LBGs) invite citizens to go out in their neighbourhoods and explore new places. For example, Pang et al. (2019) designed their City Explorer game with which they aimed to learn people in transit more about the places they pass through, the activities that are organised, and the people who live there. The LBG CityConqueror of Papangelis et al. (2017) specifically encouraged residents to go out and explore new places to “conquer” them in the game. Location-based games that

aim to support place-making should enhance exploration (Pang et al., 2019; Papangelis et al., 2017; Innocent, 2018) or increase the knowledge of residents about their neighbourhood (Jones et al., 2019; Wood et al., 2019; Fischer & Hornecker, 2017).

#### Media architecture

Examples from literature: (Schroeter, 2012; Wouters, Huyghe, & Vande Moere, 2014; Hespanhol et al., 2015)

Place-making cornerstone: Institutional support

Connecting dimensions: Sensorial, Cultural

Closely related to location-based games are media architecture interventions for place-making. In media architecture, urban screens or interactive street installations enable place-making by offering residents the opportunity to collect or share concerns or other stories about the neighbourhood using these installations. For example, the urban installation *Discussions in Space* allowed residents to send their idea to improve the city via text messages to the screen, so a discussion between citizens can start (Schroeter, 2012). Similarly, Hespanhol et al. (2015) placed interactive tablets and big urban screens at several locations in Sydney that would allow passers-by to vote on statements concerning the neighbourhood of the city where the installation was located. These media architecture interventions are often focused on the improvement of public space, which is why this intervention type mainly enables place-making through institutional support.

#### Prototyping and co-creation

Examples from literature: (Willis et al., 2012; Taylor, Clarke, Skelly, & Nevay, 2018; Crivellaro et al., 2015; Dörk & Monteye, 2011; DiSalvo, Louw, Coupland, & Steiner, 2009; Derr, Chawla, Mintzer, Cushing, & Van Vliet, 2013; Lamarra, Chauhan, & Litts, 2019)

Place-making cornerstone: Physical space, Social connection, Institutional support

Connecting dimensions: Personal, Relational

Prototyping and co-creation is a type of place-making intervention in which residents and other city actors (police officers, community workers, local authorities) engage in a dialogue concerning local issues (Crivellaro et al., 2015; Lamarra et al., 2019) and possible solutions on designated locations in the city (DiSalvo et al., 2009; Derr et al., 2013). Co-creation is an essential element in these intervention studies, to explore issues and think about solutions. Other interventions use co-creation workshops as a way for residents to connect to neighbours and make place (Taylor et al., 2018; Dörk & Monteye, 2011). Co-creation interventions may involve neighbourhood walks where citizens present their

neighbourhood to researchers (Willis et al., 2012). The many different studies on this intervention reflect that researchers need to find specific methods and tools for co-creation that fit the study context.

### Storytelling

Examples from literature: (Copeland & De Moor, 2018; Chen, Dong, Ball-Rokeach, Parks, & Huang, 2012; Allan, Dezuanni, & Mallan, 2017; Manuel, Vigar, Bartindale, & Comber, 2017; Wouters et al., 2014; Matias & Monroy-Hernandez, 2004; Silva, Nisi, & Straubhaar, 2017; Wolff, Mulholland, Maguire, & O'donovan, 2014)

Place-making cornerstone: Social connection  
Connecting dimensions: Personal, Relational

Storytelling for place-making concerns citizens to share stories about city life (Wouters et al., 2014; Copeland & De Moor, 2018; Allan et al., 2017; Wolff et al., 2014) and map local stories about city life by capturing the stories of individual citizens (Manuel et al., 2017; Chen et al., 2012; Matias & Monroy-Hernandez, 2004; Silva et al., 2017). Studies into this intervention type have both focused on analogue, such as local media (Chen et al., 2012), and digital tools, such as websites (Allan et al., 2017; Matias & Monroy-Hernandez, 2004), videos (Manuel et al., 2017), public displays (Wouters et al., 2014), or mobile phones (Silva et al., 2017; Wolff et al., 2014). Storytelling enables place-making because residents learn new things about their neighbourhood and they get to know new people, which both create value and meaning to places.

### Social-network applications

Examples from literature: (Irannejad Bisafar, Itzel Martinez, & Parker, 2018; Hampton & Wellman, 2003; Chiao-Yin Hsiao & Dillahunt, 2017; Han, Shih, Beth Rosson, & Carroll, 2016)

Place-making cornerstone: Social connection  
Connecting dimensions: Personal, Relational

The fifth and last intervention often studied in relation to place-making are social-network applications. City actors engage with each other and with their neighbourhood through the use of digital mobile applications (Irannejad Bisafar et al., 2018), focused on strengthening the neighbourhood network (Hampton & Wellman, 2003). Hampton and Wellman (2003) found, for example, that residents who are connected to the neighbourhood online group, know and interact more with other neighbours than residents who are not connected. These residents also know better what is going on in their neighbourhood. Social-network applications have the ability to build trust between neighbours (Chiao-Yin Hsiao & Dillahunt, 2017) and lower the barrier to participation

(Han et al., 2016).

**Knowledge gap 1** Although there are many different studies on place-making interventions, they are hard to compare because they are built on different mechanisms. This chapter presented five different types of interventions for place-making in cities, based on the main mechanism that underlies the intervention (e.g. gaming or storytelling). There seems to be limited understanding of when to use which type of intervention, and how to organise participation of stakeholders in these interventions. In fact, the wide spread of intervention studies complicates understanding what are underlying principles of participatory place-making interventions.

**Thesis contribution 1** This thesis addresses this knowledge gap by coming up with an overarching framework for place-making interventions in cities, that specifically includes principles for organising participation in place-making. The framework is developed to address RQ1 and outlines activities and principles of design interventions to support participatory place-making in urban settings.

### 2.2.2. Enablers and challenges to place-making

Researchers study place-making interventions to understand how they work: what parts or aspects of the intervention enable or challenge place-making. What follows below is a list of factors identified from literature that influence fruitful place-making processes:

#### Interaction

Place-making interventions may evoke interaction between users of the intervention or between a resident and the physical environment. Interaction is mentioned as a factor in Crivellaro et al. (2015), Beza and Hernández-García (2018), Lentini and Decortis (2010), Manuel et al. (2017), Hou and Rios (2003), Cilliers and Timmermans (2014).

Social interaction between residents can be evoked through a place-making intervention. For example, citizens and urban professionals go on an urban walk and use specially designed cards to discuss practices in the city (Crivellaro et al., 2015). In Bogotá's informal settlements, the multiplicity of interactions between residents leads to public places being created outside of formal planning processes (Beza & Hernández-García, 2018). Interaction with the physical space may also be supported by interventions, for example when citizens go out with cameras to take pictures of their neighbourhood (Lentini & Decortis, 2010).

**Trust between actors**

Interventions for place-making should support trust between those who are using it. Trust is mentioned as a factor by Crivellaro et al. (2015), Copeland and De Moor (2018), Derr et al. (2013).

In particular the participation element in place-making requires trust between actors. In co-creation workshops, for example, where different types of people (residents, local officers, organisation representatives) are involved, everyone needs to feel safe to express their opinions. For example, Derr et al. (2013) setup a partnership between youth, city agencies, and local organisations and found that working with partners who have established relationships with under-represented groups (in their case youth) brings trust which is essential to sustain participation.

**Shared learning**

Interventions that support shared learning lead to residents learning new things about their neighbourhood, changing the meaning or value of a place. Shared learning is mentioned as a factor for place-making by Lentini and Decortis (2010), Fang et al. (2016), Manuel et al. (2017).

Place-making happens when citizens learn new things about the place where they live, because it changes the meaning of the place. For example, residents build relation with their neighbourhood by learning about activities that take place (Fang et al., 2016), people who live around, or the neighbourhood's history (Lentini & Decortis, 2010). When residents interview their neighbours about the city, they will incorporate new perspectives and ideas to their view of the neighbourhood (Manuel et al., 2017). In this way, residents gain other values and meaning about the place where they live.

**Accessible materials and prompts**

Interventions for place-making sometimes make use of materials or prompts to foster place-making. This factor is mentioned by Ringas and Christopoulou (2013), Derr et al. (2013), Peacock et al. (2018), Han et al. (2016), Manuel et al. (2017), Cilliers and Timmermans (2014).

Researchers need to consider to what extent the used materials and prompts suit the local context where the intervention is implemented. If the intervention focuses on children, for example, other types of materials are required (Peacock et al., 2018; Derr et al., 2013). Furthermore, the technology needs to be accessible and usable for residents in the neighbourhood (Manuel et al.,

2017; Ringas & Christopoulou, 2013). Technology that is difficult to use will frustrate place-making because it will refrain citizens from engaging with the intervention.

#### Aligning expectations

Interventions that require participation of various stakeholders require these stakeholders to align expectations. This factor is mentioned by Copeland and De Moor (2018), Brandrup Kortbek (2018), Fang et al. (2016), Strydom and Puren (2013), Cilliers and Timmermans (2014), Fang et al. (2016), Crivellaro et al. (2016).

Collaborative processes, such as place-making, benefit from stakeholders aligning their expectations. Interventions for place-making may or may not support this essential step. Especially when institutions take part in the intervention together with informal stakeholders (Fang et al., 2016; Crivellaro et al., 2016), expectations of all stakeholders need to be discussed up front. Engagement of institutions in place-making leads to democratic tensions and contradictions that need to be addressed (Brandrup Kortbek, 2018).

#### Power dynamics

Power dynamics concern the experienced hierarchy between the actors that are involved in place-making. Power dynamics are mentioned as a factor for place-making by Beza and Hernández-García (2018), Brandrup Kortbek (2018), Fang et al. (2016), Peacock et al. (2018), Han et al. (2016), Strydom and Puren (2013).

Power dynamics influence every participation process, thus also in place-making. Interventions that make participants aware of the power dynamics at play, and even enable joint control over these dynamics, support inclusive and equitable participatory place-making. Peacock et al. (2018) surfaced the tension around the agency of children in urban planning processes, because local authorities did not provide children with power to make decisions about their neighbourhoods. Understanding who has power and how power dynamics work is an essential factor for place-making.

#### Availability of resources

Interventions for place-making require resources such as time or money. This factor is mentioned by Crivellaro et al. (2015), Derr et al. (2013), Manuel et al. (2017), Hou and Rios (2003).

Resources for place-making interventions include people who are willing to invest their time (Crivellaro et al., 2015; Manuel et al.,

2017), or institutions that fund the development and implementation of the intervention (Derr et al., 2013). The available resources influence the type of interventions that are possible. To support place-making on the long-term, and to make interventions less dependable on researchers, sustained resources are needed.

**Knowledge gap 2** Literature on place-making interventions captures a wide range of factors that enable or hinder place-making. Nevertheless, an overarching understanding of how these factors work for different intervention types, or in different environments, is lacking. Designers and researchers must deal with trade-offs when incorporating these factors in their place-making intervention design, but this is often left implicit.

**Thesis contribution 2** This thesis addresses knowledge gap 2 with a study of six interventions for place-making (RQ2), considering their elements and factors in-depth to understand how and why they work. The interventions are studied in different contexts and are of different types, allowing to compare and understand design choices that were made in each intervention.

### 2.2.3. Design and impact of place-making interventions

Besides understanding the enablers and challenges to place-making, researchers try to find ways to evaluate the impact of their place-making intervention on participants or the community. This helps them to design more effective interventions. Similar to the variety of mechanisms and intervention types, researchers all have their own way of assessing whether or not place-making was achieved.

Evidence that an intervention supports place-making may be found through observing dialogue that takes place between city actors, as a result of the intervention (e.g. in (Crivellaro et al., 2015; Beza & Hernández-García, 2018; Ringas & Christopoulou, 2013; Brandrup Kortbek, 2018; Fang et al., 2016; Angus et al., 2008; Han et al., 2016; Manuel et al., 2017; Crivellaro et al., 2016)). Another evaluative criteria that is used, is whether city actors (re)discovered their neighbourhood (e.g. in (Crivellaro et al., 2015; Ringas & Christopoulou, 2013; Lentini & Decortis, 2010; Han et al., 2016; Manuel et al., 2017; Hou & Rios, 2003)). To measure this, intervention participants are interviewed or fill out a questionnaire after the intervention took place, or observations of this behaviour are made during the intervention.

Researchers also measure the level of engagement of city actors in the place-making processes (e.g. in (Ringas & Christopoulou, 2013; Derr et al., 2013; Cilliers & Timmermans, 2014)). More engagement (how much the intervention was used (Ringas &

Christopoulou, 2013)) may hint at more possibilities for place-making to happen. Evidence for place-making can further be found through identifying the experienced sense of community (e.g. in (Corcoran et al., 2018; Pink, 2008; Han et al., 2016; Cilliers & Timmermans, 2014)). One of the outcomes of place-making is that citizens feel more at home, which may be reflected in their sense of community. Finally, collaboration between actors is a potential sign for place-making to happen (e.g. in (Corcoran et al., 2018; Fang et al., 2016; Hou & Rios, 2003)). Through collaboration, dialogue is supported and participants may learn new things about the place they live in.

**Knowledge gap 3** Each intervention study has its own way of identifying how the intervention was successful in enabling place-making. Several factors come forward that may indicate signs of place-making, but each study defines them in their own way and sometimes they are even left to the reader to interpret. As such, there seems to be no uniform way to recognise when place-making happens, which challenges comparing interventions. Guidelines to design effective place-making interventions are hence missing.

**Thesis contribution 3** This thesis addresses knowledge gap 3 by development of five guidelines for participatory place-making, using the framework and interventions. RQ3 synthesis the six intervention studies and uses the framework for a meta-analysis of the different interventions in terms of how they enable place-making.

### 2.3. Organising participation in place-making

Active citizenship, self-organisation and engagement are high on the agenda of governments world-wide (Certomà, Dyer, Pocatilu, & Rizzi, 2017; Kleinhans, Van Ham, & Evans-Cowley, 2015). Since the 1990's, place-making approaches started to become more democratic and collaborative (Strydom et al., 2018). Residents have become active participants in designing place-making interventions, as they are now seen as co-creators of the city (Dörk & Monteye, 2011; de Lange & de Waal, 2013). In general, citizens are more and more included in participation processes, for example to explore issues and develop solutions in the neighbourhood (DiSalvo et al., 2009; Voids, Yao, & Korn, 2015; Crivellaro et al., 2015). Citizen science is a well-established approach to engage citizens in all kinds of urban issues (Newman et al., 2012). Living labs are another, providing insight into how city stakeholders can co-create and which different roles apply (Nyström, Leminen, Westerlund, & Kortelainen, 2014; Leminen, Westerlund, &

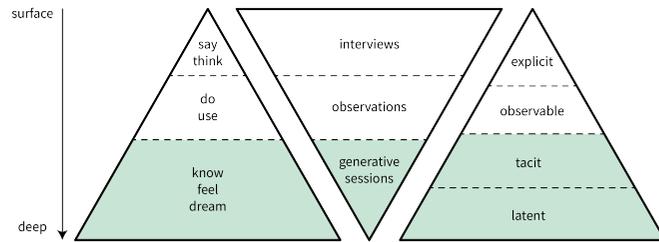
Nyström, 2012; Mulder, 2012). Urban living lab studies (Juujärvi & Pessio, 2013) call for better understanding how participation is organised in the city domain, in order for all actors to be included and take part (Leminen, 2013; Leminen et al., 2012; Puerari et al., 2018). This understanding around organising participation is required for place-making as well, as local governments work together with communities (Tan & Portugali, 2012; Ashtari & Lange, 2019), and very few place-making interventions so far are a result of joint efforts between these different neighbourhood stakeholders (De Koning, Puerari, Mulder, & Loorbach, 2018; Harding, Knowles, Davies, & Rouncefield, 2015). In this context, the field of Participatory Design (PD) is suggested by some (Foth, 2017a) as an enabler of inclusive and participatory place-making.

### 2.3.1. Alignment between Participatory Design and place-making

Participation of city stakeholders is seen as a core aspect of contemporary place-making (Kalandides, 2018; Beza & Hernández-García, 2018; Friedmann, 2010). The field of Participatory Design (PD) (Schuler & Namioka, 1993; Simonsen & Robertson, 2013a) studies how participation needs to be organised, for instance to engage non-designers in design processes that concern city life. PD has two underlying motivations. The first is a democratic motivation, as PD researchers believe that “people who are affected by a decision or event should have an opportunity to influence it” (Schuler & Namioka, 1993, p. xii). This means that people need to be involved in the design of technology that impacts their life. The second motivation is pragmatic: “quality can improve with strong and effective participation of people involved” (Schuler & Namioka, 1993, p. xii). PD researchers argue that the quality, and effective and efficient use of technology increase when users are involved in their design because users better understand what the technology entails (Blomberg & Henderson, 1990).

These motivations strongly align with the considerations of researchers who argue for more participatory and inclusive place-making. They also stress the democratic value underlying place-making (Strydom et al., 2018), and believe that place-making interventions can only be effective when they are designed with the local community where the interventions will be situated (Beza & Hernández-García, 2018; Kalandides, 2018). Provided that participation in place-making is still very much open to debate (Kalandides, 2018), Participatory Design could help develop participatory approaches for place-making that lead to effective and democratic interventions.

**Figure 2.1.** Generative design surfaces tacit and latent knowledge on what people know, feel, and dream; Image adapted from Sleeswijk Visser et al. (2007, p. 123).



### 2.3.2. How Participatory Design works

The Scandinavian tradition of Participatory Design (PD) originally focused on the labour domain, and developed approaches to involve employees in the design of the technologies they were using in their day-to-day jobs (Simonsen & Robertson, 2013a). The field has expanded to other domains, for example the city, studying how technology and urban development projects can be better shaped with citizens and other local stakeholders (Huybrechts, Benesch, & Geib, 2017; DiSalvo, Clement, & Pipek, 2013; Smith & Iversen, 2018). Mutual learning and empowerment are key elements in PD, as through participation residents expand their capacity to better shape their environment or lives (Hansen, Dindler, Halskov, & Schouten, 2019).

The “design” aspect of PD is grounded in generative design research, which considers “all people to be creative” (Sanders & Stappers, 2012, p. 20). People are seen as the expert of their experiences and involved as co-designers in the process. Designers then become facilitators of the co-design process (Sanders & Stappers, 2012). The basic principle of generative design is that people make artefacts and are asked to tell about what they have made (Sleeswijk Visser, Stappers, Lugt, & Sanders, 2007). Throughout this creative process, people become aware of their experiences and are able to share them with designers (Stappers & Sanders, 2003). As abstracted in Figure 2.1, materials and activities in generative design do not necessarily focus on creating products, but rather help people to communicate what they want, need, and dream of (Sleeswijk Visser et al., 2007). Participatory design is a specific approach to this, because PD demands people to not only join the design process, but also to have democratic influence over it, and gain valuable skills that empower design participants beyond the PD process (Hansen et al., 2019; Simonsen & Robertson, 2013a).

### 2.3.3. Approaches to citizen participation

Approaches to participation have been widely studied in the city domain, both within and outside of the Participatory Design field. These approaches focus on including residents in thinking about ways to improve their neighbourhood, in terms of spatial planning as well as through community initiatives. In citizen science, residents gather and analyse data to monitor various aspects in their neighbourhood, like air quality or biodiversity (DiSalvo et al., 2009; Aronson, Wallis, Campo, & Schafer, 2007; Tinati et al., 2015; Newman et al., 2012). This raises awareness for the environment (Dickinson et al., 2012) and helps citizens come up with ways to solve these identified problems (Mulder, 2012; Juujärvi & Pessa, 2013). Increased situational awareness and social connections that result from citizen participation, are crucial conditions for citizen engagement and empowerment (Comes, Wijngaards, & Van de Walle, 2015; Hardy & Comfort, 2014).

However, citizen participation, especially from an empowerment perspective, has also been criticised. As Arnstein (1969) showed with her ladder of participation, governments give away power to citizens, making citizen participation a top-down initiated process (Cornwall, 2008; Mulder, 2014). Policies to create a partnership between citizens and the city are rarely in place (Dahl, 1994), which limits the power and influence that citizens have.

Within the urban context, the notion of power in citizen empowerment is thus understood as a power-over relation between two actors (Schneider, Eiband, Ullrich, & Butz, 2018) where one actor (the government) has power over the other actor (the citizens), and this means the government can use their power (for example creating certain participation policies) to allow citizens to do something they would otherwise not be capable of (starting an initiative to improve the neighbourhood) (Arendt, 1958). This (re)distribution of power across participation levels is outlined specifically for place-making by Cilliers and Timmermans (2014, p. 421), indicating how citizens can only be “informed” by local authorities, to citizens having “equal rights” where the community has decision power and “final results are subject to equal preferences of the authorities and the communities”.

This discussion around power distribution is also prominent in the smart city debate. In the smart city, technology is used to improve urban life, but often implemented from a top-down perspective. Counter-approaches such as The Playable City rather use input from citizens in smart city technology design (Veenkamp, Kresin, & Kortlander, 2012; De Lange, 2014; de Lange & de Waal, 2013), to realise a city that is open, playful, and participatory. Multiple researchers (Nijholt, 2017c; Wilson, Tewdwr-Jones, & Comber,

2017; de Lange & de Waal, 2019) have explored how to include citizens in smart city technology design to make city life more fun and to be democratic. Smart technology in a participatory city is used to foster social interactions between citizens and evoke engagement of citizens with their environment, making it playable. This is a very different use of technology in comparison to the way technology is envisioned in the 'traditional' smart city (de Lange & de Waal, 2013).

Within these developments, Participatory Design (PD) explores ways for citizens to join urban (technology) design processes as equal partners in design (Halskov & Hansen, 2015; Robertson & Simonsen, 2012). The field studies which materials, technologies, tools, and activities enable citizens to take active part in design processes that shape life in the city (Hansen et al., 2019). These processes can focus on designing city services, community initiatives, or public spaces. Typical for PD is that these materials and activities will be designed to suit the specific context and participants (DiSalvo et al., 2013). The field continues to explore how participation can be organised in cities and neighbourhoods, and which methods and tools fit best with the specific context (Robertson & Simonsen, 2013; Emspak, 1993).

**Knowledge gap 4** Approaches to participation in the city domain have been heavily researched and use a wide variety of methods and tools to include residents in the design of their neighbourhood. This variation is necessary, to tailor participation processes to a specific neighbourhood or context. Place-making interventions also need to be designed with the community, for them to suit the wishes and needs of its residents. An open question remains how place-making interventions and its participatory design process need to be adapted to the local context. The field lacks knowledge on how participation processes can be tailored to a specific neighbourhood, for example which elements of the neighbourhood PD researchers should take into account when designing a participation process for place-making.

**Thesis contribution 4** This thesis addresses knowledge gap 4 by studying six different interventions, that have been run in five neighbourhoods (RQ2). The thesis pays specific attention to how the interventions have been adjusted or adapted to fit the local context. Furthermore, RQ1 will investigate how PD guides place-making, and particularly dives into adjusting participation processes to a specific context. Through the synthesis for RQ3, overarching insight is gained into how participation should be tailored in neighbourhoods.

#### 2.3.4. Place-making and community participation

Place-making that is grounded in participation and takes place in cities engages geographical communities; residents who live together in a neighbourhood. A community can be defined by commonalities (e.g. common interest, locality, or social structure) (Rapport, 1996; McMillan & Chavis, 1986) or via identification of its members, who recognise their group is different to other groups (Cohen, 2003; Obst et al., 2002). The communities discussed in this dissertation are of this type: citizens living within the geographical boundaries of the neighbourhood are part of the community.

Such geographical communities, especially in cities, are characterised by a lack of social relationships between neighbours (Atkinson & Kintrea, 2000). Due to information technology, neighbours are not restricted to local contacts any more, but rather form social relationships with people from outside their geographical community (Hampton & Wellman, 2003; McMillan & Chavis, 1986; Obst et al., 2002; Wellman, 2005). Geographical communities are solely based on locality, rather than common interests or skills (McMillan & Chavis, 1986). These characteristics lead to such communities lacking a sense of coherence and belonging (Mansuri & Rao, 2004), and community members provide less social support to each other (Wellman & Wortley, 1990). As a result, neighbours do not interact any more on a regular basis and might not even identify as a member of their neighbourhood community.

This lack of community sense complicates participation, because who is part of the community is less well defined: it is dynamic and lacks structure (Dalsgaard, 2012). Furthermore, residents may heavily differ in terms of skills or motivation and their motivation to participate in designing place-making interventions is personal and intrinsic (Carroll & Rosson, 2007). Dissensus and tensions are part of participatory processes, and need to be embraced as such (McCarthy & Wright, 2015). The group of participants in neighbourhoods is heterogeneous: they have their own practices and goals, which might not directly align with overarching goals of the community. For example, community members take part in place-making projects to design technology to facilitate community life (Carroll & Rosson, 2007), gain insight into the environment (DiSalvo et al., 2009; DiSalvo, Lodato, Jenkins, Lukens, & Kim, 2014), or to create social connections between community members (Hampton & Wellman, 2003).

Another challenge to community participation is the different sub-communities that exist within a neighbourhood, such as teenagers or children (Wood et al., 2019; Francis, 1998), or ethnic groups (Kendall & Dearden, 2018). These groups may require other types

of participation activities to be able to participate (Peacock et al., 2018). Ethnography could, for example, help researchers to shape appropriate methods and activities, fitting the context and the participants (Blomberg & Karasti, 2013). PD researchers continue to explore how they can best identify and include all relevant stakeholders (Robertson & Wagner, 2013; Bjögvinsson, Ehn, & Hillgren, 2012), and which materials and activities support common ground and mutual understanding that is required for PD (Emspak, 1993). What are best approaches to involve such “hard-to-reach” groups, be it teenagers, children, or other under-represented groups, is still an open question that is explored by many PD researchers (Le Dantec & Fox, 2015; Gooch et al., 2018; Derr et al., 2013).

**Knowledge gap 5** Community participation in place-making is challenged because geographical communities are heterogeneous, diverse, and less easy to define. Participatory Design started to explore how to deal with this type of community, in terms of designing participation processes that engage all community members. Dissensus and disagreement is a given in this situation, and researchers explore ways to embrace this while at the same time establishing common ground to build trust in the design process. In similar vein, designers and researchers of participatory processes have become more aware of sub-communities who are often unheard in participatory endeavours, and started to explore issues on participation inequalities and inclusion.

**Thesis contribution 5:** This thesis contributes to this debate on inclusion and representation in participation by including two interventions that are specifically focused on children and youth. Recognising the challenges around representation, for all interventions this thesis reflects on how inclusion and representation was achieved (or not) as part of RQ2. Furthermore, the framework that results from RQ1 will outline activities to support inclusive participatory place-making and RQ3 includes specific guidelines on this.

## 2.4. Research challenge: Participatory place-making

Several scholars identified contemporary place-making to be build on the values of community and democracy (Strydom et al., 2018; Kalandides, 2018). Direct citizen participation has become an implicit factor in designing place-making interventions (Beza & Hernández-Garcia, 2018). Nevertheless, the way to organise participation in place-making is still open to debate (Kalandides, 2018). Foth (2017a) called for the application of Participatory

**Table 2.1:** The identified knowledge gaps, how the contribution of this thesis addresses them, and which research questions (RQ) serve this purpose.

<b>Knowledge gap</b>	<b>Contribution</b>	<b>RQ</b>
1. Lack of participation in place-making	Framework with principles and activities for participation	RQ1
2. Missing essential factors of place-making interventions	In-depth intervention studies	RQ2
3. No overarching guidelines to design place-making interventions	Design guidelines for interventions	RQ3
4. Adjusting participatory place-making to specific neighbourhoods	Interventions in five neighbourhoods	RQ1, RQ2, RQ3
5. Dealing with participation inequalities	Multi-faceted interventions	RQ1, RQ2, RQ3

Design (PD) to make place-making more inclusive, community-driven, and participatory. Further exploration of the literature shows that the underlying motivations of PD strongly align with those of contemporary place-making, and that the research challenge now is to further confluence these fields, to advance the knowledge gaps that both discourses face.

Table 2.1 gives an overview of the knowledge gaps that were identified in this chapter and what contribution the thesis will bring in response. The review of place-making interventions indicated three knowledge gaps concerning the field's understanding of how and why place-making interventions work. While interventions for place-making are heavily researched, overarching design principles miss (gap 1), as well as an identification of essential factors of place-making interventions (gap 2), or guidelines that support effective intervention design (gap 3). In terms of participation in place-making, the literature lacks knowledge on tailoring participation to specific contexts (gap 4), and ways of dealing with participation inequalities (gap 5).

In response to these gaps, the next chapter of this thesis develops a framework for participatory place-making, that addresses these knowledge gaps by identifying principles for place-making on which interventions should be build. Further, the framework includes a set of activities that guide the process of community participation in place-making, with specific attention to representation. The remainder of this thesis will present six interventions for participatory place-making that are evaluated using the framework. The insights from each intervention study are synthesised at the end of the thesis and the gained knowledge is articulated in relation to the knowledge gaps identified here.



# A framework for participatory place-making

# 3.

*The literature review showed that organising participation in place-making is one of the main challenges in the field. In this context, this thesis studies how Participatory Design can facilitate place-making in cities through the physical space, social connections, and institutional support. This chapter develops a framework for participatory place-making in cities to start fulfilling the aim of this thesis. As such, literature describing interventions for place-making, with a specific focus on how participation is organised, is reviewed. Insights of the review are condensed in five principles that underlie place-making interventions, and four activities on how to organise participation of city stakeholders during the design and implementation of the intervention are identified. The conceptual framework is used in Part II to analyse and understand six design interventions, which all centre around one of the place-making cornerstones (physical space, social connection, institutional support).*

3.1 Introduction . . . . .	39
3.2 Method . . . . .	39
3.3 Review results . . . . .	45
3.4 The Participatory Place-making framework . .	49
3.5 Conclusion . . . . .	56

## 3.1. Introduction

This chapter develops a conceptual framework of participatory place-making that can be used to analyse and understand design interventions and their effect on place-making. This framework fills the gap in the place-making literature on how to organise participation of city stakeholders in the design and implementation of interventions that support place-making (Harding et al., 2015). As such, it answers RQ1 of this thesis: *How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?* Chapter 2 identified the work on Participatory Design to provide an interesting starting point to enable participation in place-making. This chapter will review case study literature on place-making interventions that were designed and/or implemented in a participatory way, to understand what are its underlying principles and what are required activities.

## 3.2. Method

The framework is developed by reviewing 33 case studies of place-making interventions in cities that are designed, implemented, and/or evaluated with city stakeholders. The review focuses on which actors were involved, what activities the place-making process entailed, the level of involvement of the actors, and what was the effect of the place-making process. The ultimate aim of

Parts of this chapter are based on: Slingerland, G., Murray, M., Lukosch, S., McCarthy, J., & Brazier, F. Participatory Design going digital: Challenges and opportunities for distributed place-making. *Under review*.

Slingerland, G., Lukosch, S., den Hengst, M., Nevejan, C., & Brazier, F. (2020). Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities. *Frontiers in Computer Science*, 2 (December), 1-16.

the review is to distil the activities and principles that underlie interventions for participatory place-making.

The case studies were selected through an exploratory literature study. Using Google Scholar as the main search engine, papers were sought using keywords 'place-making', 'participation', 'community', and 'neighbourhood'. Multiple searches were performed using one or a string of these keywords (e.g. "participation AND place-making"). The reference list of selected papers were also reviewed to identify articles that did not come up in the initial search. Both journal papers and articles from human-computer interaction conference proceedings (such as Human Factors in Computing Systems, Media Architecture Biennale, and Communities & Technologies) were included.

### 3.2.1. Selection

The selection criteria on the basis of which papers are selected for further analysis are: 1) the article contains a description of an intervention that has the potential to support place-making within one (or more) of the three cornerstones, 2) the intervention has been implemented in an urban context, 3) one or more city actors are involved in the design, implementation, or evaluation of the intervention, 4) the intervention is evaluated in the article, and 5) the paper describes enough detail of the design and/or evaluation process such that the *activities*, *actors*, *level of involvement*, and *effects* can be analysed. The papers were selected by first reading the title and abstract, and assessing those with the given criteria. Next, the full paper is read to analyse in-depth whether the criteria are met.

### 3.2.2. Analysis

In total, 33 papers were selected from the literature search and included in the analysis as shown in Tables 3.1, 3.2, and 3.3. Of these papers, fourteen mostly employ *physical space* for place-making (see Table 3.1), ten focus on *social connection* for place-making (see Table 3.2), and nine mainly concern what *institutional support* is required for place-making (see Table 3.3). These papers are analysed using the structure from Program Theory; considering which *Activities*, *Actors*, *Level of involvement*, and *Effects* they describe.

The review focuses on generating insights on the activities and underlying principles needed to engage multiple stakeholders in participatory place-making. This analysis uses the structure proposed by Hansen et al. (2019), who view participatory design processes through the lens of program theory.

For each paper the following elements are analysed: which (co-)design and research *activities* were used during the research, which *actors* were included, what was their *level of involvement* (resonating with mechanisms from Hansen et al. (2019)), and which type of *effect* the research evoked. The types of effect are categorised as outputs, outcomes and/or impact. Examples of effects that are categorised as output are design requirements or evaluation results; examples of outcomes are participants gaining new competence or identifying new ways of working; finally, an example of achieved impact is when long term networks are created or the research results in democratic influence (Hansen et al., 2019).

**Table 3.1.** Fourteen of the selected papers mostly employ *physical space* for place-making.

Case	Activities	Actors	Level of involvement	Effect(s)
Interactive technology (Fredericks, Tomitsch, Hespanhol, & McArthur, 2015)	Field user tests, focus group	Representatives of local government, citizens, researchers	Citizens as testers	Output
Public displays (Hosio et al., 2012)	Focus groups, prototype design, field user tests, feedback sessions	Youth workers, youth, researchers	Actors are consulted	Output, outcome
Storytelling displays (Claes & More, 2017)	Co-design, deployment of prototype	Citizens, shopkeepers, researchers	Citizens as co-designers, shopkeepers as testers	Output
Trust approach (Harding et al., 2015)	Stakeholder workshops, iterative co-design, field user tests, focus groups	Citizens, private workers, local government, researchers	Actors as informants	Output, outcome, impact
Interactive public poll (Valkanova, Walter, Moere, & Müller, 2014)	Field user tests	Citizens, researchers	Citizens as testers	Output
Community app (Cila et al., 2016)	Citizen science, prototyping, focus groups	Health organisations, citizens, local government, researchers	Citizens as informants	Output
Participatory public art (Brandrup Kortbek, 2018)	Working groups, prototyping	Cultural organisations, artists, citizens, researchers, municipality	Citizens as informants	Output
Cooperative place-making (Corcoran et al., 2018)	Co-design workshops	Citizens, researchers	Citizens as consultants	Output, outcome
Storytelling for place-making (Lentini & Decortis, 2010)	Workshops, prototyping	Citizens, researchers	Citizens drive the research	Output, outcome
Ethnographic place-making (Pink, 2008)	City walks, interviews	Researcher	Citizens as subjects	Output
Urban social tapestries (Angus et al., 2008)	City walks, workshops	Citizens, researchers	Citizens as co-designers	Output
Creative place-making (Cilliers & Timmermans, 2014)	Workbench method, creative tools	Citizens, municipality, researchers	Actors as co-designers	Output, outcome
City walk approach (Crivellaro et al., 2016)	City walks, cultural probing, interviews	Citizens, housing organisation, researchers	Communities drive the research	Output, outcome
Place-making urban game (Innocent, 2018)	Urban codemaking, location-based game	Citizens, researchers	Citizens as testers	Output

**Table 3.2.:** Ten of the selected papers focus on *social connection* for place-making.

<b>Case</b>	<b>Activities</b>	<b>Actors</b>	<b>Level of involvement</b>	<b>Effect(s)</b>
Sensing the environment (Aoki et al., 2009)	Ethnographic work, workshop, system design, deployment	Consultants, citizens, urban planners, NGOs, researchers	Actors as informants and data collectors	Output, outcome, impact
Collective intelligence (Parraagudelo, Choi, Foth, & Estrada, 2018)	Creative activities and workshops	Grassroots communities, researchers	Communities drive the research	Output, outcome, impact
PosterVote (Vlachokyriakos et al., 2014)	Field user tests	Citizens, grassroots, researchers	Citizens as testers	Output
Street talk (Wouters et al., 2014)	Co-design, concept selection, deployment	Families, researchers	Citizens as co-designers	Output, outcome
Digital storytelling with trust (Copeland & De Moor, 2018)	Storytelling, workshops	Citizens, researchers	Communities drive the research	Output, outcome
Urban computing (Ringas & Christopoulou, 2013)	Field tests, interviews	Citizens, researchers	Citizens as testers	Output
Community mapping (Fang et al., 2016)	Mapping workshops, city walks	Citizens, researchers, service providers	Citizens as consultants	Output, outcome
Social networks for place-making (Han et al., 2016)	Field tests, interviews	Citizens, researchers, local organisations	Citizens as testers	Output
Technology narratives (Willis et al., 2012)	Public consultation workshops, field tests	Citizens, researchers, local organisations	Citizens as co-designers	Output, outcome
Participatory media (Manuel et al., 2017)	Co-design workshops	Citizens, researchers	Communities drive the research	Output, outcome, impact

**Table 3.3.:** Nine of the selected papers mainly concern what *institutional support* is required for place-making.

<b>Case</b>	<b>Activities</b>	<b>Actors</b>	<b>Level of involvement</b>	<b>Effect(s)</b>
Urban screens (Schroeter, 2012)	Field user tests, focus groups	Urban planners, citizens, researchers	Citizens as testers	Output
Experiential evaluation (Custers, Devisch, & Huybrechts, 2020)	Work sessions, scenario selection, scenario testing, evaluation	Urban planners, policy makers, citizens, researchers	Actors co-create scenario interventions and evaluation setup	Output, outcome, impact
Sens-Us system (Golsteijn, Gallacher, Capra, & Rogers, 2016)	Design of intervention, Field user test	Local government, citizens, researchers	Citizens as testers	Output
Urban walks (Crivellaro et al., 2015)	City walks	Citizens, researchers	Citizen input informs the next walk	Output, outcome, impact
Sustainable citizenship (Beza & Hernández-García, 2018)	Co-design of public spaces	Citizens, researchers, local government	Citizens as drivers of place-making	Output, outcome, impact
Place-making with youth (Derr et al., 2013)	Storytelling, focus groups, workshops, co-design	Citizens, researchers, city agencies, youth organisations	Communities drive the research	Output, outcome
Streets for people (Peacock et al., 2018)	City walks, focus groups, co-design workshops	Citizens (children), local authority, researchers	Citizens as consultants	Output, outcome
Participatory place-making in South Africa (Strydom & Puren, 2013)	Focus groups	Citizens, researchers, urban planning department	Citizens as informants	Output
Community-driven place-making (Hou & Rios, 2003)	Co-design workshops, consultation meetings	Local organisations, government, citizens, researchers	Citizens as co-designers	Output, outcome, impact

### 3.3. Review results

Tables 3.1, 3.2, and 3.3 allow to compare and contrast the various case studies in terms of activities researchers and partners employ, who is involved and how, and the effect of the participatory place-making intervention on the participants. One researcher analysed these three tables and first focused on clustering the activities that are described in the case studies to a comprehensive set of activities for the participatory place-making framework (see subsection 3.3.1). Next, subsection 3.3.2 discusses the involvement of actors in participatory place-making and the underlying principles of this participation. Subsection 3.3.3 identifies further principles to complement the framework, based on analysing the effect that participatory place-making has on its participants and the wider community.

#### 3.3.1. Activities

A common way, found in the cases, to engage citizens in place-making is to identify a topic that is of interest to the community, to mobilise people to participate. In some cases this so-called *matter of concern* (Bjögvinsson et al., 2012) is already known to the researchers because of previous engagement with a community (e.g. Vlachokyriakos et al. (2014)). In other cases, researchers start with **field work** to identify a matter of concern for the local community. Researchers explore the area with **field visits**, **desk research**, and **interviews** to discover a topic of concern for the local community and for which they can be mobilised. For example, Crivellaro et al. (2015) started with desk research on the city and then moved into the neighbourhoods to contact locals, build relationships, identify issues and involve professional stakeholders to move forward in addressing those issues. Fieldwork to **connect with the context and community** is an essential activity in this type of research (Slingerland, Lukosch, & Brazier, 2020).

After the essential fieldwork, different paths unfold depending on the interest and purpose of the research. One option is that researchers **employ a place-making intervention** around a matter of concern and test it with participants. For example, Schroeter (2012) installed an urban screen in which residents can collaboratively share how the public space can be improved. Ringas and Christopoulou (2013) used urban screens and a mobile app for citizens to collect and share stories and memories of a public space. The main activities then comprise of **field user tests** and **focus groups** to discuss the results. Other papers (e.g. Harding et al. (2015), Hosio et al. (2012), Cilliers and Timmermans (2014),

Wouters et al. (2014), Derr et al. (2013)) deploy **co-design activities** with city stakeholders before implementing and testing an intervention. One step further is to include stakeholders in the evaluation as well (e.g. Custers et al. (2020), Corcoran et al. (2018), Aoki et al. (2009), Parraagudelo et al. (2018)), for them to be able to continue the design process independent of the researchers. **Playful approaches** are introduced as part of the co-design, to create an open and creative mindset of the engaged partners. Place-making already takes place during the co-design and is further supported when the intervention is installed. Hespanhol et al. (2015) consider **play** to be an essential aspect of eliciting community engagement and Brandt (2006) mentions it explicitly as a framework for participation.

*Take-aways towards the framework* The activities that are used in urban participatory place-making, described in literature, provide guidance on how participatory place-making needs to be organised and which activities support this process. All case studies start with activities to **get to know the local context** and **to connect with key actors**. Then, as discussed above, there are differences in how the place-making intervention is developed, which **data is gathered**, and whether or not the community is engaged in **reflecting on the intervention effects**. To sum up, four activities for participatory place-making in cities are comprised from the literature (in alphabetical order):

1. Connect with local context
2. Identify key partners and stakeholders
3. Gather data and doing analysis
4. Reflect on effects with stakeholders

These activities are included in the framework for participatory place-making.

### 3.3.2. Actors and their level of involvement

The extent to which a city community, either citizens or professional, are involved in the research and design varies considerably between papers. In eight papers (Schroeter (2012), Fredericks et al. (2015), Golsteijn et al. (2016), Vlachokyriakos et al. (2014), Valkanova et al. (2014), Innocent (2018), Ringas and Christopoulou (2013), Han et al. (2016)), citizens are only involved as testers, and professional actors are consulted for the context and content. In the cases of Golsteijn et al. (2016) and Fredericks et al. (2015), the performance installations were designed by the researchers, and citizens tested them during the field study. Also Ringas and Christopoulou (2013) designed and build their Collective City Memory system, and tested it with citizens in Corfu (Greece)

and Oulu (Finland). Many of these interventions contain a **playful** element, by supporting creativity (Brandrup Kortbek, 2018), open-endedness (Pink, 2008), or experimentation (Custers et al., 2020). The (playful) interventions gather citizen input in relation to the place where the intervention is situated. In some cases, researchers feed these results back to the local organisation with whom they partnered (Golsteijn et al., 2016; Fredericks et al., 2015). Citizens often do not receive feedback on what happened with their input, although they do express the need for **reflection** (Hespanhol et al., 2015; Vlachokyriakos et al., 2014).

In nine papers (Custers et al. (2020), Claes and Moere (2017), Harding et al. (2015), Wouters et al. (2014), Hosio et al. (2012), Hou and Rios (2003), Manuel et al. (2017), Cilliers and Timmermans (2014), Angus et al. (2008)), local organisations and citizens are involved as co-designers of a place-making intervention. For example, Hosio et al. (2012) organised several sessions with youngsters to collect requirements for an installation and social networking service to engage youth in place-making. The youngsters and youth organisation were involved in the design process and gave feedback after using the resulting design. Custers et al. (2020) applied a similar approach named 'Experimental Evaluation', in which city stakeholders collectively design, implement, and evaluate improvements for the city. Manuel et al. (2017) developed their 'Participatory Media' approach where residents used media technology to engage neighbours in thinking along on urban development of their neighbourhood. The Urban Tapestries intervention was designed with input from citizens during several participatory design workshops (Angus et al., 2008). These interventions support **inclusion** by aiming to involve groups of citizens who are otherwise often left out of participation processes.

*Take-aways towards the framework* Analysing which actors are involved and how their participation is organised leads to three principles for participatory place-making:

- ▶ Inclusive
- ▶ Playful
- ▶ Reflective

Inclusion is, for example, recognised in papers that describe participatory processes in which different stakeholders are brought together, treated equally, and given influence on the design process (e.g. Crivellaro et al. (2015), Parraagudelo et al. (2018), Custers et al. (2020), Aoki et al. (2009), Manuel et al. (2017), Hou and Rios (2003)). Reflective practices are required by participants of place-making; they have a need for feedback and evaluation, to continuously learn and adjust. This is clearly outlined in the community-driven place-making approach discussed by Hou and

Rios (2003). In these cases the focus of the activities is to facilitate the collaboration process between all actors. This explicitly entails including the stakeholders in the evaluation of these processes and to collectively and playfully reflect on the outcomes and next steps.

### 3.3.3. Effects

The effects of place-making interventions have been categorised into three different levels: *output*, *outcome*, and *impact*, following Hansen et al. (2019). Fourteen cases merely produce *output* effects, meaning that their place-making intervention mainly helps researchers better understand how the intervention supports place-making. For example, the mobile technology that was tested by Han et al. (2016) showed to increase a sense of community with participants, and the researchers evaluate which part of the mobile technology supported this, to draw guidelines and requirements for future designs. As such, the results focus on how the intervention enabled participatory place-making (Valkanova et al., 2014), and collects the input that citizens provided about this (Hosio et al., 2012).

Eleven cases move beyond output to the level of *outcome* with their intervention. This is often a result of the applied co-design: actors learn new skills and develop competences through these creative practices (Sleeswijk Visser et al., 2007). When children are invited to come up with improvements for urban design of their city, they develop teamwork, communication, and presentation capacities throughout this process (Peacock et al., 2018). Participants of place-making interventions often also gain digital competences by engaging with new type of technologies (Angus et al., 2008; Crivellaro et al., 2015; Manuel et al., 2017). Interventions that produce effects on the level of *outcome* have a higher change to be sustained, because they **empower** citizens through capacity building and improved competence (Zimmerman, 1995; Schneider et al., 2018).

Eight papers get to the level of *impact* with their intervention (Custers et al. (2020), Crivellaro et al. (2015), Harding et al. (2015), Aoki et al. (2009), Parraagudelo et al. (2018), Manuel et al. (2017), Hou and Rios (2003), Beza and Hernández-García (2018)). The research of Parraagudelo et al. (2018), for example, has a strong people-centred focus and started with ethnographic work in Colombia to get in contact with community organisations. They slowly built up relationships with formal institutions as well and aimed to help these organisations to co-design on the streets to advance the community. Similarly, the work of Manuel et al. (2017) uses media technology to create connections between formal and

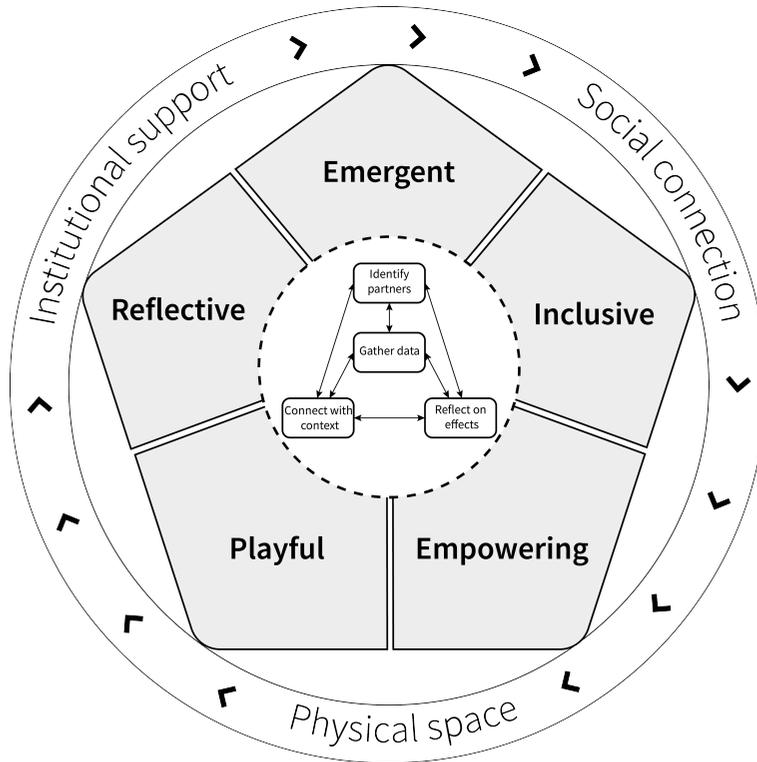
informal stakeholders in the neighbourhood in the context of urban development. The networks that are built through this intervention become a resource to sustain place-making when the researchers have left. New practices may **emerge** through the skills and resources that the community obtained.

*Take-aways towards the framework* The way that effects of participatory place-making interventions are measured, hints at the wish for **empowerment** and **emergence**. Interventions which move to the level of *impact* as an effect require emergence: new relationships and practices are established, and the community may self-sustain the initiated place-making efforts. When this happens, residents are empowered to take care of their neighbourhood community. The final two principles that are added to the framework for participatory place-making are thus:

- ▶ Emergence
- ▶ Empowerment

### 3.4. The Participatory Place-making framework

The framework for participatory place-making, informed by the analysis presented above, highlights five design principles for participatory place-making interventions which surround four activities to develop and implement place-making interventions. This framework serves to analyse and understand other participatory place-making interventions, as shown in Part II of this thesis, and hence answers RQ1: *How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?*



**Figure 3.1:** The Participatory Place-making framework contains five principles encircling four activities to engage local stakeholders in making places.

### 3.4.1. Five principles for participatory place-making

The five principles that came forward in the analysis on place-making interventions are presented below in alphabetical order.

#### Emergent

**The intervention leads to new ideas; initiatives; or interventions after engagement without intervention of the researchers.**

*Examples of how this principle can be recognised:*  
 Action: participants take action as a result of the intervention.  
 Continuous: participants continuously use, design, and adapt the intervention amongst themselves.  
 Evolving: participants can adapt the intervention to stay relevant and engaging.

Emergence is as a principle heavily discussed, in terms of how to design for emergent and sustaining outcomes of participation projects (Robertson & Simonsen, 2012; Simonsen & Robertson,

2013a). Emergence can be observed when participants continue the participation process after the researchers have left (Robertson & Wagner, 2013; Hess & Pipek, 2012). A toolkit, for example, can be used by the community to design their own process for place-making (Willis et al., 2012). In an ideal situation, participants are able to design and evolve place-making interventions in the future without help of researchers (Blomberg & Karasti, 2013; Bratteteig, Bødker, Dittrich, Holst Mogensen, & Simonsen, 2013; Bjögvinsson et al., 2012; Carroll & Rosson, 2007). However, often when the researchers leave, the participatory design activities are not sustained or embraced by another body (Kensing & Blomberg, 1998). Long-term engagement is, however, necessary for proper inquiry into emergent outcomes (Robertson & Simonsen, 2012), and is often left unexplored (Simonsen & Robertson, 2013a). For these reasons, emergence is explicitly included as a principle for participatory place-making, because it will enable interventions to move beyond single-use implementations towards sustained and evolving place-making practices in city communities.

### Empowering

**The intervention supports participants' motivation and agency to engage in place-making in the urban space.**

*Examples of how this principle can be recognised:*

Independent of researcher: participants are not dependent on the researcher to engage in place-making.

Motivation: participants feel motivated to improve the urban space.

Agency: participants experience the ability to make a change.

Empowerment is defined by Zimmerman as “a process in which people gain understanding and control over personal, social, economic, or political forces in order to take action to better their lives.” (Zimmerman, 1995). The concept of empowerment in participatory projects can diverge and is not always explicitly explained (Schneider et al., 2018). It relates to changing power dynamics between city actors (e.g. when citizens get more power in relation to municipal workers) or to citizens gaining the ability to do something they could not do before (e.g. through technology, increased skills, or capacity). In participation projects, empowerment often serves to create a balanced situation in which users and designers both influence the design process (Holtzblatt & Jones, 1993; Muller, 1993; Miller, Smith, & Muller, 1992). Restructured power relations in cities require that residents gain more control over shaping, defining, and directing the changes that impact their neighbourhoods (Bannon & Ehn, 2013; Blomberg & Karasti, 2013). The City Walk approach (Crivellaro et al., 2016), for example, increases citizens' democratic influence by creating

connections with local authorities and providing citizen with the tools to express their concerns. Overall, empowerment is a principle for participatory place-making, meaning that interventions need to enable residents with skills and tools to take control over place-making processes in their neighbourhoods (Obendorf, Janneck, & Finck, 2009).

### Inclusive

**The intervention invites as many actors as possible to participate and is accessible to a diverse group of participants.**

*Examples of how this principle can be recognised:*

Inviting: different types of participants are invited to engage with the intervention.

Accessible: participants can access and use the intervention independent of their skills or level of knowledge.

Equality: participants are all considered of valuable importance and taken seriously in designing and using the intervention.

Inclusion of all city stakeholders is essential to participatory place-making. Researchers of participatory processes in cities need to identify which stakeholders to involve and need to consider representation of the groups who will be impacted by the intervention to be designed (Robertson & Wagner, 2013). When different types of residents are included in the design of interventions, the resulting intervention is presumed to be more accessible for people and flexible to adapt itself to changing situations (Robertson & Simonsen, 2012). A challenge with inclusion is that tensions may arise between the different people who are included (McCarthy & Wright, 2015). Nevertheless, inclusion is achieved when all participants are taken seriously (Grønbaek, Grudin, Bødker, & Bannon, 1993) and feel they benefit from participation (Bødker, Grønbaek, & Kyng, 1993), for example through learning digital skills (Manuel et al., 2017), or gaining transferable competences (Peacock et al., 2018). As such, participatory place-making interventions require inclusion as a principle, to support participation and inclusion of various city perspectives (Bødker et al., 1993; Carroll & Rosson, 2007).

### Playful

**The intervention creates a playful collaborative and open setting for participants who engage with the intervention.**

*Examples of how this principle can be recognised:*

Enjoyment: participants express to enjoy the intervention activity.

Immersion: participants immerse in the intervention activity.

Creative: participants are creative in their way of designing or using the intervention.

Playfulness comes across as an explicit principle when games are used to support place-making (Innocent, 2018). In a more implicit way, playfulness underlies exploration activities and collaborative enquiry (Ehn, 1993; Brandt, Binder, & Sanders, 2013). Ehn (1993) goes as far to say that participation in design can only be successful when it is playful. Muller (1993) also found that enjoyment during design workshops contributes to a satisfying outcome. On the other hand, Brandt et al. (2013) see playfulness as a way for participants to cross differences between them and to openly explore future designs and practices in a creative setting. The principle of playfulness can thus help to spark participants' creativity and encourage collaboration between city actors when designing and using interventions for participatory place-making.

### Reflective

**The intervention supports participants to reflect on the urban space and on their behaviour and role in relation to the space and local community.**

*Examples of how this principle can be recognised:*

Mutual learning: participants learn from each other.

Awareness: participants become aware about a local topic or issue.

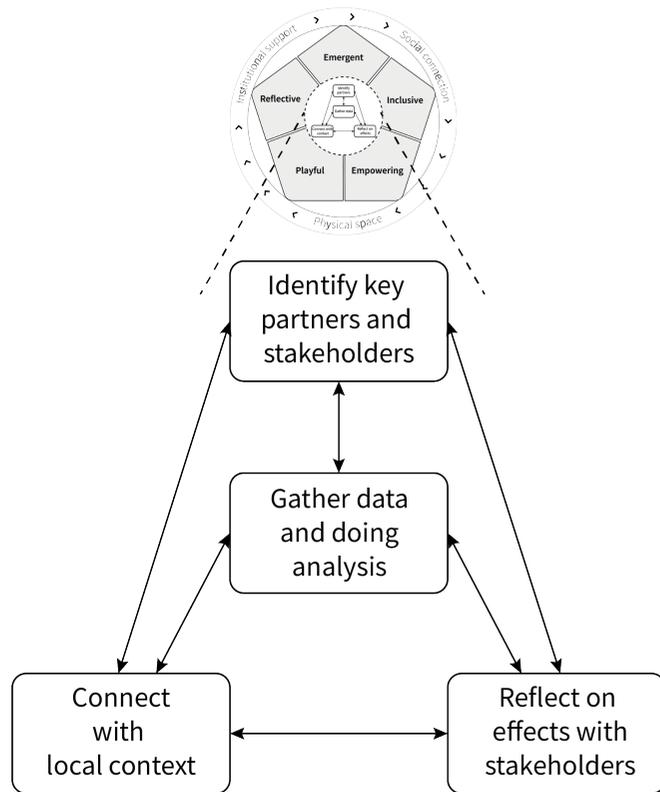
Changing perspectives: participants get new insights or a new perspective on a certain topic.

Reflection is, as a principle, often described as a result of participatory processes (Ehn, 1993; Bossen, Dindler, & Iversen, 2010; Greenbaum & Halskov Masden, 1993). Reflection, for example, supports participants, professional and non-professional, to learn from each other and gain new perspectives (Robertson & Simonsen, 2013). This can be achieved by reflecting on each others' experiences of the urban space (Fang et al., 2016), experimenting with place-making interventions together (Lentini & Decortis, 2010), and creating a shared understanding out of these experiences (Holtzblatt & Jones, 1993; Robertson & Simonsen, 2013). Because different groups of people work together in participatory place-making, it is essential that they learn about each other to understand the different ways of reasoning, to create mutual respect (Bratteteig et al., 2013; Hess & Pipek, 2012). Dialogue between participants, to together explore dissensus and diverging perspectives, encourages reflection and understanding of differences between people (McCarthy & Wright, 2015; Strydom & Puren, 2013). To conclude, place-making interventions need

to incorporate reflection as a principle, to support learning and awareness of others in the neighbourhood (Robertson & Wagner, 2013; McCarthy & Wright, 2015).

### 3.4.2. Activities for participatory place-making

The five principles surround four activities to design, implement, and evaluate participatory place-making interventions in cities, illustrated in Figure 3.2.



**Figure 3.2.:** The conceptual framework proposes four activities for participatory place-making.

- **Connect with local context:** The purpose of this activity is to understand the social, physical, and technological structure of, and the networks within, a neighbourhood. Becoming familiar with the local context also provides input to identify key partners, build relationships with them, and understand how effects of the research can be best brought back to the local community for reflection and evaluation. Methods in this activity include, for example, desk research, observations, neighbourhood walks, and interviews.

- ▶ **Identify key partners and stakeholders:** In this activity, key partners and stakeholders are identified in terms of participation and place-making. Examples of potential partners and stakeholders are local enterprises, police officers, community centres, and grassroots communities, because of their perspective on ways of making place. Field work is a method to execute this activity: starting by approaching obvious partners and interviewing them to create an overview of social structures and networks within a neighbourhood. During such field work researchers become further acquainted with the area, start to build relationships, and identify opportunities for reflection and discussion on the intermediate effects.
- ▶ **Gather data and doing analysis:** This activity is placed in the middle in Figure 3.2 because it is considered to be the core activity in the framework. Building relationships with all stakeholders is essential to be able to create a fruitful participatory process towards place-making. The methods used in this activity to collect data should contribute to relationships between city stakeholders and the researchers, but also relationships between the various stakeholders themselves. In this activity, methods include interviews, focus groups, workshops, and prototyping to explore the roles and responsibilities of each stakeholder in the city in supporting place-making. The results of this activity are input for the other three.
- ▶ **Reflect on effects with stakeholders:** To create a continuous and sustaining participatory practice between city stakeholders, effects of the design processes should be made visible and accessible for the community to reflect and discuss. This activity ensures that this happens, making use of physical and digital options to increase accessibility for as many people as possible not only when effects are communicated, but also thereafter. Methods and tools used in this activity can be prototypes, interactive installations, digital platforms and workshops. Communicating the effects, making them accessible, and reflecting on them will also contribute to the other activities, possibly triggering new activities.

The order of the activities presented above is not necessarily the order in which they need to be executed: each activity contributes to the other activities and depending on the research aims and resources, multiple iterations of activities may be involved to design, implement, and evaluate interventions for participatory place-making. While these activities in the framework seem to be separate entities, they inform each other as reflected by the arrows between them. As explained below, activities can be fulfilled by

multiple methods: interviews can, for example, both be used to become acquainted with a neighbourhood as well as to identify key partners and stakeholders.

As shown in Figure 3.1, these activities are surrounded by the five principles, because the activities will lead to an intervention for participatory place-making that is built on these principles. In this view, both the activities and the resulting intervention should be emergent, empowering, inclusive, playful, and reflective.

### 3.5. Conclusion

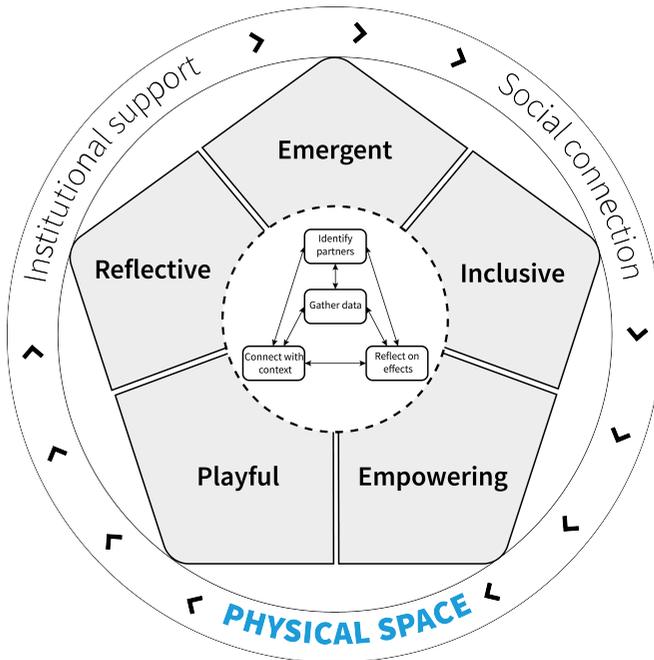
This chapter developed a framework for participatory place-making in cities, build on literature of Participatory Design and place-making, answering RQ1 of this thesis: *How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?* The framework contains four activities that need to be executed together with city actors to develop, implement, and evaluate an intervention for participatory place-making. These activities and the resulting intervention should follow the five principles (inclusive, reflective, playful, empowering, and emergent) which are suggested from the literature to be required to support participatory place-making. To further fulfil the research aim that this thesis poses, namely to inform how participatory design may facilitate place-making in urban settings across physical space, social connections, and institutional support, the next three chapters of this thesis present, analyse, and discuss six design interventions for participatory place-making. This all takes place in Part II of the thesis, using the framework developed in this chapter, to gain the insights necessary for RQ2: *How do each of the three cornerstones (physical space, social connection, institutional support) enable interventions to facilitate participatory place-making?* Each of the three following chapters are devoted to one of the cornerstones, and analyse two interventions using the framework for participatory place-making, to gain understanding how and why place-making was achieved through participation of city actors in the intervention.

**Part II.**

**DESIGN INTERVENTIONS**



Now that the framework for participatory place-making has been amplified in the previous chapter, this chapter presents two design interventions that aim to enhance place-making specifically by making use of the physical space. The first intervention is the location-based game 'Secrets of the South' which encourages players to go out and explore their neighbourhood. The second intervention is a co-creation workshop in which children from a primary school in Rotterdam are invited on a neighbourhood walk with researchers, and come up with ideas to improve the public space. After exhibiting these two interventions, the chapter concludes with a reflection on the role of the physical space in supporting place-making.



- 4.1 Intervention 1: Location-based games . . . . . 61
  - Motivation . . . . . 62
  - Background . . . . . 63
  - Intervention design . . . 65
  - Method . . . . . 69
  - Results . . . . . 77
  - Discussion . . . . . 83
  - Conclusion . . . . . 89
- 4.2 Intervention 2: Co-creation with children 91
  - Motivation . . . . . 92
  - Background . . . . . 93
  - Intervention design . . . 98
  - Method . . . . . 104
  - Results . . . . . 105
  - Discussion . . . . . 110
  - Conclusion . . . . . 113
- 4.3 Reflection on physical space . . . . . 115

This chapter is based on:  
**Intervention 1:** Slingerland, G., Fonseca, X., Lukosch, S., & Brazier, F. (2020). Location-based challenges for playful neighbourhood exploration. *Behaviour & Information Technology*, 1–19.

**Intervention 2:** Slingerland, G., Lukosch, S., & Brazier, F. (2020). Engaging Children to Co-create Outdoor Play Activities for Place-making. *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 1 (PDC '20: Vol. 1)*, 44–54.





## Design intervention

### 4.1. Intervention 1: Location-based games

The first intervention is a location-based game and it is summarised below. The rest of the chapter gives a detailed description of why and how this intervention was designed, which methods were used to test it, and what were the results of implementing a location-based game to support place-making. The intervention is summarised using the four activities of the participatory place-making framework, presented in the previous chapter.

**Connect with local context:** The location-based game is played with residents from Bouwlust, a neighbourhood in The Hague. The university has been connected to Bouwlust through several research endeavours for over four years. Reports from previous studies in Bouwlust as well as several informal conversations and meetings during field visits informed the design of the challenges that residents would play with the location-based game.

**Identify key partners and stakeholders:** The community centre was visited several times to talk with residents of Bouwlust and identify key figures in this neighbourhood. Informal meetings were held with community workers to further identify stakeholders.

**Gather data and doing analysis:** The game was play tested with a group of seven citizens. Researchers observed citizens playing the game and citizens reported their experiences on a survey.

**Reflect on effects with stakeholders:** The researchers reflected with citizens on their experiences of playing the game during a debriefing session. During a co-creation workshop citizens further elaborated their reflection on how they connect with their neighbourhood, through this game.

#### 4.1.1. Motivation

Digital games have potential to connect citizens with each other and with their neighbourhood (Fonseca, Lukosch, & Brazier, 2018a). A number of games have been successful in bringing people together by supporting play, participation, and involvement of citizens in urban environments (Nijholt, 2017c; Jones, Liapis, Lykourantzou, & Guido, 2017; de Lange & de Waal, 2013). In particular, location-based games (i.e., games that use technology to situate players in their location) afford novel types of digital, social, and physical playful interaction in public spaces (Paay & Kjeldskov, 2005; Bilandzic & Foth, 2012; Papangelis et al., 2017; Paulos & Goodman, 2004). These games are able to persuade citizens to go out and explore their neighbourhood; to visit new places and interact with other residents (Papangelis et al., 2017; Paulos & Goodman, 2004). However, little insight is available on how location-based games achieve this effect. More specifically, it is unclear which types of location-based activities within these games persuade citizens to explore their neighbourhood and interact with their neighbours.

To investigate *What kind of location-based activities do citizens prefer to interact with their neighbours and to playfully explore their neighbourhood?*, this research studies the influence of game dynamics, the purpose of neighbourhood exploration (beyond pure entertainment), and the role of physical surroundings and contextual information on social interaction in a specific neighbourhood in The Hague (NL). A group of seven adults interested in contributing to the liveability and safety of their neighbourhood participated in two co-creation and game-play sessions to test the location-based game intervention ‘Secrets of the South’ in relation to place-making. Based on insights gained from these sessions and the literature, this study proposes a classification of location-based activities and identifies citizen preferences for activities that support interaction to encourage players to physically interact with people and places in their neighbourhood.

The Background section first reviews the literature focusing on prior work on playful experiences and location-based games (LBGs) specifically. This review shows a lack of knowledge on which part or elements of LBGs contribute to behavioural change, in this case to support neighbourhood exploration for place-making. To address this gap, a location-based game ‘Secrets of the South’ was developed and studied in this research. After an outline of how this game and its content were developed in two phases prior to the implementation of Secrets of the South in Bouwlust, the rest of Section 4.1.3 concentrates on the third phase of the study, which is when the game was tested in

Bouwlust. Section 4.1.4 explains the procedure to prepare and execute two workshops in which citizens play tested Secrets of the South and designed activities to play within this game, called challenges. These workshops provided insight into the preferences of participants for challenge designs and these results are presented and discussed in Section 4.1.6.

#### 4.1.2. Background

Playful experiences in urban environments have been facilitated in many ways including urban playgrounds with or without specific technology support, location-based media (devices with sensors, such as smartphones, that can detect location and provide corresponding contextual information), and custom-made technological installations (Fonseca et al., 2018a). Such fun and playful playgrounds often encourage citizens to explore their neighbourhood or engage in social interaction during play (Slingerland, Lukosch, Comes, & Brazier, 2020a; Nijholt, 2017a), like 'Koppelkiek'<sup>1</sup>. Koppelkiek fosters playful meetings and social interaction throughout public spaces, inviting players to take and submit photos with other people from the neighbourhood. When Koppelkiek was played in Utrecht (NL) over a period of three weeks, residents reported the number of social interaction in the neighbourhoods to have increased significantly (De Lange, 2014).

In contrast to 'Koppelkiek', 'mood.cloud' (Scolere, Baumer, Reynolds, & Gay, 2016) and 'Jokebox' (Balestrini et al., 2016) were created with the intention to foster social interaction and create awareness of others. Interviews with citizens using 'mood.cloud' showed they became more aware of the community of which they are part and started to reflect on how they could become more involved in this community. Research on the 'Jokebox' (Balestrini et al., 2016), a physical installation placed in a neighbourhood that invites citizens to coordinate movements to hear a joke, showed that citizens not only talked and laughed together while using the installation, but that they also had more elaborate discussions on the reason why the Jokebox was placed to begin with. These examples show that playful urban installations can influence people's behaviour, enticing engagement through social interactions with neighbours and interaction with the environment around them. Meanwhile, such installations are limited in terms of scale (the number of citizens that can use an installation), time (the time span for which an installation can be employed) and re-use (the possibility to move an installation to another location) (Golsteijn et al., 2016), due to resources and location specific characteristics of the installations.

<sup>1</sup> <https://whatsthehubbub.nl/projects/koppelkiek/>. Koppelkiek, 'couple snapshot' in Dutch, last visited on 01-Mar-2019

<sup>2</sup> These games are mainly supported by smartphones and mobile devices, because they are networked, using sensors (predominantly GPS and Wi-Fi), widespread, and easily accessible (Valente, Feijó, & Prado Leite, 2017; Magerkurth, David Cheok, Mandryk, & Nilsen, 2005).

One way to deal with these limitations is to use location-based mobile games (LBGs) designed to support citizens in exploring their environment and interacting with each other (Yang & Liu, 2017). Location based games are increasing in popularity (Procyk & Neustaedter, 2014). They merge digital gameplay with the physical world around a player's specific location<sup>2</sup> (Arango-López, Collazos, Vela, & Castillo, 2017a). Within these games, players can work together or play against each other, distributed or co-located in outdoor physical spaces in urban environments (Southe, Bakker, Magielse, & Markopoulos, 2013; Arango-López et al., 2017b), interacting with the technologically enhanced environment around them (such as street furniture (Nijholt, 2017b)). Other LBGs have been designed to increase neighbourhood awareness and place attachment, for example by providing information about specific locations and physical objects in a neighbourhood (Bergström, Waern, Rosqvist, & Månsson, 2014), such as objects with a medieval history (Huizenga, Admiraal, Akkerman, & Dam, 2009). The well-known LBG 'Pokemon GO' (Clark & Clark, 2016) promotes new patterns of human mobility throughout neighbourhoods and cities (Colley et al., 2017), and develops communities of players, even though increasing new interactions in the neighbourhood was not its initial purpose. Thus, location-based games have shown to support behavioural change (Clark & Clark, 2016; Papangelis et al., 2017) and community building (Vartiainen & Tuunanen, 2016; Patubo, 2010; Scolere et al., 2016). They can also lead to acquisition of new meanings of familiar places for citizens and encourage citizens to explore new ones (Papangelis et al., 2017).

The question this intervention study addresses relates to the means with which these games have achieved these results: which part(s) of the game or which elements, contributed to such behavioural change? These insights are needed to help designers to create LBGs that support players to explore their neighbourhood and interact with fellow residents. Examples of successful location-based games show the importance of adjusting the game to the context in which it will be played (Paay & Kjeldskov, 2005; Bilandzic & Foth, 2012). Game designers need to integrate local knowledge of the play environment into their design. To this purpose game designers often include citizens (being potential players) who are familiar with the context at some point in the design process. In view of this, the research presented here includes citizens from the target neighbourhood in the design process from the start, realising that this is intrinsically complex (Hossenlopp, PMP, Hass, & PMP, 2007; Avison & Fitzgerald, 2003), and hence is often not done (Kasurinen, Maglyas, & Smolander, 2014; Callele, Neufeld, & Schneider, 2010, 2006).

### 4.1.3. Intervention design

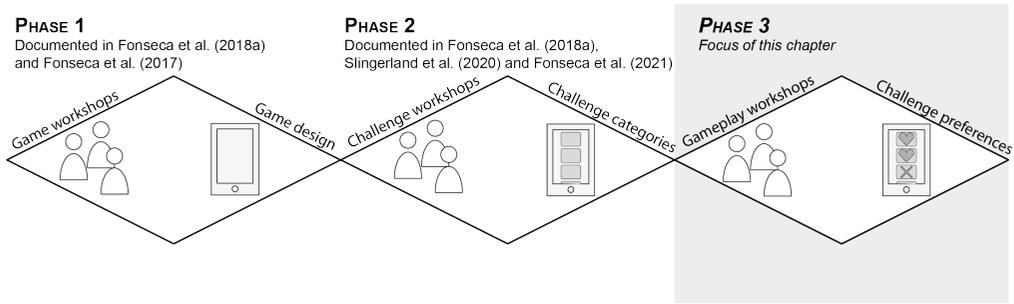
This intervention design is embedded within a joint research effort between the Participatory Systems Initiative at the Delft University of Technology and the Municipality of the Hague. The Participatory Systems Initiative<sup>3</sup> focuses on the design and orchestration of the class of (large-scale) complex social-technical systems for which self-organisation and emergence are key characteristics. Such systems mandate design for empowerment, engagement, and trust; to provide participants with the ability to act and take responsibility for their actions (Brazier & Nevejan, 2014). The participatory system designed and researched in this study is the location-based mobile game 'Secrets of the South' (SotS) (Fonseca, Slingerland, Lukosch, & Brazier, 2021), further presented below. This game was developed by colleagues of the Participatory Systems Initiative and adopted for the purpose of this dissertation. The aim of this game is to facilitate neighbourhood exploration and social interaction on the streets, which is why it is a fitting intervention in this research. SotS uses spatial settings to achieve playful encounters which create shared experiences, in that way supporting place-making (Willis, Roussos, Chorianopoulos, & Struppek, 2008a; Willis, O'Hara, Giles, & Marianek, 2008b).

Since the start of this research programme in 2016, several iterations of SotS have been developed and evaluated in three phases, as outlined in Figure 4.1. Co-creation (Sanders & Stappers, 2012) has been the fundamental approach throughout this programme to support acquisition of knowledge on the tacit and latent knowledge of participants, on what they know, feel, and dream (Sanders & Stappers, 2012, p. 66). By enabling citizens to become participants in the design of the game, a deeper understanding is acquired on what citizens prefer for the game and its content, and the reasons for these preferences. To position this study in relation to previous work in this research programme the three phases are depicted in Figure 4.1. The first two phases are briefly described below, whilst the third phase shown on the right is the focus of the rest of this section. In fact, the purpose of this intervention study is to evaluate the Secrets of the South game and its challenges in two gameplay workshops, to understand the type of challenges citizens prefer to foster social interaction and neighbourhood exploration.

#### Phase 1: Game design

As shown in Figure 4.1 and described above, each phase engaged citizens in a co-design workshop. The workshops in the first phase explored the types of outdoor activities in which participants are

<sup>3</sup> See <http://www.participatorysystems.nl> for more information.



**Figure 4.1.** Secrets of the South is developed in three phases, of which phase 3 is presented in this chapter.

interested in general, asking participants specifically to co-design game ideas for social interaction. As documented in Fonseca et al. (2018a) and Fonseca, Lukosch, Lukosch, Tiemersma, and Brazier (2017), these workshops resulted in a list of game requirements and an initial design of the game ‘Secrets of the South’.

<sup>4</sup> <http://secretsofthesouth.tbm.tudelft.nl/>, Secrets of the South, last visited on 19-Mar-2020

Secrets of the South (SotS)<sup>4</sup> is a location-based game that uses smartphones to mediate outdoor activities (called challenges) for social interaction and place-making. Players are presented with challenges (i.e. tasks) to enable them to engage with both strangers, friends, or other players, walk around outdoor public spaces in their neighbourhood, and search for solutions to complete challenges and advance in the game (Figure 4.2). The challenges are designed to foster social interaction both in the real world (e.g. in the form of face-to-face communication with others, or physical contact such as shaking hands), and in the digital world (e.g. exchanging messages and images left behind in the neighbourhood through QR codes). The challenges provide players with opportunities to encounter and engage with others in their surroundings, and are strategically located to expose players to both places and local activities often unnoticed around the neighbourhood (e.g. local heroes, or the most important landmark in the country). The game motivates and encourages players to advance in the game by giving them points when they scan other players’ QR codes to collect the other players’ card. Points represent the players’ progress in the game, relating to both the number of challenges solved and to the number of players befriended (or ‘collected’).

### Phase 2: Challenge designs and categories

The second phase (see Figure 4.1) focused on evaluation of the initial design of Secrets of the South and further development of the content of the game: the challenges. The co-creation workshops organised for this purpose involved citizens in both the design and

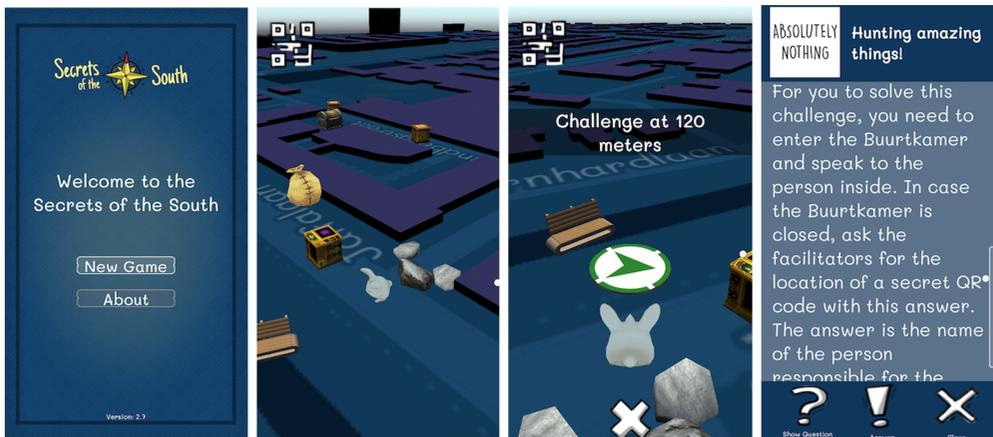


Figure 4.2.: In Secrets of the South, challenges allow players to encounter people or locations that otherwise stay unnoticed.

play testing of challenges which citizens designed themselves in their own neighbourhood (Slingerland et al., 2020; Fonseca et al., 2018a; Fonseca et al., 2021). The participants identified interesting locations and activities for gameplay (i.e. new challenges) to increase neighbourhood pride and social interaction (Slingerland et al., 2020; Fonseca et al., 2021).

During these co-creation workshops, participants designed more than 50 challenges. As further elaborated in Fonseca et al. (2021), these challenges were categorized according to associated player behaviour required to perform the challenge. For example, some challenges require physical activity, while others ask players to take a detailed look at their environment to find a specific point of interest. Four challenge categories were distinguished based on the associated player behaviour: *Athlete* (physical behaviour), *Detective* (searching behaviour), *Explorer* (exploring behaviour) or *Inventor* (creative behaviour). During gameplay players can serendipitously encounter a location with a challenge and Secrets of the South then reveals the category to which the challenge belongs and hence the type of behaviour associated with this challenge.

The four challenge categories are:

#### Athlete

This category requires physical activity to solve the challenge. The challenge can be solved by either doing a specific activity requiring physical action (e.g. engaging with at least five people for a given purpose), or by varying the quality of the performance itself (e.g. see who can finish the free-running the fastest). This links to research

from phase 2 that showed players to appreciate challenges that entail physical activities in their neighbourhood (e.g. running around, or doing games that elicit competition and collaboration) (Fonseca et al., 2017).

#### **Detective**

The Detective category requires players to undertake challenges such as finding information and answering questions about factual knowledge. Players have to search for information in their neighbourhood, for example asking people about local heroes depicted in tiles in the footpaths in their neighbourhood. This type of challenge links research from phase 2 that identified *information about activities or places for activities* and *information about people from the neighbourhood* helps citizens to build pride in their neighbourhood (Slingerland, Lukosch, Comes, & Brazier, 2019).

#### **Explorer**

Challenges associated to the Explorer category require players to travel through their neighbourhood to learn and comprehend more about their own neighbourhood and the people who live there. Challenges of this type might include discovering the origins of a neighbourhood or lead a player to an unknown point of interest of the neighbourhood (e.g. an old building, a local initiative) and then asks them to engage with random people to discover its origins. It resulted from phase 2 where citizens expressed to enjoy to go out and explore what is happening in their neighbourhood and engage with fellow neighbours about local history (Slingerland et al., 2020a).

#### **Inventor**

Inventor challenges require players to propose new ideas to address an issue in the neighbourhood. Players in this type of challenge may explore interventions for their neighbourhood, and suggest new ideas to increase the liveability of their neighbourhood. Examples of this challenge include asking citizens to reflect on interventions to change their neighbourhood, such as designing a new playground, or a new colour scheme of buildings. This type of challenge links to phase 2 where citizens mentioned to want to think about improving their own world (Fonseca et al., 2017).

These first two phases resulted in the design of the game *Secrets of the South* and its content with four different categories of challenges. The next phase, the focus of this chapter, explores the extent to which these challenge categories suffice in different circumstances with different players, and how they are experienced by players in practice (see Figure 4.1). In particular this phase focuses on increasing understanding of player preferences with respect to the types of challenges they prefer to interact with other

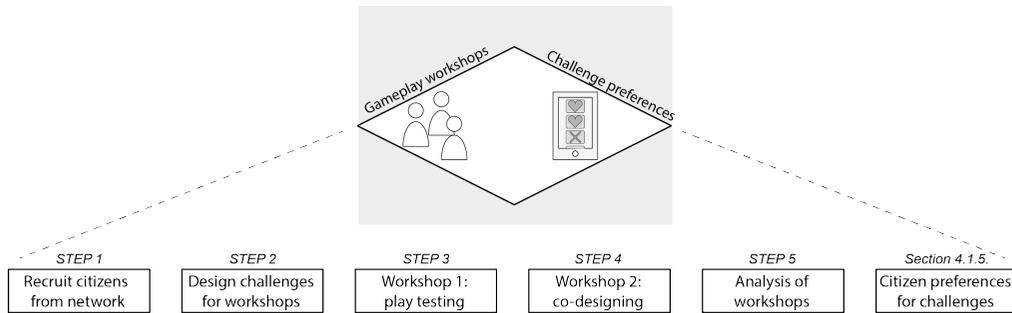
players and to playfully explore their own neighbourhood. The next section describes the steps taken in the third phase: the two workshops that were organised, and how they were analysed to identify challenge preferences of participants.

#### 4.1.4. Method

The leading research question in phase 3 is: *What type of location-based activities do citizens prefer to interact with their neighbours and to playfully explore their neighbourhood?* A neighbourhood that is interested in increasing social cohesion, for example by increasing interaction between neighbours (Fonseca, Lukosch, & Brazier, 2018b), was selected for this study. Bouwlust, a neighbourhood in The Hague (NL) with almost 30.000 inhabitants, was found to suit this description and provided the context of this research. Bouwlust has transitioned over the years to what it is now: a neighbourhood with a very diverse group of inhabitants (almost 60% of its residents migrated from outside of the Netherlands) and a relatively high number of social housing (about 70%) (Den Haag, 2015). Residents try to connect the various communities in the neighbourhood and increase social cohesion to find ways to deal with liveability and safety issues, such as burglaries and drug related crimes and abuse.

The number of initiatives and small citizen community groups within Bouwlust indicate that citizens are interested in contributing to a safer and more liveable environment. They use Whatsapp and Facebook groups to share information. However, these efforts remain only visible in the digital space for those who are connected. The initiatives are not always visible in the physical environment, and accordingly citizens who are not active on digital platforms and can only be reached offline are excluded (Slingerland, Lukosch, & Brazier, 2019). A location-based game has the potential to couple digital and face-to-face interactions, and to connect these activities to physical locations in this neighbourhood.

Figure 4.3 illustrates the steps taken to address the main research question on which this chapter focuses, namely to identify which types of challenges citizens prefer. Two workshops with citizens were organised, in which participants play tested the game (Workshop 1) and designed challenges for the game based on their play test experience (Workshop 2). Each step is explained in more detail in the paragraphs below.



**Figure 4.3.:** Citizens were recruited from our network to participate in two sequential workshops that comprised play testing and designing challenges.

### STEP 1: Recruiting participants

The first step in this intervention study was to recruit participants. During the past two years of this research programme, in the context of the joint effort between the Municipality of the Hague and TUDelft's Participatory System's Initiative, a citizen network has emerged with approximately 45 participants. This network comprises of citizens whom are interested in improving their neighbourhood and contributing to its liveability and safety. Participants for the two workshops were recruited from this network. Each member of this network was invited to the two workshops, either in person, by phone, or email. In total, ten citizens agreed to participate of whom seven (five female, two male; age group 36-75 years) attended the first workshop, four (two female, two male) also attended the second. Unfortunately, the second workshop had fewer participants due to unexpected time constraints, and severe weather conditions. The second workshop was continued despite the low number of citizens showing up, to honour the citizens who did come. Furthermore, the citizens who participated can be classified as community leaders and can represent a larger group of citizens (Le Dantec & Fox, 2015).

### STEP 2: Challenges for play test

The second step was for the research team to design five challenges for Workshop 1. The designed challenges, presented below, aimed to provide participants with a greater understanding of the types of activities (i.e. challenges) that could be performed within the game. These challenges were implemented in *Secrets of the South* for citizens to play during Workshop 1.

### Challenge 1: Make the neighbourhood yours

Players were asked to pretend that the Municipality would like to build a museum focused on their neighbourhood, physically positioned within their neighbourhood, and that they have been asked to provide information on their neighbourhood that needs to be considered. They are asked to collectively think about and discuss characteristics of their neighbourhood, to create a word cloud and/or drawings on a sheet of paper. Their 'artworks' will be put to vote, and the names of the authors of the winning ideas will be mentioned in the fictitious museum. As part of the challenge, at the end, all players see the other players' creations and together decide which is best by voting.

This challenge is classified in the *Inventor* category, as it is designed to foster the creation of an artwork for the neighbourhood museum by working in collaboration with fellow citizens - in this case a word cloud or drawing. This challenge invites participants to reflect on their perspective of the neighbourhood and the views of others during and after the creation process.

### Challenge 2: Discover your neighbourhood

In this *Detective* challenge, players are asked to find a specific point of interest in the Buurtkamer (the 'neighbourhood room'). They are asked to walk to this location and answer some open ended quiz questions about the location, namely (1) What types of activities are possible at this location - what could a neighbour be doing here?, (2) Can a neighbour also organise something here for themselves?, and (3) Who should a neighbour contact to find out more details? Answers can be discovered either by talking to someone in the Buurtkamer, or, if this is not an option, by finding QR codes posted on the window of the Buurtkamer building for this purpose (when QR codes are scanned, answers are provided, and points attributed).

The questions are designed to encourage citizens to investigate locations in the neighbourhood, by identifying specific people who can help reveal the answers to information not known to the players. This challenge belongs to the Detective category.

### Challenge 3: Interview your neighbours

The *Explorer* challenge seeks to find out more about a neighbourhood. In this case, players are asked to explore favourite places of people in their neighbourhood. They do this by questioning residents; players are requested to ask five people on the streets about their favourite places in the neighbourhood and why. Pens and papers are handed out, so that people's responses can be written down.

The questions in the *Explorer* challenge are open, without a clear or correct answer, and seeks to make players discover the per-

ceptions of other residents on what locations they prefer in their neighbourhood, requiring orientation and exploration.

#### **Challenge 4: Photo story**

For this challenge, players are asked to make a photo story of the rhythm of their neighbourhood. They should take pictures of their daily routine, and illustrate the life rhythm of their neighbourhood. When do people go to the parks or do their grocery shopping nearby? They are asked to document what happens around them. Albeit this challenge can be solved without any social interaction, it stimulates citizens to reflect on the different daily routines that co-exist in the neighbourhood and consider which people undertake these routines.

This is an *Explorer* challenge: it is very open, players are free to focus on activities of their choice: they can take pictures of activities in parks, cars, buildings, schools, of people, animals, and anything else of interest in their exploration of their neighbourhood.

#### **Challenge 5: Get to know each other**

To perform this challenge, players are asked to first think about characteristics of their neighbourhood. One word from the winning word cloud from Challenge 1 is chosen, all participants are blindfolded, and asked to represent that word using a piece of rope. This exercise is done by all teams together, facilitated by mediators (to guarantee safety), requiring collaboration to solve this challenge. Rewards are awarded on the basis of quality of performance.

This challenge is of the type *Athlete*. Players have to physically work together and collaborate to solve the challenge (shaping the rope while blindfolded).

The above five challenges were specifically designed to be played by participants during Workshop 1. Players were required to interact with each other and with others on the street. While playing these challenges, they acquired a general impression of the game and could experience the four different types of challenges.

### **STEP 3: Workshop 1 - play testing**

The first workshop was held in January 2019. Participants were introduced to the research challenges and the workshop schedule. They were also requested to formally provide informed consent for participation in this research project and use of experimental data acquired. To start, all participants were handed a story about a new resident in the neighbourhood with information gaps that participants were asked to fill in as an activity to warm them



**Figure 4.4.:** Participants working on the warm up exercise inside the community centre.

up for the gameplay that followed (see Figure 4.4 and 4.5). Next, participants were asked to form teams. This resulted in two teams of two and one team of three participants (The members of the individual teams were friends or acquaintances). The first challenge ('Make the neighbourhood yours', see challenge 1 above) was located just outside the front door of the community centre. This was an introductory challenge designed for players to get acquainted and to start thinking creatively about their neighbourhood. After this challenge was completed, participants were free to choose which challenge they would play next (Challenges 2, 3, 4 and 5 from the description above).

Figure 4.6 shows participants outside playing the game. Not all five challenges were played by all teams. In fact, the Photo Story challenge was the only challenge played by all three teams. The challenge 'Discover your neighbourhood' was played by two teams. The 'Interview your neighbours' challenge was played by only one team. Participants all played three of the four different types of challenges (Detective, Explorer, and Inventor) during the workshop. In total, participants had one hour to play the different challenges, after which they came back to the community centre for a plenary debriefing session of 20 minutes, a SUS questionnaire (Brooke, 1996), and an open question survey. The open question survey contained in total nine questions about the following topics: quality of the challenges, meaning of social interactions during gameplay, and the neighbourhood. The questions about the quality of the challenges asked whether participants would want to play the game again, which part of the gameplay, which challenge they enjoyed the most and why, and if the game initiated interaction with others. The questions regarding the social interactions asked to what extent participants felt that the social interactions evoked by the challenges were meaningful

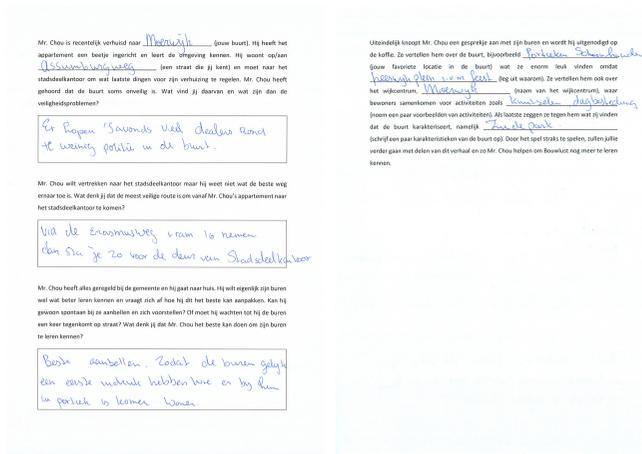


Figure 4.5.: One of the warm-up stories filled in.

Table 4.1.: Brainstorm questions and triggers used during workshop 2.

**Brainstorm question**

- Which locations in your neighbourhood would be appropriate to play a challenge?
- What things do people like to talk about?
- What do you know about the history of the neighbourhood?
- How can people interact with each other on the street?
- What activities are happening in the neighbourhood

**Triggers used**

- Maps of neighbourhood
- Pictures of neighbourhood
- No triggers used
- Pictures of neighbourhood
- Pictures of neighbourhood

and why. Finally, one question was asked about the neighbourhood: whether participants learned something new about the neighbourhood while playing the game.

**STEP 4: Workshop 2 - designing challenges**

The second workshop held a week later focused on the co-design of challenges. Using simple brainstorm exercises, participants were asked to design challenges for the Secrets of the South game that would suit their neighbourhood. Participants were asked to think about and then write down on post it notes the different elements that comprise a challenges: such as locations, interactions, and activities. Table 4.1 shows the questions and triggers used in this exercise. Participants had five minutes for each question.

Participants were then split up in teams of two as shown in Figure 4.7 to design challenges based on the different elements they generated in the previous exercise. Each team was handed sheets of paper that contained several boxes with which the game elements in a challenge could be described. These included: challenge location, type of interaction players are to pursue while



**Figure 4.6.:** In Workshop 1 participants discussed their daily rhythms during the Photo story challenge.



**Figure 4.7.:** In Workshop 2 participants designed challenges for the game.

playing the challenge, type of challenge, which information is to be shared while playing the challenge, and the challenge activity. Participants were given 20 minutes to design challenges after which they presented their designs to each other. The workshop ended with a brief discussion amongst participants about their challenge designs.

### **STEP 5: Data Analysis**

During the workshops a wide variety of data were collected as shown in Table 5.4. In Workshop 1, each of the teams was accompanied by a researcher during gameplay. The researcher observed interaction, took notes of the gameplay and experiences expressed by participants. Observers specifically wrote down how participants interacted with each other and with strangers, if they stated that they had learned new things about the neighbourhood, and if they indicated that they were enjoying themselves. This data was subsequently transcribed and used in the analysis. In

addition, data was collected at the end of the first workshop on the usability of the game using the SUS questionnaire (Brooke, 1996), the open question survey on social interactions, and notes taken by the researchers during the debrief discussion.

The open question survey contained questions on the quality of the game and the challenges, the meaning of social interaction in the game, and whether participants had explored new places in the neighbourhood resulting from playing the game. The answers to these questions were analysed to understand citizens' preferences for challenge activities. Data from the second workshop came from audio recordings of the co-design session, challenge presentations, and discussion, which were transcribed. Furthermore, the challenge designs that resulted from Workshop 2 were themselves treated as data which was then analysed.

Three sub-questions guided the qualitative analysis of the data and supported the researchers to consider different elements of social interaction and neighbourhood exploration that could be mentioned by participants:

- ▶ Why and how did the participants interact with each other and the neighbourhood while playing the game?
- ▶ Which type of challenge activities are preferred by the participants (and why)?
- ▶ Which physical elements in the neighbourhood (locations/objects/people/etc.) are considered by participants to be fruitful for exploration?

Two researchers independently reviewed the data and marked data fragments relating to the questions. Each fragment was coded independently and compared. The researchers discussed differences between their codes and jointly decided to add, remove, or re-code data fragments when both researchers agreed. They collaboratively defined meaningful clusters of codes to address the main research question.

**Table 4.2.:** An overview of the two workshops activities and collected data.

<b>Date</b>	<b>Workshop</b>	<b>Activity</b>	<b>Collected data</b>
24-01-2019	Workshop 1	Play testing SotS with pre-designed challenges, debriefing	Observations, debriefing notes, SUS questionnaire, survey
31-01-2019	Workshop 2	Brainstorming challenges, presenting and discussing the outcomes	Audio recordings of workshop, challenge designs

#### 4.1.5. Results

The following sections describe which *challenge types and activities* participants considered to support playful social interaction and neighbourhood exploration, the *physical elements* in the neighbourhood that stimulated exploration, and the *types of interaction* participants preferred for exploring their neighbourhood.

##### **Challenge activities for playful social interaction and neighbourhood exploration**

Data from the open question survey, observation notes, and the challenges participants designed themselves provided insight into which kinds of challenge activities participants considered for social interaction and neighbourhood exploration. The next paragraphs describe the types of activities participants believe foster social interaction and neighbourhood exploration.

###### *Discovering the neighbourhood*

All of the challenges designed by participants in Workshop 2 involved discovering the neighbourhood. For example, one guided citizens towards particular landmarks in the neighbourhood and then asked the players to mark their discovery of the landmarks by scanning the QR codes on them. The purpose of this challenge was, according to its designers, to “*show what things are around in our neighbourhood*” (P3, P4; Workshop 2). Such preferences for enabling others to discover their neighbourhood was also reflected when participants were playing the game: in one of the teams, one participant (P3, Workshop 1) spontaneously started to show the other two around the area, telling them stories on the shops that used to be there and how the neighbourhood had developed over the years. So the game triggered neighbourhood discovery by evoking personal storytelling.

###### *Preference for familiar technology*

During the gameplay and challenge co-creation sessions, all participants indicated a preference for technology with which they are familiar, beyond pen and paper writing. Participants had access to different means with which to support the exploration of the neighbourhood within the gameplay. They could scan QR codes, take pictures, write text into the game, discuss amongst each other, or use pen and paper to write and draw. When designing their own challenges, all four participants chose to use QR codes (used in two challenge designs) or pictures (used in three challenge designs) to solve challenges, and two challenge designs proposed writing text in the game to answer questions. The participants seemed to choose these technologies because they had also used them during the gameplay in Workshop 1.

Furthermore, face-to-face discussion or pen and paper writing were not preferred by participants because they were not considered to be engaging, as reflected in the observation notes. When playing the 'Make the neighbourhood yours' challenge, for which participants needed to create a word cloud about their neighbourhood on paper, the teams did not express behaviour that indicates fun, such as laughing, nor did they vividly interact with each other while solving this challenge. According to the observers, all teams were "*taking the task very seriously*" (observer 2) and "*divided the tasks amongst team members*" (observer 1 and 3). In this context, this challenge did not seem to be effective in creating a playful and fun experience for the participants to explore their neighbourhood.

#### *Relevance of sharing information*

All five challenges played by participants in Workshop 1 allowed them to share information about the neighbourhood in different ways. In the survey after the gameplay, one participant indicated that sharing information about the neighbourhood "*broadens her horizon*" (P1, Workshop 1). One observer noted that participants discussed mutual problems, such as street youth, and possible ways of solving these problems. In the challenges participants designed themselves, the information required to be shared was about specific landmarks or stories about a location or object in the neighbourhood. For example, two participants (P1, P2; Workshop 2) designed a challenge for which players needed to discover the meaning behind street names. One participant (P2, Workshop 2) also mentioned that stories on the development of the neighbourhood are potentially interesting to be shared. The stories told by participants were, for example, about where the city used to end and how the city has gradually 'stolen' land to expand. All four participants (Workshop 2) found stories that include a kind of controversy interesting for challenge activities.

#### *Designing challenges with purpose*

When participants presented their own challenge designs to each other, it became clear that they had designed each challenge with a particular purpose. They deliberately designed challenges to acquire input from their neighbours on a local topic (one challenge design, P3, P4; Workshop 2), bring a certain issue to the attention of residents (one challenge design, P1, P2; Workshop 2), or stimulate a discussion amongst neighbours (one challenge design, P3, P4; Workshop 2). The explanations participants provided in the survey at the end of Workshop 1 on what they liked about the game and why, showed that participants enjoyed challenges that connect to their daily life. This was notable in the Photo Story challenge, in which observers wrote down that one team was very engaged and having fun in discussing their daily rhythm and taking pictures

to document this rhythm, while another team did not enjoy this challenge because it was not at a location they usually frequent, and thus not connected to their daily life.

### Physical elements in the neighbourhood for challenge design

Next to the challenge activities itself, participants also mentioned interest to explore certain locations and objects, and to share information about these places. These physical elements, and the information shared about them, could be used to design challenge activities.

#### *Locations*

During Workshop 1 and 2, participants mentioned various locations that are suitable to play challenges or that could be explored as part of a challenge activity. In addition to naming specific locations in their neighbourhood, such as religious buildings, schools, or playgrounds, participants also named necessary characteristics of such locations. Participants mentioned several preferences regarding the proximity and distribution of challenge locations: even distribution throughout the neighbourhood, but also close to the centre. Challenge locations need to be close to each other, for those whom are less mobile to be able to play (P2, Workshop 2) and to enable multiple challenges to be solved within a short time frame (P1, Workshop 2).

Social locations, where activities happen and people gather, were also named specifically. For example, one challenge design was created by participants to be played at 'De Uithof', because "*there are many activities being organised there*" (P1, P2; Workshop 2). For these locations, the two participants expressed that a good atmosphere is important. One team (P3, P4, P5; Workshop 1) discussed their preference for a specific community space to drink coffee and meet neighbours was solely determined by this factor. The other factor that influenced choice of locations was their aesthetic appearance, such as parks or streets with beautiful trees around. One participant stated that "*there are only beautiful streets in our neighbourhood,*" and that it is kind of a "*tree museum*" when you walk around (P3, Workshop 2).

#### *Landmark Objects*

Objects in the neighbourhood that are considered to be appropriate for exploration are mainly landmarks. The suggested landmarks are often related to the historical development of the neighbourhood or they are suggested because they are simply remarkable in their design or location. Landmarks suggested by participants were, amongst others, bridges, statues, or historical landmarks. The latter is not necessarily interesting due to the

object itself or its location, but rather because of the story that can be told about it. For example, one participant (P4, Workshop 2) told the group about two milestones that were placed in the neighbourhood, to mark the history of the Roman Empire, and that this specific place had once been in Roman hands.

#### *Sharing information about physical elements*

Interestingly, all four participants (Workshop 2) proposed challenges related to information sharing connected to a physical location, although the physical location itself was not necessarily of significance. For example, participants discussed how information about activities in the neighbourhood, stories and initiatives could be physically distributed in the neighbourhood, using a specific challenge. They also discussed the use of other types of media such as a local newsletter that could be used to this purpose (not necessarily related to the game). These spontaneous discussions indicate that participants had a high need for information in their neighbourhood, and that currently a solution for sharing information is lacking.

### **Interaction leading to exploration**

The gameplay during Workshop 1 supported several types of interaction and players were free to choose which type of interaction they apply to solve challenges. The way participants, thus, interacted while playing the game provides insight in their preferred type of interaction. The data also indicated that specific types of interaction and behaviour were triggered by the game.

#### *Enjoying natural conversations*

All seven participants (Workshop 1) enjoyed natural conversations with other citizens, who were not necessarily participating in the game, during gameplay. Participants interacted with their teammates and with people on the streets. They engaged in natural conversations with them, by asking questions or by simply talking to each other as they were playing. In the survey, participants mentioned that they enjoyed meeting people (all participants; Workshop 1) and interacting with them during the gameplay (P1, P5, P6, P7; Workshop 1). The same can be concluded from the observation notes. Interactions with familiar people, such as their teammates, were experienced as bonding with friends, while greeting and talking to strangers was perceived as a way to create useful connections. When visiting the Buurtkamer, for example, four participants (P1, P2, P6, P7; Workshop 1) promised the representative of the Buurtkamer to come again and join one of the activities in the near future.

### *Collaboration*

Participants worked in teams to solve the challenges, so collaboration was an important part of the gameplay. Participants were also able to take on different roles, such as the leader, during the gameplay. In the survey, three participants (P2, P5, P7; Workshop 1) explicitly mentioned that collaboration was important to them and that they enjoyed this about the game. However, not all challenges necessarily required interaction according to the participants. Some challenges were solved rather independently, some by dividing the tasks. Nonetheless, in the challenges participants designed themselves, they indicated that teamwork and collaboration were important aspects.

### *Lowering the barrier for interaction*

For some participants (P1, P6, P7; Workshop 1) the game activities lowered the barrier to interact as they engaged with strangers on the streets. They greeted strangers while playing the game or interviewed them about their favourite place in the neighbourhood to solve one of the challenges. Some of them did this naturally, while for others the boundary was lowered due to the gameplay. One participant mentioned in the survey: *“Apparently for me the threshold to just walk in, and ask what they are doing and if I can join in, is high”* (P1; Workshop 1). This indicates how the game has the potential to stimulate social behaviour and interaction.

## **Usability of the game**

The results so far mainly describe how participants behaved in the gameplay and which activities they enjoyed, especially with regard to neighbourhood exploration and social interaction. As the game used was a prototype, the usability might have influenced the experience of participants and thus the outcome of this research. Consequently, the usability is briefly discussed in the following two paragraphs, to indicate to what extent usability issues might have influenced the results. The average score for the SUS questionnaire after playing the game (although not significant due to the low number of participants) is 62, and 68 is considered to be an indication of generally good usability (Brooke, 1996). During the gameplay in Workshop 1, two usability issues were observed.

Albeit not all participants, especially the ones belonging to the age group of 65+, were proficient with a smartphone, they navigated through the game in general without help. All participants were able to find the list of challenges, open one, and to start navigating to its location. However, each team member had his/her ‘own’ phone with the game and the phones did not always show the same distances or directions to the required location, causing

confusion within teams. All teams fixed this by just focusing on one phone to not allow further disturbance of the gameplay. The precision of the GPS receivers in the phones were the cause of the differences.

A second issue occurred when participants arrived at a challenge location and the challenge on the phone did not open because their GPS location was not close enough to the pre-determined coordinates. This led to some frustration. This also distracted participants from engaging with the neighbourhood, as one observer noted: *“This player is mainly engaged in figuring out why the game is not working, even though I told her multiple times to just join the discussion and use the other player’s phone to answer the questions. However, she kept on focusing on the phone and did not engage in the discussion with the Buurtkamer coordinator”* (observer 1). Despite these two usability issues, the conclusion that participants generally understood how to use the game and their experience was not severely impacted, seems warranted.

#### **Discovery through local information sharing**

The theme of *Discovery through local information sharing* seems to be intertwined through all results: It plays a role in challenge activities, physical elements, and interaction. Participants can become motivated to explore the neighbourhood with the expectation of discovering an interesting location or story they do not know about. The workshops show that participants became very engaged with the game when they were learning new things, whether it was getting to know new people or stories on how the neighbourhood developed. Their curiosity was triggered during the gameplay; participants came up with questions themselves rather than following the game questions.

Considering everything that participants said and that was written in the observation notes, participants seemed to have enjoyed activities in which they share information about their neighbourhood. They told stories or presented interesting locations which they feel other citizens should know about. When discovering new locations themselves, as for example required for the challenge with the Buurtkamer during the workshop, participants became very excited, as reflected in their responses in the open survey (six participants named this explicitly) and the observations made. This illustrates that *discovery* is something participants highly valued and appreciated in the gameplay and needs to be considered in interventions for place-making.

One crucial element for discovery in the neighbourhood is local information. The purpose participants assigned to challenges

are related to stimulating information sharing amongst neighbours: either about a particular local issue that needs awareness, or an interesting activity that is being organised but not many people know about. It is clear from these suggestions that participants currently experience a lack of information sharing in the neighbourhood and would like to change this.

However, maximising the idea of discovery cannot endlessly stimulate neighbourhood exploration. The results express a paradox related to familiarity in the neighbourhood. On the one hand, participants want to play at a location they do not know yet to discover new things. On the other hand, they want to engage with citizens from their own neighbourhood, and want locations to connect to their daily lives. This paradox was illustrated in the Photostory challenge, when one team did not enjoy this challenge because they were not at a location they usually frequent. This is similar for the familiarity of people that participants play with: they enjoy to be in teams with people they know, but also really like to meet new people during the gameplay. This illustrates the necessary balance that needs to be found between familiarity and discovery.

#### **4.1.6. Discussion**

The results of this intervention study outline challenge preferences of citizens for location-based activities to foster neighbourhood exploration and place-making. These insights can help game designers and researchers to understand which factors play a role and what is their influence. Furthermore, this research identified several new gaps around balancing discovery and familiarity in game design and collaboration as a game dynamic which need to be addressed in future work.

##### **Discovery versus familiarity**

The preferences of citizens for location-based activities that foster neighbourhood exploration creates a paradox for design: citizens want to discover new things at places that are familiar to them.

Designing a location-based game for neighbourhood exploration needs to put discovery as a strong element in the gameplay. Citizens expressed, both verbally as through their behaviour, that they enjoyed exploring locations in their neighbourhood which they had never visited before, they liked to get to know new people from their neighbourhood, and they took pleasure in hearing novel stories about their neighbourhood. This insight resonates with previous work, although there the focus was on learning as

a motivator for participation, not stressing discovery specifically (Robertson & Simonsen, 2012). In the research of DiSalvo, Illah Nourbakhsh, Holstius, and Luow (2008), for example, citizens used simple sensing robots to explore their neighbourhood and became more engaged with the project when they started to acquire new insights on their neighbourhood, like the high sound levels of cars at a certain crossroad, based on the data they collected with the sensing device. Discovering what is happening in the neighbourhood and what are the so-called matters of concern (Bjögvinsson et al., 2012) is a motivator for citizens to engage and become active (Gooch et al., 2018; Erete, 2015). This insight specifically is supported by this research as well.

Experiences of discovery can be facilitated by distributing challenges in areas known to players, as well as areas they do not often frequent. For this to happen, game designers or researchers need to understand which areas and locations are familiar to players, for example by talking to citizens and walking around in the neighbourhood (Slingerland et al., 2020), to make a reasonable distribution of challenge locations. This interplay between design and the local environment is also acknowledged by others (Cila, Giaccardi, Tynan-O'Mahony, Speed, & Caldwell, 2015; Ehn, 2008; Le Dantec & Fox, 2015). Location-based activities for neighbourhood exploration and social interaction can, therefore, not be designed without taking the surrounding neighbourhood into account. The locations need to be appropriate for the designed activities and be relevant for the citizens who will engage with them (Kuijter, De Jong, & Van Eijk, 2013). It is, therefore, vital that researchers and designers engage with citizens of the neighbourhood through extensive field research, to understand which challenge locations and activities are appropriate for the specific context for which groups of citizens (Kendall & Dearden, 2018; Slingerland et al., 2020a).

Albeit citizens can be motivated through the promise of discovering new places, people, and stories, citizens do not like to explore a place that is completely unfamiliar and unrelated to them. This finding corresponds with previous work (Papangelis et al., 2017), in which participants reported that playing at locations they connect with is more meaningful than places they had never seen before. People have different ways of connecting to places (Friedmann, 2010; Pink, 2008; Crivellaro et al., 2015) and this research revealed that citizens connect through the familiarity and comfort of knowing a place because they have previously visited it numerous times. Therefore, it supports earlier findings that citizens prefer to play in areas and teams that are familiar to them which connect to their daily life.

### **Collaboration as an important game dynamic**

The location-based games and other urban playful experiences that were reviewed in the background section, show a dominance of using a competitive dynamic in the gameplay (e.g. (Clark & Clark, 2016; Papangelis et al., 2017; Sotamaa, 2002; Pyae, Luimula, & Smed, 2017; Hodson, 2012; Peitz, Saarenpää, & Björk, 2007)). Collaboration and cooperation as game dynamics were used in previous research, for example in Epidemic Menace (Fischer, Lindt, Stenros, et al., 2007). In this game, players had to collaborate as a team and compete against other teams in finding who released the virus. They reported that they enjoyed communicating and working in pairs while competing with the opposing team. Players indicated cooperation as a positive element of the gameplay, which corresponds with the results from the current study; namely that citizens have a strong preference for challenge activities based on collaboration and the act of playing together in small teams encouraged social interactions and a sense of place.

Citizens expressed that collaboration in their neighbourhood community is important to them, and specifically designed challenges where players need to work together to solve a problem. Nonetheless, many games discussed in seminal work mainly use the game dynamic competition and not collaboration, though it plays a major role for building citizen communities (Slingerland et al., 2019; McMillan & Chavis, 1986; Nicotera, 2008; Collins, Neal, & Neal, 2014; Kim & Ball-Rokeach, 2006). For such communities to thrive, citizens need to work together and achieve something collectively. This research further highlights that citizens prefer collaborative activities if they jointly explore the neighbourhood in a playful way. Consequently, game activities that aim to support neighbourhood exploration and social interaction requires the use of collaboration as a game dynamic, for citizens to be motivated to play.

### **Three new challenge types**

During Workshop 2, citizens deliberately came up with challenges that served a particular purpose. These challenges differ from the current challenge types in the kind of behaviour they prompt from players. As a result, three new challenge types are proposed based on the challenges citizens designed themselves as part of this research. All aim to foster neighbourhood exploration, either through examining new locations, having social interactions with people on the street, or learning about neighbourhood stories. The three new types of challenges proposed by the participants

in this study extend the current classification with four challenge types to include:

#### **Hunter**

The behaviour elicited by this type of challenge is linked to finding specific type of people or objects, as opposed to finding random people (which would be the *Explorer*). Hunter is about finding tangible things that can be human, animal, or an object. For example, finding the person responsible for the community centre to ask what types of activities can be done there. If and when such people cannot be found at a given time, players can find ways to still address the challenge (e.g. finding a QR code attached to the community centre explaining exactly what they would like to ask the person.)

#### **Artist**

This type of challenge requires players to design artwork in and about their neighbourhood, based on creative processes individually or collaboratively. Such artwork might be abstract and personal or collective, and represents a creative expression about the player's neighbourhood. For example, creating a song or musical performance (rapping), writing a poem, or storytelling.

#### **Volunteer**

This type of challenge invites players to contribute towards the community, and supports behaviour to help others or contribute to the quality of life in the neighbourhood. An example of a challenge of this type is picking up trash at a specific location to make a nice piece of art with it, and taking a picture of it to publish in the media of the local community, before the trash is collected.

These three challenge types, together with the other four (*Athlete*, *Detective*, *Explorer*, and *Inventor*), ask for different type of play behaviour and interaction to solve a challenge. They require players to do physical activities (*Athlete*), find information and factual knowledge (*Detective*), explore the neighbourhood (*Explorer*), propose ideas and explore opportunities (*Inventor*), find specific things or people (*Hunter*), create and express thoughts, feelings, interests in some form (*Artist*), and contribute to the environment and help others (*Volunteer*).

### **Co-creation approach**

This research used a co-creation approach (Sanders & Stappers, 2012) to cultivate knowledge and understanding of the context of urban neighbourhoods. During gameplay, citizens shared information with each other on their own neighbourhood, through

which they discovered new things. This study identified the kinds of information citizens prefer to share, but realise that this also depends strongly on the participants and context (Ehn, 2008; Kuijter et al., 2013). For example, all participants in this research are engaged with neighbourhood initiatives, and were therefore interested to know more about other initiatives to see how they could be connected. Previous work stresses as well that connecting with the local community to understand what drives them is vital to the design of something meaningful (Balestrini et al., 2017; Kendall & Dearden, 2018; Comes, 2016; Le Dantec & Fox, 2015). To design meaningful activities for neighbourhood exploration, researchers need to build relationships with community members and spend time in the local context, to connect with the community and understand what is important to them (Slingerland, Lukosch, Hengst, Nevejan, & Brazier, 2020b).

Throughout the research, citizens were not only subjects but were treated as co-creators of the research and game design. They could influence the design process of the game by designing parts of it themselves, like they did during the Workshop 2. Despite many researchers and game designers involve players in the development of the game (e.g. (Jones et al., 2017; Wolff, Mulholland, Zdrahal, & Joiner, 2007; Pang et al., 2019)), they do not directly allow their target group to design parts of the game as presented in this work. However, allowing citizens to design parts of the game not only provides better insights into what interests them (Sanders & Stappers, 2012, p. 67), it also increases their motivation to engage with the game because citizens start to feel ownership towards their own game designs (van Rijn & Stappers, 2008). As such deep knowledge on the context is required to design an effective game that properly addresses discovery and place-making, co-design is a suitable approach for this purpose.

### **Challenges for future work**

Several insights were presented in this study on how to playfully foster neighbourhood exploration and place-making through a location-based game. These findings also lead to new questions and thus challenges for future work. The first finding states that discovery is an important motivator for citizens to explore their neighbourhood. Discovery is something that can be done only once per location, person, or story. Accordingly, the question pops up how discovery needs be to be addressed on the long run. For example, can players re-do challenges, for which every time they discover more details about a place or story? Research of, for example, Jones et al. (2019) shows that this is an option: games can facilitate reflection on a familiar place to support discovery

of new meaning. Another option could be to allow citizens to add challenges, that entail discovery themselves, and this would require citizens to know which places might be interesting to be discovered by others. Hence, one challenge that needs to be addressed in future work is how discovery in the game can be addressed on the long run.

This study shows that discovery needs to be balanced with familiarity, to make sure the items that are discovered relate to the daily lives of players. That this is complex was shown during the workshops. Participants had different levels of familiarity with areas in the neighbourhood in which the game was played, but this did not directly impact their engagement during gameplay. This means that also other factors played a role, such as the challenge activity or personal interests. Hence, for certain types of challenges discovery may be more important as a motivator than for others. This balance needs to be explored further in future research, because this research only identified some indicators of this balance, but not how it exactly manifests. In general, future work could focus on exploring these mechanics as well as scaling the research up by involving more participants and from a wider age group.

Another point for future work results from the three new challenge types that were proposed. Future research should investigate whether these challenge types are able to foster neighbourhood exploration and social interaction, and whether they are preferred by citizens to be played with this purpose in mind. Furthermore, the temporality of the interactions as a result of gameplay can be investigated further for all challenge types. For instance, whether social interactions and place-making are sustained after gameplay and if some challenge types are more effective in supporting sustained place-making than others. The challenge types can be related to the work of Bartle (1996, 2005) on player types, describing roles often seen in games that evoke social play (Salen, Tekinbaş, & Zimmerman, 2004; Bartle, 1996). The challenge typology can also be associated with the player traits and characteristics described in other research (Tondello & Nacke, 2019; Tondello, Arrambide, Ribeiro, Cen, & Nacke, 2019). A direct overlap between these preferences of players and the challenge types cannot be found, possibly because they are based on virtual or pervasive games respectively. Future research could investigate the relationship between player traits and the proposed challenge types, to create a coherent and consistent classification of challenges for neighbourhood exploration.

Finally, the gameplay takes place within the urban environment, where citizens are not the only actor. Public institutions, such as local governments or community centres, might also become

players of the game. They could add location-based activities to inform citizens on important topics or the activities might require citizens and neighbourhood professionals to collaborate. Playful location-based activities could thus play a role in fostering direct contact between the various actors in the urban space and future research could focus on how different location-based activities can facilitate this process.

#### **Limitations due to sample size and context**

This study comes with some limitations regarding the generalisation and applicability of the findings. It is based on one location only (The Hague, The Netherlands). Albeit the effort to involve as many citizens as possible, and to have a group of participants that is representative of the chosen location, the participant sample was small and not representative for the neighbourhood. The majority of participants in the first workshop were women, and in the second workshop both male and female genders were equally represented. Diversity in ethnic background, age, and therefore the preferences of these non-represented citizens is not accounted for. Nonetheless, measures were taken to ensure credibility of the work. This study applied triangulation regarding researchers, and regarding data collection. Researcher triangulation was achieved by having three different researchers observing the teams playing the challenges. Triangulation regarding data collection was achieved by having two researchers independently coding the data resultant from the workshops. The results are, therefore, considered trustworthy and can be transferred to other neighbourhoods that are similar to the presented case study area. Further research is needed to explore the applicability of this study in locations that are dissimilar to the presented case study. Similar studies in different locations could render different results due to different social rhythms, norms and values of both individuals and communities. The reported types of challenges are considered to be stable, as they are not solely based on this study.

#### **4.1.7. Conclusion**

When residents know more about current and historical developments in their neighbourhood, they feel more attached to it (Zaff, Kawashima-Ginsberg, & Lin, 2011; Manturuk, Lindblad, & Quercia, 2012; Kim & Ball-Rokeach, 2006; Li, Pickles, & Savage, 2005) and hence place-making is supported. Mobile technology and games are able to foster social interaction and engagement of citizens with the urban environment (Nijholt, 2017c; Jones et al., 2017; de Lange & de Waal, 2013), and this intervention

study presented a location-based game to support place-making in Bouwlust, a neighbourhood in The Hague. Two workshops were organised in The Hague in which citizens played different activities, called challenges, of the location-based game *Secrets of the South*. Citizens then designed their own challenges for this game. The experiences of citizens playing the game were analysed, as well as their preferences, to identify how location-based games may support place-making.

The central finding is that discovery of new places in the neighbourhood enhances place-making, because through this experience citizens are motivated to go out and explore the place where they live. A paradox is that these discoveries, in order to be engaging, need to relate to daily lives of citizens. Residents are less inclined to connect to places which do not play a role in their day-to-day routine. The intervention study further found motivations for citizens to go out and explore, and which locations, people, or landmarks are suitable to build playful experiences. It identified collaboration as an important game dynamic for stimulating exploration and interaction, while many current games for this purpose are based on competition. Game designers and researchers can use these findings as a guidance in creating playful experiences aimed at fostering neighbourhood exploration and social interaction in the context of place-making, in the future.



## Design intervention

### 4.2. Intervention 2: Co-creation with children

Intervention 2 is a co-creation approach with children. The summary is given below, after which the detailed description follows of why and how this intervention was designed, which methods were used to test it, and what were the results of using this co-creation approach in relation to place-making. The intervention is summarised using the four activities of the participatory place-making framework, presented in Chapter 3.

**Connect with local context:** The co-creation approach was tested with children from a primary school in Rotterdam. The research team went on a neighbourhood walk with a local actor to get to know the area, and met with the school director and expertise actors to discuss what would work (and not) in terms of co-creation with children.

**Identify key partners and stakeholders:** The research was set up and executed in collaboration with several local partners: VeldAcademie, Cultureel Denkwerk, and primary school CBS De Akker. Cultureel Denkwerk played a major role in connecting the research team with the other actors.

**Gather data and doing analysis:** The co-creation approach was tested as a school activity. Children went out in groups in the neighbourhood surrounding the school and were accompanied by researchers, who observed the children doing co-design and facilitated when necessary.

**Reflect on effects with stakeholders:** The children were debriefed at the end of the workshop, and researchers returned to the school after three months to evaluate the ideas that came out of the co-creation workshop. Researchers also discussed the outcomes of the co-creation with the school director and the other involved local partners.

### 4.2.1. Motivation

Various interaction design interventions have been studied to stimulate citizen participation and engagement in place-making, but they mainly focus on adult users. Although children are the future of the city, know very well what they need to enjoy life in the city, and have the right to express these needs (Derr, 2015), they are not always included in the development of the urban space (Peacock et al., 2018; Roche, 1999; Birch, Parnell, Patsarika, & Šorn, 2017). Involving children in decision-making encourages them to take ownership of their environment (Peacock et al., 2018), become more active and engaged in their neighbourhood (Kleinhans et al., 2015), with increasing trust towards municipal actors (Nelson & Baldwin, 2002; Rizzo, Deserti, & Cobanli, 2016), enabling them to feel more at home in their local community (Pierce, Kostova, & Dirks, 2001). It is thus important for children to connect with their direct living environment, to acquire a sense of belonging (Lentini & Decortis, 2010; Wood et al., 2019) and civic agency (Percy-Smith, 2010).

One of the ways via which children can acquire a connection with the neighbourhood is by building a relationship with the physical environment (Lentini & Decortis, 2010). Place-making can facilitate children's connection with the physical space of their neighbourhood and hence provide the pathway for children to become engaged and feel a sense of belonging towards their local environment. Nonetheless, more research into place-making is necessary, as current place-making processes are, by some, considered to be uninspiring and irrelevant for children (Peacock et al., 2018), and the dynamics of involving children in such processes are not properly understood (Birch et al., 2017).

In the literature, Participatory Design (PD) has shown to be a promising approach to engage children in design processes not related to place-making (Druin, 2002; Birch et al., 2017; Francis, 1998; Bekker, Beusmans, Keyson, & Lloyd, 2003). This study investigates whether PD with children can be used to this purpose. The study builds on the limited amount of promising research (e.g. (Peacock et al., 2018; Wood et al., 2019; Lamarra et al., 2019; Campos & Garcia, 2018)) with the same goal to explore which PD methods and activities are most appropriate when working with children. Researchers indeed claim that PD methods can increase sense of place, but it is not clear how this exactly happens and which elements of the PD process contribute to this.

To sum up, more understanding is needed on the characteristics of relevant place-making processes for children (Peacock et al., 2018), how dynamics change when children are involved in these processes (Birch et al., 2017), and how PD methods contribute to

increase a sense of place (Francis, 1998). This research addresses these three knowledge gaps by studying a PD process designed to support children in the design of their own place-making activities. The study explicitly considers the dynamics between the involved adults and children, and includes a detailed discussion and reflection on the PD activities and materials used. The presented outcome and contribution of this intervention study are the considerations and challenges of using co-creation to facilitate meaningful place-making for children. These insights contribute to the three identified research gaps and can be used in designing future PD projects to engage children in place-making activities.

#### 4.2.2. Background

This section discusses the state of the art for the three research gaps addressed in this study: 1) designing relevant place-making processes, 2) changing dynamics when involving children in PD for place-making, and 3) using PD to increase a sense of place. Each section ends with a paragraph to describe the insights from the literature on which the PD method, the co-creation approach, proposed in this intervention study are based. The specifics of this approach are further described in Section 4.2.3.

##### Place-making processes for children

The first identified research gap is about relevant place-making processes for children. Outdoor play is proposed as a meaningful place-making activity for children (Wood et al., 2019; Lentini & Decortis, 2010; Ma et al., 2019). Physical exercise benefits children's development (Lentini & Decortis, 2010; Ma et al., 2019), and also supports children's relationships with their neighbourhood (Lentini & Decortis, 2010; Seitinger, 2009). Outdoor play enables children to explore their environment and make active use of it (Francis, 1998; Lentini & Decortis, 2010), to construct meaning and identity (Birch et al., 2017), and to enable children to take ownership of their environment (Wood et al., 2019). It is supported most in open-ended play: a type of play in which there are no fixed rules and children keep on (re)inventing games and play behaviour (Back et al., 2018). Outdoor play can happen anywhere and take many shapes and forms (Back et al., 2018; Wood et al., 2019). The current literature shows two ways of facilitating such outdoor play for place-making: through changing landscape environment (Wood et al., 2019; Back et al., 2016b; Ma et al., 2019) and through enhancing the environment with interactive technology (Back et al., 2018; Back et al., 2016a).

Research on landscape environments discusses how the physical environment can support outdoor play. Physical elements can provide features for outdoor play for place-making (Wood et al., 2019). For example, a sequence of stepping stones could encourage children to move in unexplored areas (Back et al., 2016b). Interestingly, children and adults have very different ideas about what could be a good environment for outdoor play (Francis, 1998). Francis (1998) showed that playgrounds designed by children are more engaging, compared to ones designed by adults. Back et al. (2018) had similar findings, noting that when children were unsupervised by parents new types of interaction with play installations emerged, leading to new forms of meaningful interaction. While the public playground serves as a natural place for outdoor play (Ma et al., 2019), a varied landscape allows more flexibility in terms of social roles amongst children and thus a more interesting play experience (Back et al., 2016b).

Another way to facilitate outdoor play is by augmenting the physical environment with interactive technology (Back et al., 2016a; Back et al., 2018). This is especially relevant in urban spaces, where natural environments, considered ideal for outdoor play (Francis, 1998; Lentini & Decortis, 2010), are less accessible for children (Francis, 1998). Many studies have been conducted to design and evaluate interactive interventions to facilitate children's outdoor play (e.g. (Ma et al., 2019; Lentini & Decortis, 2010; Wood et al., 2019)), exploring the design space of outdoor play technology (Soute et al., 2013). These interventions can support children to explore their surroundings (Seitinger, 2009). Examples of interventions to support outdoor play include tangible play objects, augmented playgrounds, and wearable devices (Ma et al., 2019). Children invent their own games around such simple interactive technology (Hitron et al., 2017), and these outdoor play activities support social interaction and engagement with places in the neighbourhood (Wood et al., 2019; Ma et al., 2019).

Outdoor play is proposed as a meaningful way of engaging children in place-making processes. To design for such experiences, understanding the local context, i.e. the physical and societal aspects, is vital, especially to ensure relevance of place-making for children (Back et al., 2018). In this process, children need to have flexibility (Samariya, Fails, & Hansen, 2019) to define their own rules (Hitron et al., 2017), and social interaction and collaboration are key (Ma et al., 2019; Samariya et al., 2019).

To conclude, prior research suggests that place-making can become relevant for children when considering the physical environment as well as using interactive technology to enhance the space (Soute, Kaptein, & Markopoulos, 2009). A method to invite children to consider outdoor play activities that can be played

using the physical elements of their neighbourhood, potentially complemented with a digital mobile app, would seem in line with these findings. Further, as social interaction and collaboration are identified as key elements to successful place-making (Ma et al., 2019; Samariya et al., 2019), they should be central in both the PD method and activities. Finally, the need for flexibility for children to create their own rules of game for meaningful interaction is well-recognised (Samariya et al., 2019; Hitron et al., 2017). Children as co-researchers (van Doorn, Gielen, & Stappers, 2014) is an approach with which they can design their own place-making activities, and should be included in the co-creation approach designed.

### **Dynamics in PD with children**

Involving end-users in design to create systems that they need and like is not new (Lagerström, Soute, Florack, & Markopoulos, 2014). In PD, future users are actively and directly engaged in the design process (Read et al., 2002). While children were long excluded from this process, they are now acknowledged as competent design partners (Hussain, 2010; Druin, 2002), having credible voices to which to be listened (Derr, 2015; Bekker et al., 2003; Iversen, Smith, & Dindler, 2017). Technologies take a more prominent role in children's lives (Druin, 1999; Iversen et al., 2017) and adults have a very different perspective on these compared to children (Hussain, 2010). While much work has been done, it remains a challenge to truly involve children in design as equal partners (Druin, 2002; Iivari & Kinnula, 2018). This is partially due to the second knowledge gap addressed in this research, namely not properly understanding the difference in the dynamics when children are involved.

One of these differences is related to the impact that PD processes have on their participants (Iversen et al., 2017). In long term engagements, children and designers can build strong relationships (Druin, 1999; Barendregt et al., 2018). Children discover that they have the ability to make a change (Derr, 2015; Iversen et al., 2017) and feel empowered (Coenraad et al., 2019; van Doorn et al., 2014) because they can express their values and identity (Coenraad et al., 2019). These values are then considered and valued by adult designers (Iivari & Kinnula, 2018; Druin, 2002; Hussain, 2010), and enable children to create designs that increase their quality of life (Hussain, 2010). Further, children can learn valuable skills throughout the PD process (van Doorn et al., 2014; Iversen et al., 2017), such as working with other people (Druin, 2002), communication skills, and design knowledge (Coenraad et al., 2019; Iversen et al., 2017). These outcomes of mutual learning

(Barendregt et al., 2018) are named *design-centred learning* by Druin (1999). Finally, PD activities have also reported to change children's attitudes positively, by increasing confidence (Coenraad et al., 2019), competence (Iivari & Kinnula, 2018), and creating a sense of ownership and legitimacy (Iivari & Kinnula, 2018; Iversen et al., 2017).

Another dynamic is related to the adults whom participate in the PD processes, for example teachers, care-givers, or parents (Barendregt et al., 2018). Original PD concerns include democracy, power, politics, and ability to act (Iivari & Kinnula, 2018) and these aspects need to be considered for PD with children as well (Iversen et al., 2017). Designers need to question to what extent their PD process enables children to affect decisions concerning their life (Iivari & Kinnula, 2018) and creates equal power relationships between children and designers (Barendregt et al., 2018). While adults might negatively influence the PD process, they can also act as proxies to increase children's interest (Barendregt et al., 2018). The more children are familiar with the topic of the PD process (Barendregt et al., 2018), know what is expected of them (Druin, 2002), and the characteristics of a good design (Read et al., 2002), the better they can participate.

Therefore, the main insights with regard to changing dynamics is that time is needed for all involved participants to learn to work together within a given context (Back et al., 2018; Iivari & Kinnula, 2018; Seiting, 2009), to understand expectations (Barendregt et al., 2018; Druin, 2002; Iivari & Kinnula, 2018; Read et al., 2002), and for children to feel responsible for their actions knowing their opinion is valued (van Doorn et al., 2014). Druin (1999) proposes practical ways to decrease the power distance, namely by dressing informally, using informal language, and explicitly asking children for their opinion. Iversen et al. (2017) suggests that researches should be introduced as design experts instead of teachers. The importance of preparation and time to get to know one another in advance are important factors for the design of successful interventions.

#### **PD tools for place-making**

PD methods are used to enable children to have their voice heard in shaping their city (Francis, 1998) and to connect to places in the neighbourhood that are meaningful to them (Wood et al., 2019). Scholars have started to acknowledge that children have valuable insights in the places they use and have the capacity to re-invent these places (Birch et al., 2017). Simultaneously, children are excited when being asked about their community life; they feel valued for their culture and ideas (Derr, 2015). However,

which elements of PD increase children's sense of place is not well understood, limiting their application in future endeavours.

In doing PD with children, the methods need to be adjusted (Druin, 1999, 2002) to fit children's levels (Hussain, 2010; Bekker et al., 2003) and to create a common language between adult and child designers (Eriksson, Baykal, Björk, & Torgersson, 2019). Prototypes could, for example, enable a shared understanding (Iivari & Kinnula, 2018). Druin (1999) proposes *cooperative inquiry* as an approach for PD with children. In her research, children become equal partners in the design process (Druin, 2002), requiring long-term engagement. As such resources are not always available (Druin, 2002), Hussain (2010) suggests that also with simple PD techniques, children should be able to effectively communicate their needs (Coenraad et al., 2019).

Prior research that applied PD for place-making uses mapping (Campos & Garcia, 2018), neighbourhood walks (Peacock et al., 2018; Back et al., 2018), location-based games (Lamarra et al., 2019), and multiplayer participatory simulations (Kumar & Tisenbaum, 2019) that allowed children to address concerns about their neighbourhood. While some of these studies have a slightly different focus than place-making (e.g. addressing local concerns (Peacock et al., 2018), or creating a game for a civic issue (Lamarra et al., 2019)), they all address topics related to place-making and provide some valuable insights on how children can co-design interventions in their environment. As local experts, children are well equipped to take researchers on a walk in the city or to map the neighbourhood on paper (Campos & Garcia, 2018), presenting the city, its issues and opportunities, to the research team (Peacock et al., 2018).

Accordingly, the activities included in current literature are all focused on encouraging children to act as local experts and show the researchers what would be meaningful place-making activities for them. The literature shows that children can be empowered to be the local experts, to design their own meaningful place-making activities in neighbourhood walks (Peacock et al., 2018; Francis, 1998; Wood et al., 2019). The use of journals as a means for children to develop their own thoughts and ideas proposed by Hussain (2010), Druin (2002), and Wood et al. (2019), shows to be a valuable support for creativity. Furthermore, others (Druin, 2002, 1999; Bekker et al., 2003; Hussain, 2010) demonstrate the importance of providing age-appropriate materials and having a variety of ways for children to participate, based on their own preferences. Children should be able to choose the role they prefer to fulfil - focusing on taking pictures, talking, drawing, writing, or a mixture of those for them to communicate their needs and

**Table 4.3.:** The proposed approach consists of five activities, all based on insights from prior research.

<b>Timing</b>	<b>Activity</b>	<b>Local partner</b>	<b>Aim</b>
Nov 2018	Neighbourhood walk by professional stakeholders	Cultureel Denkwerk, two researchers	Understand social and physical context of neighbourhood (Back et al., 2018)
Nov 2018	Meeting with school director to discuss expectations and workshop setup	Cultureel Denkwerk, CBS de Akker, two researchers	Align local partners and manage expectations (Barendregt et al., 2018)
Nov 2018	Meeting with VeldAcademie to discuss workshop materials and activities	Cultureel Denkwerk, VeldAcademie, two researchers	Collect toolkit of relevant and appropriate materials and activities for children (Druin, 1999, 2002; Hussain, 2010)
Dec 2018	First school visit to introduce research team, explain workshop setup and hand out booklets	Cultureel Denkwerk, CBS de Akker, two researchers	Getting to know each other and building trust. Know what researchers expect of children and what children expect of researchers (Barendregt et al., 2018; Druin, 2002; Read et al., 2002; Iivari & Kin-nula, 2018)
Dec 2018	PD workshop in which children form groups, choose a role, and walk through the neighbourhood to design outdoor play activities	Cultureel Denkwerk, CBS de Akker, five researchers	Children co-create outdoor play activities for place-making on their terms (Peacock et al., 2018; Derr, 2015; Hitron et al., 2017; Samariya et al., 2019; Ma et al., 2019)

wishes during the PD work in a way they prefer (Coenraad et al., 2019; Hussain, 2010; Druin, 2002).

### 4.2.3. Intervention design

A co-creation approach with children was designed and implemented on the basis of the insights reported above to address the three research gaps identified in this research. This approach was tried and tested with primary school children in Rotterdam (NL). The children are the local experts of their neighbourhood. They were asked to design place-making activities that are meaningful to them. Table 4.3 provides an overview of the activities that were all part of the applied approach. The next paragraphs outline the specifics of the approach, including the research context, the procedure, the data, and the analysis.

#### Research context

The research was performed in Tarwewijk, a neighbourhood in Rotterdam, with a very diverse population of about 12,000 citizens.

This area is located in the southern part of Rotterdam, historically infamous for crime rates, drug abuse, and poverty (van der Kaaij, 2018). Recent investments from the municipality made very significant improvements, but Tarwewijk is still considered a 'problem area'. A neighbourhood with challenges has a dynamic flow of citizens moving in and out of the neighbourhood and a significantly lower average yearly income per household compared to the rest of the country (€16,500 compared to €23,000). Tarwewijk, however, is a neighbourhood of the future: 25% of its inhabitants are aged below 25 years. Policies of the municipality to increase liveability and safety of this area are thus mainly focused on children, as is the presented research.

#### *Involved local partners*

The research was set up and executed in collaboration with several local partners: VeldAcademie, Cultureel Denkwerk, and primary school CBS De Akker. VeldAcademie is a research and consultancy bureau specialised in collecting citizen input using field research, for example to inform urban planning processes for the municipality of Rotterdam. This bureau worked with children from Tarwewijk of the same age group before and has pedagogical knowledge to inform the designers involved in this project on appropriateness of the materials and tasks. The second local partner is Cultureel Denkwerk, a culture and arts think tank that has worked for many years in this neighbourhood. Their recent interest is to explore how technology, such as digital games, can be used to increase children and youngsters' chances in life. This institution connected the research team to CBS De Akker, the primary school where the research was performed. This school has a long tradition of engaging in (research) projects that involve improving the lives of their children. The school's interest is to increase children's sense of place and to stimulate exploration, enabling these children to broaden their perspective and increase their chances in life.

#### *Research participants*

In consultation with the school director, the choice was made to design for the 7th grade children (aged ten to twelve years) as they are old enough to have some sense of their neighbourhood, come up with ideas, and have the potential to be followed up with in their final school year. Almost all of these children live close to the school. The school has two 7th grade classes with 42 children in total. These groups both participated in the research as explained further below.

#### *Informed consent*

All local partners provided informed consent for participation in this research project and to be included in this dissertation. Special attention was given to acquiring the consent of the children.

Informed consent was ensured through the parents. The school translated informed consent forms into the native language of parents (when needed), distributed them, and ensured they were returned.

### **The co-creation approach**

Table 4.3 provides an overview of all research activities that were undertaken to prepare and execute the co-creation approach.

#### *Preparations*

Several meetings were organised with the local partners to align and manage their expectations and to acquaint the research team with the neighbourhood and the school. During the kick-off meeting with the school director, Cultureel Denkwerk, and the research team, the overall purpose of the workshop was set and collaboration between partners was discussed: the PD workshop on which this study reports was a pilot for future research endeavours. The school, as well as the other partners, were interested in the design and development of a digital mobile application that will encourage children to go out and explore their neighbourhood. The work presented in this dissertation was considered to be the first step, for the partners to get acquainted, but also to see how the research team works with the children and how the children respond to the research team. If the results of the first PD workshop were successful and meaningful to the children, the next step would be to implement the designed outdoor play activities in a mobile app and play these with the children in a second workshop, to understand how these could increase children's sense of place.

The third preparation meeting was with the VeldAcademie and focused mainly on discussing the initial design of the workshop setup and materials. Due to the VeldAcademie's earlier experience of working with similar children, the materials and activities were also based on their insights. For example, they proposed to provide children with a booklet before the workshop to help them prepare, and to assign each child a specific task to keep them engaged during the workshop.

#### *Materials*

Different materials were prepared to support the co-creation approach as summarised in Table 4.4. One week prior to the actual workshop, children received two documents. The first was a piece of paper depicting examples of outdoor play activities that they could design. These designs were Photoshopped on a mobile phone screen, already showing the children how their designs might become part of an actual mobile app. The second

**Table 4.4:** Table presents the materials that were developed for the project, their purpose and the activity for which they were used.

<b>Material</b>	<b>Purpose</b>	<b>Activity</b>
Booklets	Engage children to already start thinking about their neighbourhood, the things they like to do outside, and the outdoor activities they would like to design	First school visit
Activity examples	Prompt children with possible ideas for outdoor play activities	First school visit
Location cards	Manual for the whole group with a short description of a location to start the brainstorm for a play activity	Workshop
Role cards	Describe each of the roles and what the child needs to do in that role	Workshop
Route descriptions	Manual for navigating child to find the route	Workshop
Mobile phone	Probe for reporting child to document the group process	Workshop
Camera	Probe for photographing child to take pictures of interesting places or what happens in the group	Workshop
Location maps	Probe for drawing child to draw outdoor play ideas on	Workshop
Activity forms	Probe for the writing child to note down the created outdoor play activities	Workshop

document was a booklet, personalised with the name and photo (received from the school) of each child, with questions for the children to answer, to start reflecting on the potential for outdoor play in their neighbourhood. The booklet also served the purpose of getting acquainted: the main facilitator introduced herself with some general information (age, current residence, hobbies, and favourites, like outdoor play game or colour), and children were asked to do the same. On the following pages of the booklet, the children were asked to draw a picture of their home, indicate its location on a map and write what they (dis)like about their street. Next, they were asked to explain which kind of activities they usually do out on the streets and which outdoor games they play and with whom. Finally, children were asked to write what they are proud of (considering their neighbourhood), indicate on a map which places they (dis)like in Tarwewijk, and explain why. An example of two of these questions in the booklet is shown in Figure 4.8. The other materials were used one week later, during the PD workshop, and mainly served to support children in executing their chosen role (navigator, photographer, reporter, note-taker, or drawer), and to document the group process.

#### *First school visit*

One week prior to the workshop, two researchers and a representative of Cultureel Denkwerk visited the school for both the





Figure 4.9.: One of the groups discussing outdoor play activities.

- ▶ Reporter: child receives a mobile phone with a recording application and is asked to interview the group members and report on what is happening
- ▶ Note-taker: child receives a clipboard and a pencil, and is asked to write down the ideas that the group comes up with on the activity forms
- ▶ Drawer: child also receives a clipboard, pencils and a paper, and asked to make a drawing of the outdoor play activity on the provided location maps

Following suggestions from prior research (e.g. (Wood et al., 2019; Peacock et al., 2018; Derr, 2015)), children and researchers walked through the neighbourhood to understand children's experiences in the outdoor space and enable children to ground their ideas in the context. Each group walked one of three different routes (three different groups were assigned to each route) and stopped at specific locations to brainstorm about ideas. Each brainstorm was prompted by a location card, but children could also choose other locations on route for outdoor play activities. Although the group was accompanied by adults, the children were in the lead and adults acted as observers and only facilitated the group process when needed. This meant that the children were in charge of the co-creation process and decided which locations and outdoor play activities were meaningful to them. Figure 4.9 shows one of the groups discussing outdoor play activities. Each route had a distance of about one kilometre and covered different areas in Tarwewijk. Children had on average approximately ten minutes per location to brainstorm about ideas.

#### 4.2.4. Method

To evaluate the co-creation approach, researchers collected data during the PD workshops and analysed them to understand how co-creation supported place-making.

##### Data collection

Data was collected from the researchers whom accompanied and observed the groups during the workshop, written on observation sheets with which they were provided in advance. An observation sheet allows for a fairly uniform way of collecting data across researchers in different groups (Back et al., 2018). The researchers were asked to focus on how the children worked together to create activities, and other interesting things children mentioned in relation to the neighbourhood (Ma et al., 2019).

Further, data was collected from the booklets, the transcripts from the reporter recordings, the pictures taken by the photographers, and the writings and drawings produced by the note-takers and drawers. Sources using multiple methods provides a rich basis for analysis (Druin, 2002).

##### Data analysis

All data (forms, transcripts, and booklets) were coded by three independent researchers. Following from the research question, five initial categories were used to start the inductive open coding process (Yin, 2003) :

- ▶ *Process supporting co-creation*: codes to describe how and which parts of the approach supported children to co-create outdoor play activities
- ▶ *Meaningful outcome*: codes to indicate whether the process was meaningful to the children
- ▶ *Current activities in the neighbourhood*: codes to describe activities in the neighbourhood in which children currently participate
- ▶ *Like to do*: codes to describe what children like to do in their neighbourhood
- ▶ *Current perception of the neighbourhood*: codes to describe how children currently perceive their neighbourhood

After the first round of coding, the research team discussed the codes and patterns found in the data using axial coding. Each researcher started the axial coding for one of the categories, and later switched to another category to check the axial coding of another researcher. When the grounds for classification were unclear

or interpretation of the codes differed between researchers the team sought and found consensus, thus deepening understanding of the specific meanings of the codes. One week later, the team met again and went through all the coded patterns in another round of coding to further interpret the patterns, to finalise and document the analysis.

#### 4.2.5. Results

The results are presented in relation to the three research gaps distinguished in the introduction: 1) what are relevant place-making processes for children, 2) how do dynamics change when involving children in these processes, and 3) what elements of PD methods support place-making. The first section presents how the children responded to the co-creation approach and materials, which is related to gaps 1 and 2. The second section discusses the outdoor play activities children designed and considered to be meaningful, contributing to gap 1 and 3. The final section describes the opportunities these outdoor play activities provide for children to have meaningful place-making with their neighbourhood, providing insights for gap 3.

#### PD process and materials

The results indicate that, in general, children enjoyed the PD activities and materials. For example, one child wrote in her booklet *"I really liked the assignment and I hope to learn a lot more about my neighbourhood"*. Another child said at the end of the PD workshop: *"Today was really nice. Unfortunately, we can only do this once"*. Another one said: *"Is it over already?"* when the group was walking back to school. Children were actively trying to come up with the first idea for an outdoor play activity. While some children seemed to be genuinely interested to think about outdoor play activities, others seemed to just enjoy being outside and were less engaged in the brainstorming. One observer for instance noted about a group: *"This group is not very enthusiastic about designing activities, they mainly like to run around"*. Although one observer wrote that he needed to help the group come up with ideas at some locations, most observers reported that children independently came up with ideas during the PD workshop. In sum, the co-creation materials and activities facilitated idea generation of outdoor play activities and were enjoyed by the children. Next, a reflection is given on the role of the different tasks, booklets, physical environment, and where the process and materials matched and mismatched children's skills and interests.



**Figure 4.10.:** Children enjoyed to ask neighbours for their input while generating ideas for outdoor play activities.

#### *Reflection on roles and tasks*

The children decided themselves which roles they wished to play up front. Group negotiation was sometimes necessary when multiple children wanted to take the same role. These roles sometimes changed during the course of the workshop. The role of the photographer, for example, was very popular. The children passed the camera along when requested. When, in one group, the observer asked one child why he liked taking pictures so much, the reply was *“It just feels so good to push that button”*.

Children were free to choose how to come up with ideas for outdoor play activities. The location cards were a prompt to start the brainstorm, asking children to consider the environment, but otherwise they were free to explore other locations and other ideas. One of the things the children particularly liked was to make contact with people on the streets. One child said: *“I want to go to people and ask them questions”*. Another group suggested to have an outdoor play activity that was about *“Asking people questions, just asking questions”*. The observer asked what the questions would be about and the group replied: *“Ask questions about what you think about the neighbourhood”*. Children spontaneously started to interview citizens in Tarwewijk about what they thought about the location and how it might be improved (see Figure 4.10).

The roles helped to keep children engaged in the co-design of play activities. Some children were very immersed in their role, like one child who took her role as a reporter very seriously and acted as if she was a radio reporter narrating everything that happened within the group. Children also checked with each other whether they were doing the tasks that were part of their role, for example asking the photographer: *“Did you already take a picture of that?”*

This led to the whole group taking responsibility for keeping each group member engaged in the design process.

#### *Booklets*

The booklets were handed out to 42 children and 32 were returned. Of these 32, eleven had been filled out completely (all five pages), 14 filled out three pages or more and six booklets were filled out only one or two pages. Some children really enjoyed to filling out the booklets, while others wrote that the booklet *“was difficult to fill out”*. The booklets were not further discussed with the children, but mainly served for researchers and children to get familiar, build trust, and prompt the children to start thinking about their neighbourhood. This limited the amount of information that could be gathered from the booklets, because some children wrote down things that would need extra explanation to be properly interpreted. For example, many children wrote down which games they like to play outside but did not elaborate on why they liked these particular games. This could have become clear when discussing the booklet with a child. However, this was not possible within the time the school allocated for the PD workshop.

#### *Role of the physical environment*

The children walked around the neighbourhood to come up with ideas for outdoor play. What they saw around them, was input for their ideas. Physical objects or locations they passed by were associated with previous experiences, for example one child saying *“We used to go to this building for the physical education classes”*, when walking past this particular building. The physical environment around the children triggered them to come up with ideas or initiated certain thoughts that were shared. On one occasion, children walked past a large iron box, of which they did not know what it was. They started to discuss what it could be, taking a closer look, and finally opening the box to see what was inside. One child exclaimed *“Wooww, take a picture of that!!”* when the box was opened and the whole group was very excited with their discovery. In fact, the box showed them what was under the ground: a piping infrastructure providing the water to the nearby houses.

Children further started to introduce their neighbourhood to the observers and to each other. For example, one child asked another *“Do you come here often?”*, and the other replying: *“Not really, I used to come here. I don’t know...I started to find the place a bit scary”*. Or one child who presented the local shopping mall Zuidplein to the observers and said *“Some people call Zuiderpark Zuidje”*, another one child added: *“But for us, Zuidplein is Zuidje”*. The children thus showed the observers the locations in the neighbourhood to which they feel connected and that are meaningful to them.

### *Mismatches*

Although most PD materials and activities supported children to design outdoor play activities, some did not match children's abilities or interests. During the workshop, one child asked another if they had an idea and she replied "*No, I just want to go home*". In total, six occasions were noted by observers or in the transcripts of the recordings of children not enjoying themselves. Furthermore, not all children understood their role, the corresponding tasks, and that these roles all contributed to the design process. One child asked the observer "*Why do we need to make games out of everything?*", showing that this particular child did not understand the purpose of the PD workshop, despite our efforts to explain this to the children up front. Three children further asked questions such as "*Miss, should I write this down?*", or "*What should I take pictures from?*", indicating they did not feel free to execute their task in a way they saw fit. As the workshop took place during school time, it might be that children thought they would be assessed on their performance in the workshop, especially because there were adults walking with the groups, observing them and writing down what the group was doing.

Mismatches also occurred because tasks such as writing and drawing required skills or knowledge that a couple of children lacked. Some children were struggling to come up with outdoor play ideas. One child, who was the reporter, asked another one what they think about the workshop and he replied "*I don't know, I find it a bit difficult*". One child specifically mentioned that she was shy and therefore had problems participating. An observer noted that "*Child has difficulty to write it down*", an another one wrote "*The drawer doesn't know what to draw. Children discuss this*". Finally, one location card asked children to consider the history of their neighbourhood to come with an outdoor play activity. Children were unfamiliar with this aspect of their neighbourhood, limiting their ability to come up with ideas on this location.

### **Meaningful outcome**

Children designed several outdoor play activities and showed the researchers what is meaningful to them. These design outcomes, as well as what children learnt about the neighbourhood, are reported in the next section.

#### *Design outcome: outdoor play activities*

The groups came up with 50 ideas in total for nine different locations. The ideas enabled varied ways of playing outside and, according to Back et al. (2016b), thus lead to a meaningful play experience. Children thought about physical play activities to make locations more interesting, such as running next to the

metro to see if you can be faster than it. The mobile application would then be used to track the time and keep an overview of the high-scores. They also came up with quiz challenges for which children need to find the answer to a question about the location, for example what the meaning of a local statue is or what the factory at the other side of the street is producing. To find the answer, children needed to talk to people around or find street signs that provide the information and fill out the answer in the app to see if it is correct. Finally, the groups came up with ideas that required other children to add new things to the neighbourhood. For instance, designing a playground on a currently boring square. These creations could then be uploaded to the app and be evaluated by other children to choose the winner.

For one group, the observer noted that children felt proud of the outdoor play activities they had designed. In another group, the reporter asked the other children how the neighbourhood could be improved. One child replied: *"Well, that all those dogs, here close to the playgrounds and the park, all dogs just poop here."*

Reporter child: *"So that you would like to change?"*

Child: *"Yes"*

Reporter child: *"And then the neighbourhood would become even nicer?"*

Child: *"Yes, a cleaner neighbourhood."*

These children apparently felt ownership towards the neighbourhood and that they have an ability to make a change.

#### *Learning about the neighbourhood*

While children walked through the neighbourhood, they started to ask questions about physical objects, buildings, and locations they passed by. For example: *"What do these statues there mean? Why are they there?"* or *"What do these flags refer to?"*. These questions would sometimes become a play activity, finding the answer to this question by inspecting the environment or talking to people around who might know the answer.

Children started to tell stories to each other about the neighbourhood during the walks. For example, one child started to tell about a building: *"It has been there since 2003, but before it was... I read it on the website of De Akker, this place used to be apartments."* Children also learnt new things about neighbourhood locations. In the recording transcripts, children explicitly showed that they had learnt something, like one child exclaiming: *"Oh!!! Because there are all these wheat factories located here!"*, when he started to understand why their neighbourhood is called Tarwewijk (tarwe is wheat in Dutch). In other cases it followed from children asking questions or reflecting on something they saw. Therefore, by

walking through the neighbourhood, children were supported to learn from others and broaden their perspective.

### **Fostering place-making**

The aim of creating outdoor play activities using a co-creation approach was to increase children's sense of place. The booklets especially gave a lot of insight into how children perceive their neighbourhood and how they connect to it.

In the booklets, children mentioned that they want to have a pleasant neighbourhood and this is determined by the physical space as well as the neighbours who are out on the streets. Children said that they want adults to take them seriously and consider them as part of the neighbourhood. Children were explicitly asked in the booklets what they were proud of in their neighbourhood. Five children said they did not like their neighbourhood and were not proud of it. Others (13 children) mentioned some places that they are proud of, such as the shopping mall Zuidplein. Two children said they think everything is great about their neighbourhood.

Almost all children mentioned in their booklets that they like their neighbourhood because they can play. They want to play with children of their own age. They like to go outside, to one of the playgrounds, and play together with their friends. Children mentioned several locations, like shops, playgrounds, or particular streets, that they like and dislike in their neighbourhood. Three children reported that they liked their neighbourhood or street because they live there. They feel it is their home. Outdoor play and the close environment around the child's home are thus two very important elements for facilitating meaningful place-making for children.

### **4.2.6. Discussion**

The next section reflects on what the results of the study contribute to the three knowledge gaps identified in Section 4.2.2.

### **Meaningful place-making**

The first research gap is related to place-making processes currently not being relevant for children. This study has presented a co-creation approach to support children in the design of outdoor play activities for place-making that are meaningful to them. Lentini and Decortis (2010) present six factors that can be

used to evaluate whether an activity supports place-making and our results show that these factors were present in the applied co-creation approach. The location cards prompted children to physically explore their neighbourhood (factor 1) by walking through it, but also for example asking them to look around and find interesting objects, or to use a parkour as a basis for an outdoor play activity. On one occasion, children found a large box and started to examine it, as described before (factor 2). The results further show that children started to share their local knowledge about the neighbourhood, for instance telling each other about a landmark that they know or a square where they always play a certain game. The co-creation approach seems to have encouraged children to exercise their spatial skills (factor 3) and develop their knowledge on how places in the neighbourhood are used (factor 4). Children are considered the experts of their neighbourhood and are given the responsibility to show to the researchers which outdoor play activities are meaningful to them. Children came up with valuable outdoor play designs, showing that they feel responsible and valued (factor 5). Finally, the activities and materials had individual elements (such as the booklets), but the main part is the PD workshop in which children had to collaborate to come up with ideas, eliciting face-to-face interactions and collective experiences (factor 6).

The taken approach thus contains the factors of Lentini and Decortis (2010) to facilitate a sense of place, and indicate other elements that need to be taken into account to evaluate such effect. As reported by others (e.g. (Soute et al., 2009; Iivari & Kinnula, 2018; van Doorn et al., 2014)), it is not always easy to gather insights on why children did certain things, because children have difficulty to remember and reflect on their own experiences. This impacts how much understanding researchers can acquire on what is meaningful place-making for children, especially when the time spent with children is limited. In case of long term engagements between children and researchers, such as in the work done by Druin (2002), deeper insights can be gathered, but this seems to be difficult to realise in projects where the engagement with children is only for a short period of time. For this project specifically, a follow up takes place with the children, in which the researchers and children can further build their relationship, potentially allowing for a better understanding on what place-making activities these children need.

### **Changing dynamics**

Children were engaged as co-researchers (van Doorn et al., 2014), as they were asked to go outside and explore opportunities for

outdoor play in their neighbourhood. They also influenced the design process as informants (Druin, 2002), by coming up with ideas for outdoor play activities that would be later incorporated in a mobile app that they would again test. The involved adults would, on the contrary, mainly act as facilitators, creating the opportunity for *hybrid practices* (Barendregt et al., 2018) to take place. These occur at moments where the worlds of the researchers and children come together and they participate in each other's activities. The researchers facilitating children to design outdoor play activities (normally a practice of the design researcher) in the children's neighbourhood is an example of such a practice, and according to Barendregt et al. (2018), provides a good environment for all actors to participate. This study shows how important it is for the researchers to not interfere in the process of the children, only when they are asked to, allowing children to take the lead and participate in a way that they prefer.

However, the results also indicate the potential influence of executing the design activities within the school environment. In the school context especially, children are used to listen to what adults say (Druin, 2002). Furthermore, children aged above ten years have notions of the way things are 'supposed to be', limiting their creativity and carefree participation (Druin, 1999). These aspects might all have played a role in the presented outcomes, as all children were above ten years old and the results report various situations in which children seem to seek confirmation of the researchers or teachers that they were doing well. Such empowerment and especially the notion of power therein is extensively discussed within PD. Authority is a controversial concept (Barendregt et al., 2018), but must be considered in the presented research because of the school context (Iivari & Kinnula, 2018). When PD activities are part of the schoolwork, own interest and voluntarily participation are not necessarily underlying the work (Iivari & Kinnula, 2018). The school setting in which the research was undertaken, may have influenced the participation of these children.

Despite the disadvantages, schools are often the best way to acquire access to children (Barendregt et al., 2018) and thus executing PD projects with children in a school environment might be inevitable. Therefore, investing time with the local stakeholders, such as the guardians around the children, is a vital part of doing this kind of research but not always reported as such (Le Dantec & Fox, 2015). The preparation meetings and activities undertaken for this research project are thus very important, to get to know each other, build trust, manage expectations, and align goals. This relationship does not only need to be established between local partners, but especially between children and researchers.

## PD for place-making

The third research gap this study addresses is the potential of PD materials and activities to facilitate place-making of children. The materials and activities used in this research are based on *cooperative inquiry* as proposed by Druin (1999), albeit the approach did not include prototyping. To ensure age appropriate materials for the children, the preparation meeting with local stakeholders were relevant, as they had the expertise and previous experience of working with these children. In general, the materials and activities supported the children to participate in the design process, as reflected in the huge amount of interesting outdoor play activities the children designed.

Resonating with findings from others (e.g. (Hussain, 2010; Soute et al., 2013)), behaviour of children in PD processes can be different than expected. It is thus important to design a process that is flexible and allows children to participate on their terms. Depending on their experience (Iivari & Kinnula, 2018), PD materials and tasks should be adjusted to the child's needs and skills (Hussain, 2010; Percy-Smith, 2010), and should allow children to adapt them towards their own preference. The results report several examples of children doing this: using materials in a different way than initially intended or changing roles and tasks throughout the workshop. Not only the materials and tasks, but also the roles provided children with the opportunity to participate according to their preference. How children behaved within a certain role differed significantly between children. Some children wanted to keep their role throughout the process, while others preferred to switch roles. The groups negotiated this amongst themselves, seldom interference of the observer was necessary. This indicates that the materials, tasks, and roles in the co-creation approach provided the children guidance on what they should do, and enough freedom to adapt them to how they saw fit.

### 4.2.7. Conclusion

Children need to build a relationship with their living environment, to acquire a sense of belonging (Lentini & Decortis, 2010; Wood et al., 2019) and civic agency (Percy-Smith, 2010). Prior research shows that outdoor play activities can serve as a means for this purpose (Peacock et al., 2018; Birch et al., 2017): through outdoor play children explore their environment (Francis, 1998; Lentini & Decortis, 2010), and construct meaning and identity to it (Birch et al., 2017). Participatory design (PD) methods with children are proposed as a means to create engaging environments and tools for outdoor play, as children have a very different

perspectives on outdoor play compared to adults (Francis, 1998). However, knowledge lacks on what are relevant place-making activities for children, how the dynamics change when children are involved in these activities, and which elements of PD foster children's connection with their neighbourhood.

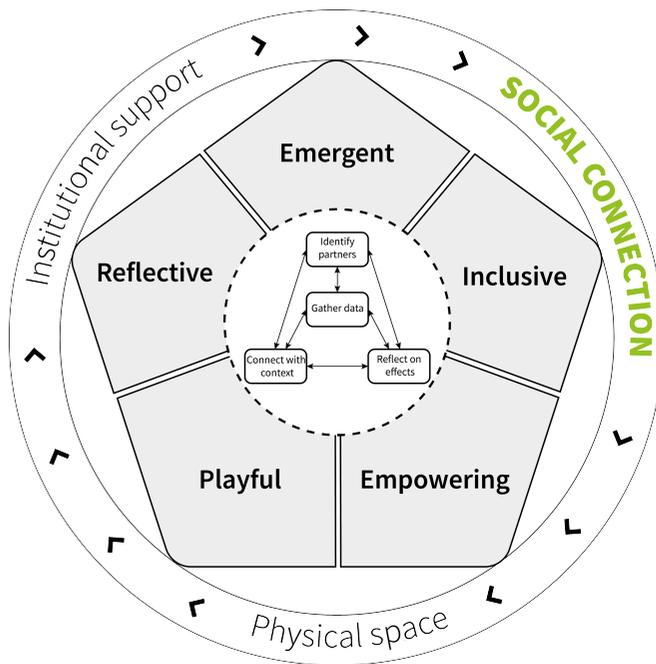
This intervention study investigated a co-creation approach, based on insights from prior PD work, and applied this approach to engage 42 children in Rotterdam, NL, in co-creation of outdoor play activities. The results show that this approach supports interesting and relevant place-making for children. During the PD workshop especially, children are invited to physically explore their neighbourhood and through designing outdoor play activities with the group, their knowledge on the neighbourhood increases. The applied method creates the dynamics between adults and children in which the children are in the lead and adults acted as facilitators. The preparation meetings are crucial to become acquainted with local stakeholders and the children, to understand their dynamics, and take measures to build trust between all participants, especially when such research takes place within the school context. Finally, the PD materials and activities that are part of the method are suitable for place-making, but should provide the flexibility for children to adjust them to their preference. Expertise from local stakeholders is again vital to prepare appropriate materials. The results show that a variety of materials should be available for children to decide their level and way of participation. The presented approach successfully implements this factor by inviting children to choose a role, having corresponding responsibilities to the co-creation process and documentation of it.

### 4.3. Reflection on physical space

This chapter offered two interventions that aimed to foster place-making by making use of the physical space. The first intervention was the location-based game 'Secrets of the South' which was play tested with a group of citizens from The Hague. The second intervention was a co-creation approach which invited children from a primary school in Rotterdam to go out in the neighbourhood and come up with ideas to improve the public space. Both interventions used the physical environment as a prompt for citizens to start sharing stories about the neighbourhood, with each other and with the researchers. Objects or markers in the physical space became affordances for citizens to talk about how they relate to it. For both interventions, it was clear that from the familiar context of the neighbourhood, children and adults became very enthusiastic to explore their neighbourhood with the promise of discovering exciting new places. Through this process of discovery, the physical spaces become more meaningful to citizens and hence fosters place-making.



The previous chapter studied two interventions for participatory place-making which amplify place-making through the affordance of physical spaces. This chapter presents two interventions that aim to utilise social connections to establish place-making. The first intervention is a community storytelling initiative which invites residents of The Hague to share personal stories to explore differences and similarities between them. The second intervention of this chapter is a distributed summer school, based on the principles of Participatory Design. During the summer school, teenagers of a local community near Cork (Ireland) develop a digital artwork to express their lived experiences. The two interventions are studied and discussed, and finally the chapter reflects on the capacity of social connections to enhance place-making.



5.1 Intervention 3: Community storytelling . . . . 119  
 Motivation . . . . . 120  
 Background . . . . . 121  
 Intervention design . . . 125  
 Method . . . . . 126  
 Results . . . . . 131  
 Discussion . . . . . 137  
 Conclusion . . . . . 139

5.2 Intervention 4: Distributed Participatory Design . . . . . 141  
 Motivation . . . . . 142  
 Background . . . . . 143  
 Intervention Design . . 144  
 Method . . . . . 146  
 Results . . . . . 147  
 Discussion . . . . . 156  
 Conclusion . . . . . 159

5.3 Reflection on social connections . . . . . 161

This chapter is based on:  
**Intervention 3:** Slingerland, G., Kooijman, J., Lukosch, S., Comes, T., & Brazier, F. (2021) The Power of Stories: A framework to orchestrate reflection in urban storytelling to form stronger communities. *Community Development*, 1-19.

**Intervention 4:** Slingerland, G., Murray, M., Lukosch, S., McCarthy, J., & Brazier, F. Participatory Design going digital: Challenges and opportunities for distributed place-making. *Under review*





## Design Intervention

### 5.1. Intervention 3: Community storytelling

The third intervention is a community storytelling initiative. This intervention was not designed by the researchers, but is a local initiative in The Hague run by citizens who aim to expand and strengthen the social networks in the city. The rest of the chapter explains in more detail what this initiative entails, which methods were used to study it, and what were the identified effects of a community storytelling initiative in relation to place-making. The intervention is summarised here using the four activities of the participatory place-making framework, presented in Chapter 3.

**Connect with local context:** The residents who started the community initiative ‘Haags Verhaal’ (eng. The Hague stories) are inhabitants of The Hague and as such have a strong connection with the city.

**Identify key partners and stakeholders:** The coordinators of Haags Verhaal have a wide network within the city and beyond that was build during their professional live. They are connected to the municipality and have connections with many communities in The Hague. The coordinators attract volunteers who also help to identify who are key partners and stakeholders, both by visiting areas of The Hague, as well as using social media pages.

**Gather data and doing analysis:** The coordinators of Haags Verhaal want to get insight into the effectiveness of their initiative, in terms of expanding and strengthening community connections. In this context, the research team visited several story events and interviewed participants, storytellers, and volunteers.

**Reflect on effects with stakeholders:** The results of the study were shared with all participants and extensively discussed with the coordinators of Haags Verhaal. A summary of the main insights was shared with the Haags Verhaal community through a document and with a short video.

### 5.1.1. Motivation

Storytelling has been part of human life for as long as we know. The power of stories has been acknowledged since the times of Aristotle, and is still embraced by modern philosophers: “You can’t really change the heart without telling a story” (Nussbaum, 2007). Stories are special in making people aware of their shared values and they call to action to protecting these values (Ganz, 2010). Sharing individual stories builds relationships and leads to a collective identity (Ganz, 2009). Storytelling is deeply rooted in community traditions (McGrath & Brennan, 2011; Moody & Laurent, 1984), and supports reflection (Boase, 2013; Goodson, 2013) and connection (Ball-Rokeach, Kim, & Matei, 2001; Elkins, 2018; Fuertes, 2012; Ganz, 2010).

Storytelling practices have also found their way into the city, with the purpose of creating stronger urban communities (Ball-Rokeach et al., 2001). Strong communities are considered a necessity for cities, as these have the potential to provide social support (Wellman & Wortley, 1990) and make use of their social capital to address and solve local problems (Betancur, 2011; Nah, Namkoong, Nancy Chen, & Hustedde, 2016; Pinkster, 2007). Public storytelling initiatives, such as Human Libraries or Story Circles (Dreher & Mowbray, 2012), focus on empathy building, embracing diversity, and finding common grounds in citizen communities.

Human Libraries, for example, invites citizens to ‘read’ a human book by asking questions. These one-on-one conversations aim to challenge stereotypes and foster reflection (Dreher & Mowbray, 2012). Similarly, the practice of Narrative4 uses storytelling to build empathy with students who want to design for social change in communities. Other initiatives, such as Story Circles or Community Digital Storytelling, engage in collaborative storytelling whereby participants build collective stories through sharing their story of self (Copeland & De Moor, 2018; Ganz, 2001). A major challenge, however, is to move storytelling practices from the empathy building stage to a stage where participants jointly reflect on their community and engage in actions to achieve common goals (Allan et al., 2017; Schanche, Drph, Pasqua, Marquez, & Geishirt-Cantrell, 2002; Davis, 2011).

While there are many public storytelling practices and initiatives, these are often about building empathy and do not specifically encourage a community to reflect on each other’s stories and identify pathways to move forward. This study addresses this gap introducing a framework for reflective storytelling that has impact on communities, built from best practices of public storytelling described in literature. The appropriateness of the framework

is explored using empirical insights from a Dutch storytelling initiative. The intervention study presents five lessons learned on how to setup public storytelling initiatives that support reflection and potentially builds stronger communities.

### 5.1.2. Background

A substantial body of literature discusses the benefits of storytelling practices for individuals and communities, and the purpose they can serve (e.g. (Ganz, 2010; Meretoja, 2017; Nah et al., 2016; Schanche et al., 2002)). These studies conclude that both storytellers and receivers benefit from engaging in storytelling (Davis, 2011; Lukosch, Klebl, & Buttler, 2011). Telling stories about your own life is a process of meaning-making (Bruner, 2004) and similarly, receivers of stories reflect on them through their own experiences (Ganz, 2009). Storytellers with minority-backgrounds, for example, have shown to experience telling their story to be empowering (Boase, 2013). Nevertheless, storytelling requires proper facilitation to mitigate risks, such as oppression of certain voices (McCarthy & Wright, 2015), misinterpretation of stories, or not taking stories seriously (Razack, 1993). Facilitators of storytelling events are responsible for safeguarding the transmission of stories in an inclusive and respectful way.

Fuertes (2012) describes storytelling as a therapeutic practice, and many other scholars acknowledge its potential to stimulate reflection (Bidwell, Reitmaier, Marsden, & Hansen, 2010; Goodson, 2013; Meretoja, 2017; Schanche et al., 2002). In fact, Goldstein, Wessells, Lejano, and Butler (2015) highlight how reflection is essential in storytelling to form social ties. As such, the story (the content) (Davis, 2011; Fuertes, 2012; Goodson, 2013; Rappaport, 1995; Schanche et al., 2002) and the telling (the way the story is told: the form) (Boase, 2013; Goodson, 2013; Razack, 1993), distinguished as two separate entities, need to be carefully considered to the purpose of forming stronger communities.

#### Story content and form for reflection

The content of a story often serves a particular purpose, such as to communicate, educate or entertain (Buttler, Lukosch, & Verbraeck, 2011; Schanche et al., 2002) and is supported as such by the plot, character, and moral (Boase, 2013; Ganz, 2010). For example, life stories tailored to a specific theme are utilized in initiatives such as Arctic Entries or Stoop to build empathy between different groups. Friction in a story stimulates listeners to reflect (Ganz, 2009; Korn & Volda, 2015), as the audience needs to think to understand the point of the story (Rappaport, 1995). Life stories,

for example, most often contain universally shared elements, such as choice moments (Ganz, 2009, 2010), that story receivers can interpret through their own experience (Schanche et al., 2002). Life stories are used in practices such as Human Libraries (Dreher & Mowbray, 2012). Accordingly, life stories offer a common ground for people to explore different perspectives (Goldstein et al., 2015), to create meaning, emotions and to change views (Boase, 2013; Manuel et al., 2017; Meretoja, 2017; Rappaport, 1995). This process of reflection has shown to activate citizens to form and strengthen their social ties (Goldstein et al., 2015; Pstross, Talmage, & Knopf, 2014).

Reflection is also supported through the chosen form, particularly if the form includes dynamic interaction between story receivers and tellers (Davis, 2011; Ganz, 2010; Osborne, Peters, & O'Shannessey, 2018) as in story circles of the Human Library initiative. While face-to-face storytelling is a unique and intimate experience (Davis, 2011) in which body language plays an important role, digital storytelling allows for stories to be easily shared with others, increasing the number of people who receive these stories (Buttler et al., 2011). In face-to-face storytelling, facilitators can assist further group reflection through finding common ground (Schön, 1983). Facilitated paraphrasing workshops, for example, enable participants to reflect on each other's position and find ways to work together (Goldstein et al., 2015; Kusnandar, Van Kooten, & Brazier, 2019). Many existing storytelling practices make use of facilitators, mainly to help storytellers prepare their story and to make sure it is received well by the audience. Facilitators play an essential role in handling power dynamics in public storytelling events, to make sure all voices are heard and stories can be critiqued (Razack, 1993). Facilitators can ensure that a storytelling event supports reflection with storytellers and receivers, but this is often not the focus of current public storytelling initiatives.

#### **EPPD: Four elements of reflective storytelling**

While literature suggests that storytelling can orchestrate reflection with appropriate content and form, many public storytelling practices do not seem to take particular measures to foster reflection as an outcome of their storytelling. For example, Narrative4 invites people to share their story with someone, to then paraphrase the story of the other, but offers no joint reflection on this experience or the stories that were shared. To understand how public storytelling initiatives, such as Narrative4, may lead to reflection, literature suggests four elements that are required.

The first element is to **support empathy (E)**. Stories invite listeners to relate the content to their personal life and to interpret it through their own experience (Schanche et al., 2002), creating meaning, emotions, and possible changing their identity (Boase, 2013; Manuel et al., 2017; Meretoja, 2017; Rappaport, 1995). Public storytelling initiatives focus on building empathy by offering experiences (e.g. paraphrasing the story of somebody else as your own) that lead to mutual understanding (Boase, 2013; Davis, 2011; Fuertes, 2012; Ganz, 2010). Mirror neurons play a role here when story receivers experience the emotions of the story as their own (Ganz, 2001). Indeed, citizens can build empathy for each other through storytelling, by emotional connection and engagement.

The second element is to **change perspective (P)**. Life stories provide deeper insight into underlying reasons to explain behaviour of others to help people to look at a situation in a different way (Davis, 2011; Elkins, 2018; Goldstein et al., 2015; Meretoja, 2017). Changing perspectives is about opening up to a multiplicity of perspectives and accepting that each individual has his/her own way of looking at the world. This is, for example, illustrated in Stoop where seven people tell a personal story around a certain theme. Storytelling can bring suppressed perspectives to the surface, the stories that are otherwise not heard (Razack, 1993). Through storytelling, people can playfully explore these different perspectives to find a common ground (Goldstein et al., 2015) or to accept the diverging perspectives that exist within a community (McCarthy & Wright, 2015).

The third element is to **challenge prejudice (P)**. While this element is also a result of the power of stories to show underlying reasons for choices, opinions, or attitudes of people, the effect on story receivers is different. Besides changing perspectives, it also challenges the current assumptions of the story receiver (Mercken, 2002). This happens, for example, in Human Libraries, when people ask each other questions about their life choices or behaviour in an open and respectful way (Dreher & Mowbray, 2012). Facilitators can further mediate this process, to enable storytellers and receivers to reflect on their shared experiences and values (Ganz, 2010).

The fourth element is to **instigate dialogue (D)**. Reflective storytelling opens up conversations, as it brings different kinds of people and communities into contact (Bidwell et al., 2010; Fu, 1999). The practice of Human Libraries, for example, intentionally organises conversations between people who are different from each other (Dreher & Mowbray, 2012). Learning about stories from other citizens inspires neighbours to do something to help (Fuertes, 2012). The presumption of initiatives such as Human Libraries, is that knowing more about a person's background

through dialogue supports common ground and understanding (Bidwell et al., 2010; Dreher & Mowbray, 2012).

### **From reflective storytelling to social ties and stronger communities**

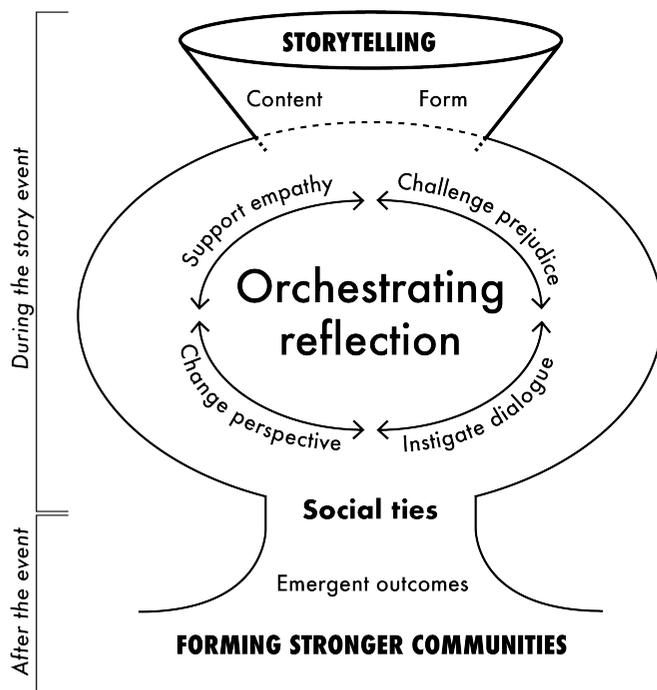
The four elements (EPPD) presented above all rely on reflection. However, many existing public storytelling practices do not explicitly support reflection, while they do incorporate one or more of these four elements. This leads to a limited understanding of the impact of the four elements on the communities who have participated in such events, in terms of reflection and the creation of social ties. The EPPD Reflective Storytelling framework presented below outlines how public storytelling events can orchestrate (interactions needed for) reflection and stronger urban communities.

#### *The EPPD Reflective Storytelling framework*

The literature on storytelling and its best practices indicate that the way stories are told (form) and what the stories are about (content) are essential elements to foster reflection. Life stories orchestrate reflection by offering a common ground to which storytelling participants can relate. Interaction between storytellers and story receivers orchestrates reflection when they jointly, for example, consider their differences and commonalities, and their role in the community.

Figure 5.1 shows how the identified principles and mechanisms of reflective storytelling are visually associated in the EPPD Reflective Storytelling framework. During a storytelling event, *content* and *form* feed into a process in which reflection is orchestrated (through *supporting empathy*, *changing perspectives*, *challenging prejudices*, and *instigating dialogue*), creating social ties. These social ties could, after the event, lead to further emergent outcomes and, as a result, to stronger communities.

The four elements of reflective storytelling in Figure 5.1 align with the arrows to show they influence each other. Supporting empathy, for example, can lead to a change in perspective. Note, however, that manifestation of only one of these elements can be sufficient for social ties to be created. For example, if the orchestrated reflection results in a citizen realising that they share a common experience in life with a storyteller this supports empathy (Kusnandar et al., 2019; Lancel, Maat, & Brazier, 2019), and this realisation in itself forms or strengthens a social tie. The EPPD framework depicts four elements that orchestrate reflection in public storytelling to create social ties between citizens and



**Figure 5.1:** The EPPD Reflective Storytelling framework to support the design of public storytelling to orchestrate reflection and form stronger communities. Note that not all four elements are always needed for reflection to happen.

citizen groups (Fuentes, 2012; Korn & Volda, 2015; Lepofsky & Fraser, 2003; Rappaport, 1995).

The EPPD Reflective Storytelling framework proposed above outlines the theoretical perspective of how social ties can be formed between citizens through reflective storytelling. The Haags Verhaal (eng. The Hague stories) storytelling initiative, presented in the next section, is the actual design intervention, used to explore the appropriateness of the framework in a case study with empirical insights.

### 5.1.3. Intervention design

Haags Verhaal is a citizen-run initiative in the Hague, in the Netherlands, that started early 2019 in which monthly storytelling events are organised at different locations in the city. Two citizens coordinate the initiative together with a group of about 10 other volunteers. This initiative was selected as a representative intervention, as it applies storytelling in a way that is commonly found in initiatives described in literature (Yin, 2003). Further, the initiative centres on reflection in storytelling, as explained below. Hence, this initiative is appraised to be suitable to provide qualitative validation of the proposed framework with empir-

ical insights on how reflection can be fostered through public storytelling (Leung, 2015).

In terms of content, the central story content is life stories of citizens. In terms of form, all storytelling events have the same set-up. Two different communities from The Hague are chosen in advance by the organisers and the volunteers, and invited to participate in a storytelling event. The organisers take care that the stories will not divide, but rather are stories that may unify the community through reflection. One representative of each invited community tells his or her life story. This person is selected by the community itself. One or two meetings take place with one of the Haags Verhaal's volunteers to prepare the story to be told. The stories are told in an interview setting. The storyteller and interviewer are staged with a projector behind them showing pictures of the storyteller to complement the story. The interview takes about 45 minutes and is followed by a short break. After the break, the second storyteller is invited on stage and is interviewed in a similar manner. Each event has different speakers, communities, and topics, and different audiences with between 70 to 100 participants.

Haags Verhaal has been purposefully designed to orchestrate reflection during their storytelling events. Deliberate selection of two citizen communities takes place: communities whom have something in common (e.g. a common interest or life experience), but are unlikely to otherwise meet. Reflection is also orchestrated during the plenary discussion after the storytelling, in which the audience and storytellers can ask questions to each other and reflect on their experience. One of the interviewers facilitates the discussion and tries to articulate commonalities and differences between the two citizen groups. This discussion and the mingling time at the closure of the event, are the occasions in which social ties are created and potentially stronger communities are built.

#### **5.1.4. Method**

Several events of Haags Verhaal were attended and in-depth interviews were held by one researcher to collect data about individual experiences of participants: members of the audience, storytellers, and organisers of Haags Verhaal. Interviews were conducted in October and November 2019. The participants were recruited through (1) the coordinator of Haags Verhaal and (2) snowball sampling after the first interviews. Table 5.1 shows the roles within Haags Verhaal for each of the participants. Theoretical saturation (Bloor & Wood, 2006) was assumed after 16 interviews as the last two to three interviews did not generate any new conceptual insights.

Participant	Role	Participant	Role
P1	Audience	P9	Audience
P2	Volunteer, Audience	P10	Volunteer, Audience
P3	Volunteer	P11	Storyteller, Volunteer
P4	Audience	P12	Audience
P5	Volunteer, Audience	P13	Storyteller
P6	Storyteller	P14	Volunteer, Audience
P7	Volunteer	P15	Audience
P8	Storyteller, Audience	P16	Storyteller

**Table 5.1.:** Participants for the study and their role in Haags Verhaal

### Data collection

The aim of the semi-structured interviews was to gain insight into how the storytelling content and form of Haags Verhaal orchestrate reflection and establish social ties during and after a storytelling event. Hence, the participants were asked about their reasons for joining one or more of the events, how they prepare and experience the events in terms of the four elements of reflection, and whether they feel that the initiative establishes or strengthens social ties. While these topics were discussed with each type of participant (audience, volunteer, or storyteller), the questions were sometimes phrased differently according to the role of the participant. Storytellers were, for example, asked if they met new people during their story event and connected with them afterwards, whereas volunteers were asked how volunteering during story events provided them with new connections. Each interview took 45 minutes to one hour.

### Data analysis

The interviews were audio recorded and transcribed<sup>1</sup>. The interviewer took notes during the interview, focusing on quotes and topics that stood out. These notes were processed directly after, adding the setting of the interview, behaviour of the participant, and initial thoughts of the researcher. The final transcripts combined the word-by-word transcribed interviews and the elaborated interview notes. These transcripts were used for data analysis. The analysis followed a qualitative inductive procedure (Rubin & Rubin, 2005; Weiss, 1994; Wester, 1996). Summarising transcript excerpts and open and closed coding formed the main activities in the analysis as shown in Table 5.2. The interviews were conducted in Dutch and the analysis was done using the original Dutch

<sup>1</sup> This study has approval from the University Ethics Committee. All participants gave their informed consent for participation.

**Table 5.2.:** The steps taken in the analysis and division of tasks between researchers.

<b>Analysis step</b>	<b>Who</b>	<b>Activity</b>
Read through transcripts (first time)	Two researchers independently	Get a first impression
Read through transcripts (second time)	Two researchers independently	Mark notable quotes and open coding based on units of analysis
Summarise interviews	Two researchers independently	Write summary of each interview based on units of analysis
Meeting 1	Two researchers	Discuss and compare written summaries, quotes and codes. Formulate main topics.
Create theme-based transcripts	One researcher	Restructure transcripts from participant division to topic division
Read through theme-based transcripts (first time)	Two researchers independently	Note down codes, concepts, themes related to analysis framework
Summarise theme-based transcripts	Two researchers independently	Write summary of main storyline for each topic and compare to alternative storylines
Meeting 2	Two researchers	Discuss summaries and storylines, develop final coding scheme
Read through theme-based transcripts (second time)	Two researchers independently	Find relations between themes and concepts: examples, contradictions, causations, consequences
Meeting 3	Two researchers	Discuss final concepts, themes and their relations. Formulate final coding scheme
Read through theme-based transcripts (third time)	Two researchers independently	Closed coding using the final coding scheme
Memo writing	One researcher	Document final coding scheme with memos
Meeting 4	Two researchers	Discuss final closed coding and memos to complete analysis

statements. The statements presented below have been translated to English by the researchers. Two researchers engaged in the main part of the analysis and translation of the statements. Five researchers discussed the procedure and outcomes.

During Meeting 1 (see Table 5.2), two researchers discussed their codes and summaries of the interviews, and in consensus clustered them into nine initial main topics. From these topics, one researcher created theme-based transcripts allowing them to consider each theme in depth and find commonalities and tensions between participants within a theme (Rubin & Rubin, 2005). Researchers analysed the role of reflection in Haags Verhaal and how the story events establish social ties to develop the final coding scheme. The analysis outcome was documented with memos: a short description of each code (finalised in the scheme as categories and subcategories) and an illustrative quote of participants for each code.

The final coding scheme consists of 39 codes in total, divided into five categories and 34 subcategories as shown in Table 5.3. The main categories distinguished are: (1) Storytelling form to orchestrate reflection, (2) Storytelling content to orchestrate reflection, (3) Orchestrating reflection, (4) Social tie outcomes, and (5) Emergent outcomes.

**Table 5.3.:** Final coding scheme, categories and subcategories align with the EPPD framework.

<i>Subcategory</i>	<i>Number of mentions</i>	<i>P numbers</i>	<i>Example quote</i>
<b>Category 1: Storytelling form to orchestrate reflection</b>			
Equality	14	P1-3, P6-7, P9, P11, P13, P15-16	"During an event people are equal, there is no distinction." (P16, storyteller)
Intimacy	11	P2, P5, P9, P16	"The personal stories create some kind of intimacy, shared with the whole audience." (P5, volunteer)
Exchange between communities	31	P1-7, P9-12, P14-15	"Talking lets the communities experience that they may have a lot more in common than they think." (P1, audience)
Being listened to	2	P1, P6, P8, P11, P13, P16	"How often do people actually listen to you? I think not often." (P5, volunteer)
Process past experiences	6	P5, P8, P13, P16	"I could look back at that phase of my life." (P8, storyteller)
Change perception	11	P6, P13, P16	"Many people don't think well about the real estate world. I felt the urge to show a different side." (P6, storyteller)
Sharing own experience	11	P1, P8, P11, P13, P16	"I wanted to show people how proud I am to be married to an Arabic man." (P16, storyteller)
Dare to tell story	16	P2-3, P5-6, P8-9, P11, P13-4, P16	"I was not nervous to tell my story, because I am used to present for an audience." (P8, storyteller)
Role interviewers	25	P1, P3-6, P11, P13-14, P16	"The trick is to listen carefully and zoom-in on what is not told. I am always asking myself, what is interesting for the audience?" (P5, volunteer)
<b>Category 2: Storytelling content to orchestrate reflection</b>			
Common subject of communities	5	P1-2, P4-5, P7, P10	"One event there was this gypsy from a thrift shop, but also an auction house, where they work with second-hand stuff as well, but in a different way." (P1, audience)
Relatable	20	P2, P4-5, P7-9, P11-12, P14-16	"You could feel the vibe in the audience, people were recognising things: I met my husband there, I always got my ice cream there as well." (P9, audience)
Contrast between communities	16	P1-2, P4-7, P9-10, P12-14, P16	"Real estate and homeless people, it won't get any extremer." (P6, storyteller)
What do the communities mean for the city	10	P1-2, P4-P6, P10, P12-13	"It is not only about the personal stories, but also about what do the communities mean for The Hague, for each other and what they could mean for each other." (P5, volunteer).
Balance between community and life story	26	P1-2, P4-6, P10, P12-13	"The life story of a person is very interesting, but it is not about the initiative they are connected to." (P4, audience)
Societal relevance	17	P3, P10-12, P14-15	"Just look at the social problems that are there. How can we connect different layers in society?" (P15, audience)
Interest in life story	26	P2-9, P11-12, P16	"I don't know if I am interested in the person itself, but I am really interested in their story." (P7, volunteer)

Continued on next page

Table 5.3 – continued from previous page

Subcategory	Number of mentions	P numbers	Example quote
Relevance for profession	17	P1-3, P12, P15	"I thought for my job it is very nice to see if you can reach different population groups in The Hague where I don't always get access too." (P3, volunteer)
Getting to know the city	24	P1-4, P7-9, P11, P14	"With Haags Verhaal I get to know the city a lot better." (P10, volunteer)
Introduction to other cultures	37	P1-12, P14	"You get to know others, other cultures, things outside your own 'bubble'." (P1, audience)
<b>Category 3: Orchestrating reflection</b>			
Supporting empathy	11	P5, P7, P9	"The stories create empathy: people get to know about each others existence and their ideals." (P5, volunteer)
Challenging prejudices	18	P1-3, P5-6, P10-11, P13, P15-16	"Ignorance is often the reason why people have prejudices towards each other. With the personal stories, you recognise things, which makes you stand in someone's shoes." (P5, volunteer)
Expanding perspectives	21	P1-2, P6-7, P10-16	"In my daily profession I also regularly do things around real estate and that you suddenly get a different perspective on things, well, that enriches." (P2, volunteer)
Instigate dialogue	36	P1-4, P6-16	"I once approached a lady during a story event, but we could not have a conversation because she spoke only Chinese." (P9, volunteer)
Purpose unclear	12	P1, P4	"Some people also think: so what is next? What are we going to do with this?" (P12, audience)
Effects unclear	29	P1, P3-5, P9-10, P12-14	"I think it is a great initiative, but I am wondering, does it really bring people closer together? Does it work?" (P15, audience)
<b>Category 4: Social tie outcomes</b>			
New connections	21	P1-2, P6, P8-9, P12-16	"I got some connections from Haags Verhaal, but do not engage with them too often." (P12, audience)
Establishing cross-connections	41	P1-7, P9-12, P14-15	"By confronting people, in a positive way, cross-connections can be established. This occurs more on some events than others." (P10, volunteer)
Expanding network	8	P2-P3, P8, P11-12, P15	"The network of Haags Verhaal is very convenient for me." (P3, volunteer)
<b>Category 5: Emergent outcomes</b>			
Return to other events	19	P1-4, P8-11, P14-16	"I enjoyed the first story night I visited, so I became a regular visitor." (P4, audience)
Becoming volunteer	17	P2-5, P7, P9-P12, P14-15	"I was about to retire, and I thought it would be fun to contribute as a volunteer." (P10, volunteer)
Act as ambassador	15	P5, P7, P8, P9, P10, P12, P14, P15, P16	"People I tell about Haags Verhaal like the idea, but maybe that is because I tell with enthusiasm about the story nights." (P9, volunteer)
Follow-up meetings	19	P3, P5-7, P9-12, P14, P16	"We had a follow-up meeting with the other community that was present that event: we visited them and they went to visit us." (P9, audience)
First step new initiative	8	P2, P5, P6, P12	"I later talked to the organiser of Haags Verhaal to see if we could do something similar as well." (P3, volunteer)
Inspiration for other projects	19	P2-3, P6, P8, P12, P15	"Some audience members who visited several story nights got inspired and want to create a similar platform in their own neighbourhood." (P2, volunteer)

### 5.1.5. Results

The five main categories from the final coding scheme align with the factors in the EPPD framework: storytelling content and form, orchestrating reflection, social ties, and emergent outcomes. As such, the interview results highlight how the story events (content and form) orchestrate reflection to create social ties and support other emergent outcomes, to form stronger communities. The following sections align with the categories from Table 5.3, the bold text corresponds to the subcategories.

#### Storytelling form to orchestrate reflection

The setting of the story events creates opportunities for citizens and communities to form or strengthen social ties through orchestrated reflection. Four participants noted that the **intimate** setting contributes to bringing people closer together. People also connect because participants experience **equality** during the story events. This experience of intimacy and equality provides the appropriate setting for communities to **exchange** information, ideas and thoughts. Thirteen respondents argued that a story event is successful when such exchange takes place, because then connections are created. One respondent stated: *“In a conversation, by talking, you can let the communities find common interests, and let them experience they have more in common than they initially thought”* (P1, audience). Participants would like to experience more joint reflection on the stories during the events to further establish social ties. This implies that reflection is successfully orchestrated when participants are able to share experiences after the stories are told.

The success of story events depends on citizens’ willingness to share their life stories and represent their community. This is relevant for the storytelling form, because the setting of the event needs to support these motivations of citizens. The interviews included four reasons for citizens to come forward as storytellers. The first reason is to **be listened to**. Two storytellers experienced the story events to be a unique moment in which the audience actively listens to the stories that are told. Story facilitators hence need to activate the audience to provide this experience. The second reason is to **process past experiences**. Telling a story can be retrospective, for example, P8 (storyteller) said: *“And you know, it was quite fun, to look back at that phase of my life”*. This requires the structure of the event to incorporate enough time before the event, for the storyteller to reflect on their past experiences

in the process of preparing the story. The interviewers further support this reflective process during their preparation meetings with the storyteller. The third reason is to **change perceptions** of the audience about the storyteller's community. Stories might challenge the prejudices of the audience. One storyteller said: *"[Our work] is not very well thought of by many people, they think we are all about making money. I felt the urge to spread a contrary note about us"* (P6, storyteller). This motivation is supported through the structure of the event in which interviewers deliberately explore with the storyteller and the audience during the event what are prejudices about the community, and how they might have changed. The fourth reason is **sharing their own experience**. Storytellers feel their experience is unique, they are proud of it, and they think the audience might learn something from it. This feeling is often amplified through the interviewer during the preparation meetings, where storytellers become aware of the uniqueness of their story. All of these motivations indicate that storytellers aim to foster some form of reflection with their story, either reflection from the audience or within themselves. To orchestrate reflection, event organisers (facilitators and interviewers) need to discover and amplify the storytellers' motivation by adjusting the structure of the event to tailor for these motivations.

Moreover, citizens need to feel comfortable enough to **dare tell their story**. One of the volunteers reported two instances in which a citizen did not want to share their story after the first preparatory meeting. Another storyteller mentioned: *"Well, at the beginning I needed some time to think. It is my story, it is personal, you see. I realised that when I participated, I will need to share some things about my private life that [my community] might not know about"* (P8, storyteller). To orchestrate reflection, the role of the interviewers is thus to build a relationship of trust with the storyteller, to make them feel comfortable to tell their story, and to determine the content together with the storyteller.

### **Storytelling content to orchestrate reflection**

The storytelling content is of importance to the orchestration of reflection to create social ties between citizens. The first prompt for citizens to connect is a **common subject**. When participants **relate** to a subject, they are drawn in and engage with the story. They start to recognise certain parts in the stories, and this orchestrated reflection forms social ties: *"And this is the power of life stories: you will always recognise things of your own"* (P5, volunteer). The impact of finding commonalities and forming social ties is challenging due to the **contrast between the communities**. Without intervention of Haags Verhaal, these communities would probably not

meet. The storytelling events allow them to explore their shared experiences: *“Then I figured well, we are not that different. Actually, we have a lot in common”* (P16, storyteller). As such, Haags Verhaal orchestrates reflection by exploring differences and similarities between contrasting communities.

According to all respondents, the story content should both emphasise the life story as well as the story of the community the individual represents. As one participant states: *“It is not only about the personal stories, but also about what do the communities mean for The Hague and what they do mean for each other and what could they mean for each other”* (P5, volunteer). Eight participants would like the story events to pay more attention to **what the communities mean for the city**. While the life story enables the communities to find commonalities and connect, the community story helps participants to understand which communities are active in The Hague. This is relevant for participants to identify how they can contribute to the values of the community, but also for professional organisations such as the municipality. To orchestrate reflection, a **balance between the community’s story and the life story** needs to be established.

Story content needs to be relevant and interesting to the audience and communities. The interviews indicated five different ways for the story events to be relevant and interesting: First, **societal relevance** of the content is important. For example, many participants acknowledged the societal importance of housing, and therefore were interested in joining that particular event. Second, **interest in life stories** was mentioned 26 times. Third is the **relevance for the profession**: sometimes the subject of the story event is directly relevant for specific professions or it can help to empathise with groups, for which policies are created. Fourth is **getting to know the city**. Fifth is **introducing citizens to other cultures**. People want to get out of their own ‘bubble’. As one respondent states: *“It is the unexpected things the audience get to know about a certain community which makes it interesting to visit a story event”* (P9, volunteer). Stories orchestrate reflection when their content is relevant and interesting for the story receivers.

### Orchestrating reflection

The content and form of a storytelling event aims at orchestrating reflection within and between citizens individually or within and between the communities. The four elements of reflection in the EPPD framework are identified in the Haags Verhaal events.

*Support empathy, challenge prejudice, change perspective and instigate dialogue*

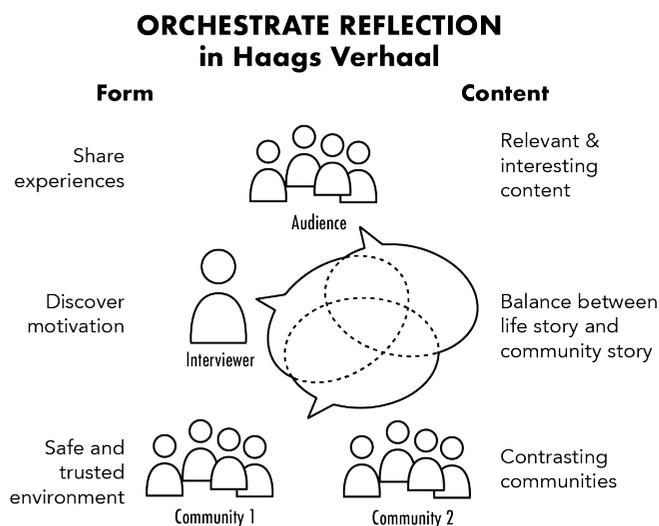
One respondent stated: *“Prejudices have to do with ignorance, people do not know everything about a community. The power of the personal stories is that one recognises things. This makes you see things from another perspective, you will create empathy and remove prejudices on their own”* (P5, volunteer). This statement illustrates the links between **supporting empathy, changing perspectives, and challenging prejudices**. The story events of Haags Verhaal support empathy through the life stories that contain common elements that people can recognize and to which they can relate. The life stories also give a glimpse of the life of others, making it easier to understand their point of view. Participants change perspective by reflecting on their own standpoint in relation to other perspective(s). This reflection then challenges prejudices, sometimes confirming them, but more often they are nuanced: the image of other people or communities changes.

The fourth element of reflection is **instigating dialogue** between citizens. During the story event, participants talk about what they have heard. One respondent said: *“During an event I talk to other audience members. Then we reflect on the stories that are told. We talk about how intense, special or beautiful the story was, if it touched me, and how it resonated to others and myself, depending on what was told”* (P2, volunteer).

*Frustrations of reflections*

Reflection, and so the creation of social ties, are frustrated when participants are unsure about the purpose and effect of the stories told. Three participants stated, during different story events, that they found the **purpose unclear**. For example, one event brought together a Rotary International club and a society for Chinese women. While both storytellers were female, the commonalities between these two groups were not clear. Although the life stories did foster reflection as audience participants reported stages of reflection, such as prejudices being challenged, these did not lead to a connection between these two groups. In these cases, citizens are unable to create social ties.

Furthermore, nine participants said that the **effects are unclear**. They question whether the story events really bring communities closer together. The coordinator of Haags Verhaal tries to demonstrate the purpose and effect by facilitating a group discussion explicitly asking the audience to reflect on differences and similarities between the stories they have heard. The success of this orchestration of (facilitated) reflection determines whether the discussion is continued at the end of the event, when the audience mingles in smaller groups. When successful, participants mingle and meet new people forming social ties during this part of the



**Figure 5.2:** Specific parts of the content and form of the Haags Verhaal storytelling events orchestrated reflection to form social ties.

story event. Figure 5.2 summarises the main elements of content and form in the Haags Verhaal events that orchestrated reflection as presented in the results.

### Social tie outcome

The storytelling events are considered to be successful when **new connections** are created between citizens and between communities. Ten participants stated to have made new connections during one of the storytelling events. Because different communities are invited to the events, **cross-connections** are established between them. A pre-requisite to create these social ties is the form and content of the story events to orchestrate reflection amongst the participants. As the presented insights have shown, this requires a balanced life story and community story, an intimate setting, and a properly facilitated discussion at the end of the event.

The storytelling events provide citizens with the opportunity to **expand their network**. Six participants recognised the opportunity to meet communities that are otherwise more difficult to reach. Professionals see the storytelling events as an opportunity to get in touch with other groups and networks. The communities themselves also come into contact with people from different backgrounds, illustrating how Haags Verhaal supports social ties to be created.

### Emergent outcomes

The interview participants mentioned several occasions in which citizens and communities continued to form or strengthen social ties after the actual event. These situations are categorised as emergent outcomes: although the foundation for these actions is created during the storytelling events, they are not specifically supported by the events because they happen afterwards. Six types of emergent outcomes were identified during the interviews.

The first three emerging actions are when citizens **return to other events, become volunteers** or start to **act as ambassadors**. They are inspired by the concept of *Haags Verhaal* and the stories they heard during an event. They become regular visitors of storytelling events or want to get involved in some way. This can be in the form of a volunteer 'detective', searching for new stories and communities in the city, or by offering a space for the next storytelling event. This resulted in a fixed group of volunteers and participants who return to (almost) every storytelling event. Some participants start to actively promote *Haags Verhaal* by enthusiastically telling other people about the initiative or bringing people along to a storytelling event. As one respondent said: *"One event was about cooking. I took three or four other women with me, because I know they like cooking as well"* (P8, storyteller). Citizens do this without being asked to do so. These three emergent outcomes continue to form social ties and form stronger communities via citizens who actively engage with the storytelling events and take others along.

The other three emerging outcomes form stronger communities because new projects and initiatives are setup as a result of a storytelling event. Several storytelling events have led to **follow-up meetings** between the communities present at an event. For instance, during one storytelling event a Polish women's association met a Pakistani women's association, after which they planned to visit each other again. Through the stories told, they became interested in one another. While, in this case, at least two follow-up meetings happened, these ideas often stagnate on the practical side: bringing people together and agreeing on a date and place is challenging and requires energy and effort: *"At first they are positive, but then you need to convince them to find a date, mobilise people. They need to do something for it"* (P14, volunteer). Another emergent outcome is when participants come up with ideas to start new projects and set a **first step for a new initiative**, because of the encounters that take place during the events and the stories that are told. Finally, people acquire **inspiration for other projects** as well, for example to start a similar storytelling event in their neighbourhoods. *"Some audience members who visited*

*several storytelling events were inspired and want to create a similar platform in their own neighbourhood” (P2, volunteer). This can result in new social ties forming in another place.*

### 5.1.6. Discussion

The results outline how the factors in the EPPD framework are manifested in the Haags Verhaal storytelling initiative. They indicate that careful consideration of content and form in storytelling events is required to orchestrate reflection with storytellers and story receivers. The case study was analysed using the factors from the EPPD framework and lead to five lessons learned regarding best practices of public storytelling for community building. These lessons learned are discussed below indicating some of the challenges, tensions, and opportunities that play a role in understanding reflective public storytelling.

In terms of storytelling form, the results showed which aspects of the Haags Verhaal storytelling events support different citizen groups to tell their story and contribute to an engaging exchange between the involved communities. These aspects include the careful preparation that is required for a successful storytelling event, to discover the storytellers’ motivation and build a relationship of trust. Such careful preparation is also suggested by existing practices as Human Libraries, Narrative4 and Story Circles (Copeland & De Moor, 2018; Dreher & Mowbray, 2012). In Haags Verhaal, the facilitators take care of the preparation, and ensure a safe and trusted environment during the event. The results also resonate with current practices of storytelling in terms of finding commonalities, to be able to reflect through one’s own experience (Ganz, 2010). This process can potentially lead to social relationships between citizens and between communities (Ganz, 2009), when citizens engage in emergent activities after the story event.

These main insights constitute the five lessons learned for the EPPD Reflective Storytelling framework:

1. Careful preparation of storytelling events is required to orchestrate reflection within and between citizen communities.
2. Experiencing equality and intimacy in a safe and trusted environment is essential to the orchestration of reflection.
3. A diversity of citizen perspectives on a common topic are needed to orchestrate reflection during storytelling events.
4. A combination of life stories and community stories is essential to the orchestration of reflection.

5. Reflective storytelling creates social ties and triggers other activities to emerge, forming stronger communities.

Lesson 1 and 2 relate to the form factor in the EPPD framework: how stories are told. The success of public storytelling is highly dependent on the network and people-skills of the facilitators, and the time they are willing to invest. Razack (1993) convincingly argues the importance of overcoming differences in positions between the people telling and receiving stories. The facilitators (or interviewers) in Haags Verhaal are a unique element of this storytelling initiative and engage in a balancing act to serve both the storyteller and the audience during the event. They need to build a relationship of trust and mutual respect with the storytellers, to be able to bring forward controversies or differences during the story event. The facilitators need to be fully open to the stories that are told, while daring to critique the story with respect and curiosity. To open up critical conversations, facilitators and storytellers need to get to know each other and feel at ease in each other's presence.

Lesson 3 and 4 surface a tension in the content factor in the EPPD framework. The results indicated a need for reflecting on differences between communities whom have something in common (lesson 3). Finding commonalities and addressing conflicts is essential to foster reflection within and between citizen groups (Korn & Volda, 2015; Razack, 1993). During public storytelling, facilitators support the audience to reflect on the choice moments in the story and add meaning through interpretation (Bruner, 2004). Initiatives such as Human Libraries expect people to make this reflection themselves, while in Haags Verhaal facilitators take up this role. They help the audience to move from the life stories to a 'story of now' (Ganz, 2010). With this story of now, the audience starts to think about what action they can take to help the community forward, based on their shared values. This conversation often takes place at the end of the story event, when the audience mingles in smaller groups and jointly reflect on the stories told. This translation from life stories to collective stories is a unique element of Haags Verhaal that creates community-wide engagement. The EPPD framework helps initiatives such as Haags Verhaal understand how they can make this translation to create engaging public storytelling.

Lesson 5 concerns the potential of storytelling to build stronger communities. Bringing people of different citizen groups together in one event is in itself an opportunity to network and form social ties (Scott & Liew, 2012). However, this research shows the challenge of evaluating the actual impact of storytelling on the community. The story events of Haags Verhaal have definitely sparked interest of citizens to continue dialogue about a certain

topic, but whether or not these meetings have actually been scheduled remains unclear, and is often challenged by practicalities. Established public storytelling practices also struggle to make their impact visible, and this research experienced similar difficulty. Indeed, more tools are needed to evaluate the success and impact of public storytelling and the EPPD framework contributes to this gap as it indicates a number of factors that support reflective and engaging public storytelling.

### 5.1.7. Conclusion

The power of storytelling has been recognised by many (Ganz, 2001; Nussbaum, 2007). Initiatives that support storytelling among citizens have shown to be effective in bringing citizens together to establish and strengthen social ties (Ball-Rokeach et al., 2001). In this study, a community storytelling initiative was analysed using the EPPD Reflective Storytelling framework, a framework established from literature on how public storytelling events foster reflection and build community.

The core of this framework is the storytelling practice itself; how content (story) and form (telling) orchestrate reflection within the storytellers and -receivers, and activate them to connect. This reflection process is orchestrated through supporting empathy, changing perspective, challenging prejudice, and instigating dialogue. Through these elements, citizens could establish social ties with other citizens, resulting in stronger urban communities. However, this research also calls for future work to expand the presented framework or identify other tools that help researchers understand how the success and impact of public storytelling can be evaluated.





## Design Intervention

### 5.2. Intervention 4: Distributed Participatory Design

The fourth intervention is a distributed summer school, based on the principles of Participatory Design. This intervention is summarised below, and the rest of the chapter gives a detailed description of why and how the summer school was designed, which methods were used to evaluate it, and what were the results of the summer school in relation to place-making. As for each intervention, the four activities of the participatory place-making framework, presented in Chapter 3, provide the basis for the summary.

**Connect with local context:** The summer school was setup in collaboration with researchers from University College Cork. One of them grew up in the community where the summer school was situated and has been doing community research in this context already, hence connection with the context was established through this background.

**Identify key partners and stakeholders:** Due to COVID-19 restrictions at the time of this research, travelling to Ireland was impossible. Through the prior engagements of the local researcher, key partners were in the picture. Further contact was established through schools and the youth club, especially to recruit teenagers for the summer school.

**Gather data and doing analysis:** All workshops during the summer school were recorded and transcribed for analysis. Further, teenagers filled out questionnaires and used an online whiteboard collaboration tool to track their activities.

**Reflect on effects with stakeholders:** Three focus group sessions were held with the teenagers to reflect on the summer school, what it had meant for them, and if it had any effect on how they relate to their community.

### 5.2.1. Motivation

People living in rapidly developing rural (rurban) areas are dealing with challenges posed by growing digitalisation, urbanisation, and migration (de Lange & de Waal, 2013; Dörk & Monteye, 2011; Slingerland et al., 2020a). In response, Participatory Design (PD) has started to explore how researchers can help people in those communities to overcome differences, support mutual learning, and find a common ground between participants (Hess & Pipek, 2012; Simonsen & Robertson, 2013a; Titlestad, Staring, & Braa, 2009; DiSalvo et al., 2013). In this community-based PD, citizens build a relationship with their living environment through participatory projects. PD methods have also been used to enhance place-making, for example, when citizens measure their environment (e.g. air quality) (DiSalvo et al., 2009), or take researchers on neighbourhood walks to talk about their community (Crivellaro et al., 2016). Such place-making processes enable strong and cohesive communities while encouraging proactivity and agency to shape local issues and the local environment.

In PD, analogue workshops are the established method. Face-to-face relationship and trust-building play an important role in participatory design, especially when participants may experience power differences (Öberg, Gumm, & Naghsh, 2009; Patel, D’Cruz, & Houham, 1997; Kensing & Blomberg, 1998; Loebbecke & Powell, 2009). Place-making is also typically supported through face-to-face meet-ups in which citizens explore issues and jointly develop solutions while in their neighbourhoods (Fang et al., 2016). The benefits of face-to-face workshops have left the opportunities and challenges of using virtual tools for distributed PD relatively unexplored (Gumm, Janneck, & Finck, 2006; Danielsson, Naghsh, Gumm, & Warr, 2008; Walsh, 2011; Ali, Morris, & Wobbrock, 2021; Patel et al., 1997). On the one hand, building trust and dealing with power dynamics can seem challenging in distributed settings (Öberg et al., 2009; Simonsen & Robertson, 2013a). On the other, research into online communities has shown that this trust building is possible in distributed settings (Masden, Grevet, Grinter, Gilbert, & Edwards, 2014). However, alternative activities and materials may be required in distributed PD, to enhance traditional PD values such as empowerment and mutual learning (Ali et al., 2021; Hanzl, 2007; Miller et al., 1992; Obendorf et al., 2009).

Although the call for understanding ways to successfully organise distributed PD is not new (e.g. (Hess & Pipek, 2012)), it has gained momentum due to the COVID-19 pandemic (e.g. (Ali et al., 2021); (Bakırlioğlu, Galleguillos, & Coşkun, 2020)). The work presented in this study has been performed in a distributed

format due to travelling and social distancing restrictions as a result of the pandemic, and also entailed exploring new methods, materials, and activities for distributed PD (Obendorf et al., 2009). The PD work took place with teenagers in a community setting, and aimed to support place-making of teenagers in their local context. The exploratory research was guided by the following research question: *How can distributed participatory design activities and materials be designed to build trust and engage teenagers in place-making processes?*

The next section explores what is known about doing PD online. Section 5.2.4 and 5.2.5 describe the distributed two-week summer school design and organisation, and the extent to which it supported place-making. Section 5.2.6 and 5.2.7 include insights and guidance into how PD can be organised in a distributed way, especially in the context of place-making, and which activities and materials enhance the distributed PD experience.

## 5.2.2. Background

Researchers have become more interested in applying PD in distributed and online settings (Gumm et al., 2006), especially as COVID-19 has limited opportunities to meet in person. In the 90's, Distributed Participatory Design (DPD) explored ways of remotely designing together. This research mainly took place in a context of large user groups designing a commercial information system together (Gumm et al., 2006; Öberg et al., 2009). Researchers were interested in how a DPD approach could scale up PD processes, most often in asynchronous settings (Walsh, 2011). There is little work, however, on how to transform traditional small-scale in-depth PD workshops to distributed settings with synchronous interaction (Patel et al., 1997).

### Opportunities of distributed PD

Both Hanzl (2007) and Miller et al. (1992) found that distributed PD enables distant contacts to work together and recognised the benefits of collaborating remotely. In her review of IT for participation, Hanzl (2007) found that participation through IT can improve mutual understanding between different stakeholders. In a study of the use of TelePACTIVE, participants indicated that the online tool gave “intelligent assistance in the design process”, and helped to avoid conflicts (Miller et al., 1992) demonstrating the potential of distributed PD in supporting the principles of participatory design.

## Challenges of distributed PD

There are also challenges with distributed PD. Identifying suitable participants (Bratteteig et al., 2013; Carroll & Rosson, 2007) and making sure all voices are included is more challenging in a distributed format (Hess & Pipek, 2012). Power asymmetries often result when participants are not physically together (Loebbecke & Powell, 2009). In remote settings, participants experience their contribution to be less evident, complicating participant engagement (Grudin, 1993; Hess & Pipek, 2012; Miller et al., 1992). The facilitator plays an even more important role in distributed PD (Carroll & Rosson, 2007), to select appropriate tools (Dalsgaard, 2012) for participants to develop trust and talk to each other as equals (Hess & Pipek, 2012; Emspak, 1993). Interaction in a distributed setting is less direct, but participants have shown to be able to find a common ground (Obendorf et al., 2009), although the opportunities for reflection are limited (Hess & Pipek, 2012; Titlestad et al., 2009; Miller et al., 1992). As working remotely takes a more prominent place in our lives, more research needs to be done on how distributed PD processes can be organised, for participants to reflect, question, and create shared meaning through collaborative design (Holtzblatt & Jones, 1993).

### 5.2.3. Intervention Design

The two-week summer school (Figure 5.3) took place with eleven teenagers from Northrock<sup>2</sup>, a rural community that is rapidly developing. The summer school was completely online and teenagers participated from home using their device of preference. The theme of the summer school was to learn about digital arts, and to design and make a digital artefact to express and explore people's experience in their own community.

As shown in Figure 5.3, teenagers filled out a pre-questionnaire before the summer school started and were asked about what they (dis)like about the Northrock community, their previous experience with digital arts, and preferences for specific media. The summer school itself consisted of six workshops and a poster session (see also Table 5.4) to hang their physical artwork up in their own neighbourhood. Two facilitators assisted the workshops, each lasting 1 to 1.5 hours, and taking place on Zoom™. The facilitators designed activities to help teenagers explore their own ideas and artwork using the online collaborative whiteboard tool Miro™, digital making tools (such as create your own breaking news item), and demoing tools; illustrated in Figure 5.4 and 5.5.

Every workshop ended with a homework activity (see Table 5.4 and Figure 5.4), prepared on each participant's personal

<sup>2</sup> The fictive name Northrock is used for the purpose of anonymity

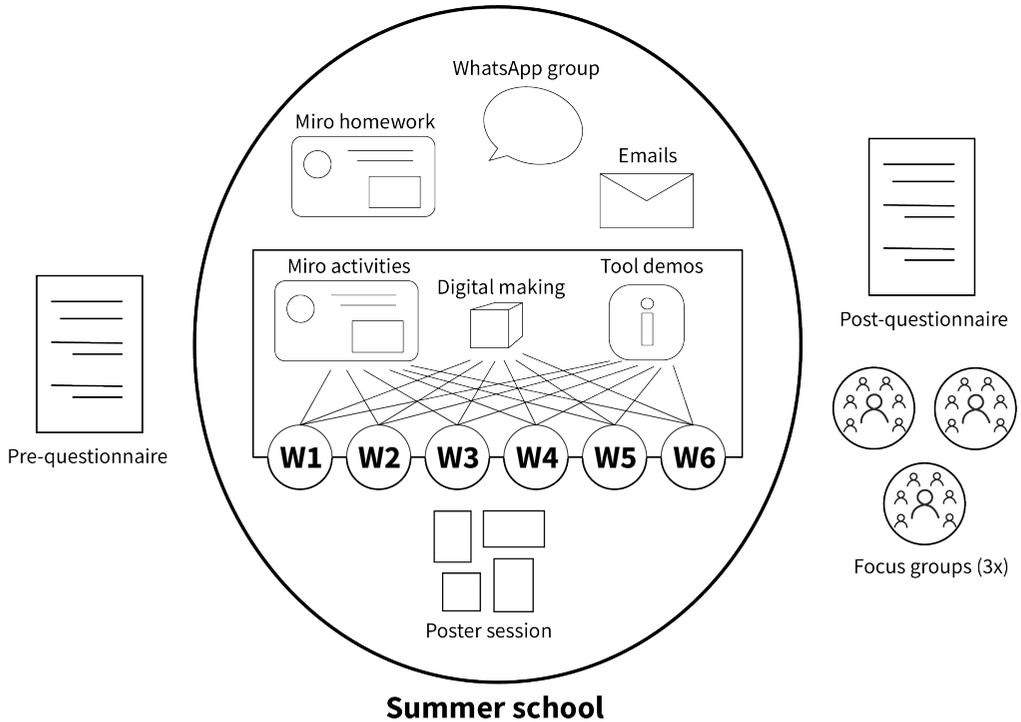


Figure 5.3.: Overview of the activities that were done before (left), during (middle), and after (right) the summer school; where W1 represents Workshop 1, etc.

Workshop topic	Homework activity
W1 Introduction	Analyse existing artwork
W2 Brainstorming	Critiquing ideas & Develop idea
W3 Develop prototypes	Strategy to share idea
W4 Sharing the artworks	Create social media post
W5 Finalising the artworks	Prepare presentation
W6 Final presentations	Fill out post-questionnaire
W7 Poster session	n.a.

Table 5.4.: Summer school activities

**Homework activity 2**

Based on your current idea, answer the following questions:

Which unique experience or perspective of Northrock will be illustrated in your art piece?

**WRITE IT DOWN HERE!**

The community atmosphere

**WHAT IS YOUR MESSAGE?**

the friendly atmosphere in Northrock

**WHO IS THE AUDIENCE?**

the Northrock community

Choose a location in the village that has some kind of connection to your piece. Find an image of this place and paste it here.

**WHAT DO YOU WANT TO ACHIEVE WITH YOUR PIECE?**

showing people how friendly Northrock is

**WHERE DO YOU REACH YOUR AUDIENCE?**

social media

Figure 5.4.: Example of an activity on the whiteboard tool Miro™, via [www.miro.com](http://www.miro.com)

**Figure 5.5:** Output of a digital making activity, creating a breaking news item on [www.breakyourownnews.com](http://www.breakyourownnews.com)



Miro™ board. Teenagers and facilitators stayed in touch through a WhatsApp™ group, joined by those who wanted to. Emails were sent after each workshop to summarise what had been discussed and to distribute the homework.

Teenagers filled out a post-questionnaire, reporting on activities they enjoyed the most and the least, which artworks or ideas they found the most interesting, and whether they shared their own artwork with anyone outside the group. Nine teenagers joined one of the three focus groups to further reflect on their experience during the summer school, what they learned about it in terms of the Northrock community, and which aspects, materials, and activities were helpful and less helpful to them.

#### 5.2.4. Method

Research-through-design (Koskinen et al., 2011; Stappers & Giacardi, 2011), applying methods from design practice to generate (1) a design and (2) new knowledge (Zimmerman & Forlizzi, 2014), is applied in this study to understand how the distributed summer school supported teenagers to talk about their lived experiences and build relationships. The design generated is the summer school, including activities, materials, and prompts designed specifically for this purpose. The generated knowledge is insights on how distributed PD can be organised, to foster stronger communities and enhance place-making.

#### Participant recruitment

Participants were recruited through local schools and the youth club, and fifteen teenagers signed up for the workshop of which eleven participated from beginning to end<sup>3</sup>. Participants were

<sup>3</sup> This study has approval from the University Ethics Committee. All participants (or their adult guardians) who completed the summer school gave their written informed consent for participation and data collection.

Participant	Age	Gender
Aaliya	17	female
Dawn	16	female
Liam	15	male
Brian	13	male
Deidre	12	female
Patrick	15	male
Teresa	14	female
Lucas	13	male
Beth	11	female
Arthur	15	male

**Table 5.5.:** Overview of the participants, including their age and gender. Names are fictive.

given fictive names to ensure anonymity during data analysis and dissemination, see Table 5.5.

### Data collection and analysis

The workshops in Zoom™ and the focus groups were recorded and transcribed before analysis. After each workshop, the two facilitators wrote down their thoughts, ideas, and experiences on field notes. All other materials that were made or used during the summer school, including pre- and post-questionnaires, Miro™ boards, the making activities, and the artworks, were collected and imported to NVivo™ analysis software with the transcripts and field notes for analysis.

The two facilitators independently analysed the data with an open coding procedure (Graneheim & Lundman, 2004; Aronson, 1995), focusing on the research question: *How can distributed participatory design activities and materials be designed to build trust and engage teenagers in place-making processes?* This process resulted in two lists of codes, one per researcher. Axial coding followed, focused on code relations and patterns, to come up with a single code list. Codes on which both researchers agreed were placed on the list. Similar codes relating to the same topic were identified and, in some cases, combined. Disagreement about importance of a code was solved by going back into the data to further explore the code, to decide whether the code should be omitted or added. This led to a list of twenty-four main codes providing the basis for close coding the data. Researchers compared their coding results to reach final consensus on the main topics and themes that emerged from the data.

#### 5.2.5. Results

In Table 5.6, the final coding scheme of 24 codes is mapped onto the five principles for participatory place-making which were

established in Chapter 3. This mapping was based on the extent to which the researchers identified moments during and after the summer school that point towards these principles.

**Table 5.6.:** Mapping of analysis codes on the five principles.

<b>Principle</b>	<b>Related codes from analysis</b>	
Inclusive	Designing for equitable participation Difficulties engaging in the process	Facilitation Constraints and benefits to creating artwork using digital tools Constraints and benefits to working remotely on creative ideas Efficacy of summer school process Descriptive definitions of rural
Reflective	Articulating experience Critical thinking Supporting individual reflection and refinement of idea Knowledge making regarding challenges to and strengths of the community Summer school creating opportunities for provoking dialogue Public space queried by summer school activities	
Playful	Moments of dedicated engagement with the process Creative exploration of design idea	
Empowerment	Creating change in the community Motivation to create work Difficulty to refine ideas Relationship between design decisions or aesthetic choices and ideas chosen	
Emergence	Experiences of diversity in the rural setting Building empathy through design Emerging social participation Relationship building through summer school process Ways of connecting with the community	

### **Inclusive**

Inclusivity concerns the extent to which the summer school was appropriate for a diverse group of participants, and supported all participants in sharing their experience and taking part in the discussions.

#### *Supporting inclusion through tools and activities*

To enable participants to feel included and welcome, one of the facilitators, who grew up in Northrock, shared her personal experience of growing up in this community with the group.

Participants could engage in different ways, for example using the chat, by unmuting the microphone, or by making notes on the Miro™ boards. Group activities were alternated with one-on-one sessions, to engage everyone in the way they preferred. The field notes and post-questionnaire responses reflect that participants made use of these different options of engagement and selected one that felt comfortable to them.

A disadvantage of using the Miro™ boards was that it allowed participants to adjust drawings and comments of other participants, which happened for example to Brian and Lucas: *“Yeah they seem to be trolling us. They are just ruining your drawing of a farmer.”* Three participants expressed frustration with this kind of trolling in the post questionnaire. Miro™ also supported creative and flexible engagement: during various workshop moments participants started to explore and engage with Miro™ in a way that works for them. In the focus group, Brian said: *“I suppose just even like the Miro board and the different questions on it makes you kind of think. Like about the different things you could do and stuff and use for ideas.”* In the post-questionnaire, ten participants mentioned the use of Miro™ as one of the things they most enjoyed in the workshops. Overall, Miro™ had a positive effect on the design process and supported inclusion.

#### *Tools and activities that hindered inclusion*

Working remotely also brought technical challenges, for example configuring the Zoom™ settings appropriately, for participants to share their screen and change their names. Some participants suffered from a poor internet connection and could therefore not use their camera or missed parts of the workshops. Participants used different types of devices (mobile phone, tablet, or desktop computer) to join the workshop, which also caused experiences to differ. Participants on mobile phones and tablets could not view the Miro™ board and the Zoom™ chat at the same time, complicating interaction during parts of the workshops.

There were moments where it was difficult to motivate participants or engage them in activities. The field notes reflect the challenge of having participants remotely engage in a discussion or react to each others' statements and ideas. Inclusion was hindered during some of the peer feedback sessions, when participants received anonymous feedback that was less useful and very general, for example *“We need more memes”*, as feedback to one poster that used memes. The anonymous mode of the Miro™ tools supported inclusion for the most part, while limiting the facilitators' options for inquiry and discussion.

### Reflective

In the summer school, reflection was recognised during moments where participants articulate their personal experiences in the community, think critically and express these thoughts, and gain new insights about the community through designing their artwork.

#### *Articulating experience and knowledge-making about the community*

The digital making exercises were especially helpful to articulate personal experiences of the community, for example to create a breaking news item about their idea (see Figure 5.5). During workshops, participants were often asked to present their idea to the other participants or the facilitators, which opened up moments for participants to talk about their experience of the community. Teresa, for example, explains her experience of the community being welcoming, friendly, and helpful: *“Yeah, like, the youth cafe. Like everyone would, I don’t know, if somebody was short of money or something, somebody might give them extra.”*

While during the workshops limited discussion happened between participants, the focus groups contained moments where participants developed their viewpoints on the Northrock community, based on the experience of other participants. Aaliya’s artwork focused on showing that women wearing hijabs are not different from other women in the community. In the focus groups, both Lucas and Patrick state to have gained new insights into the challenges that Muslim women face in their community. *“Like one simple, probably meaningless thing can change completely what people think about you when they see you”* (Lucas). And Patrick added: *“I learned about Aaliya and it was a bit difficult to be a Muslim in the society, cause the percentage is very low. Cause she was feeling insecure when she was wearing the hijab.”* The ideas of Brian and Arthur also opened their own perspectives according to the focus groups, for example: *“I don’t like farmers, like their working and stuff. But I didn’t know that they weren’t gaining enough money that they need. That was a surprising thing.”* (Beth)

#### *Critical thinking, reflection, and dialogue about the community*

Some activities required participants to critique examples of digital arts or the ideas and artworks of their peers. Most participants felt uncomfortable critiquing the work of their peers: participants first provided positive feedback and were reluctant to come up with points for improvement. One of the field notes after Workshop 4 states: *Critical reflection on ideas is hard, it only comes from us and not from their peers.* During the focus groups two participants reflected on critiquing each others ideas: *“I hate to say things I don’t like.”* (Molly)

*“At least you feel like a little like a bully almost.”* (Lucas) The challenge

to encourage critique was alleviated through the Miro™ boards, as participants could write their critique there in an anonymous way.

Summer school activities were designed to support individual reflection of participants on their ideas, for example by asking participants to explain their idea from time to time. This helped Lucas to further refine his idea about the youth cafe: *“Well it was a nice place to hang out, I guess I made some friends and yeah just a nice place to chill out, cause there weren’t really many rules.”* This conversation led to Lucas further focusing on the memories he has of the youth cafe, and including pictures of these memories in his final artwork. The homework activities on Miro™ were, especially at the beginning, helpful, as further down the summer school, more participants started to miss homework activities, as they *“became less useful once I had my idea in my head.”* (Patrick).

Following the statements above, in which participants express having discovered new things about their community, the conclusion seems warranted that the summer school successfully provoked dialogue about the community. In workshop two, for example, Lucas and Brian worked on Brian’s idea to build appreciation for farmers. *“Even during the lockdown and stuff, farmers still worked and stuff and they didn’t really get much credit for it. Like nurses and stuff they got so much credit as front line workers, but technically farmers are also front line workers, but no one really noticed that.”* (Brian)

Lucas (in response to Brian): *“That’s true.”*

In the focus groups and post-questionnaire, participants reflected on the diversity of ideas that were presented during the summer school. Dawn, for instance, said: *“It was cool that there were so many different ideas and that like.. one topic really.. everybody had something different to give to.”* In the questionnaire someone wrote: *We all had really different views, opinions and ideas and that’s what made the workshop for me.* In total, eleven comments were made about the diversity of the stories and the Northrock community in general, that participants did not realise before. Diversity of stories opens up the opportunity for dialogue.

While there seemed to be limited dialogue between participants about their ideas or the Northrock community in general, some comments on the Miro™ boards did show that participants varied in opinions about some of the issues that were raised. For example, Brian’s idea about farmer appreciation sparked comments on the Miro™ boards on eating meat and the influence of vegans on the popularity of farmers. Although the facilitators aimed to spark discussion by specifically mentioning these comments when they were placed on the Miro™ boards, participants did not engage in an actual discussion in the group.

## **Playful**

Playfulness is manifest in a collaborative, creative, and open setting in the summer school. Moments where participants creatively explore their ideas or the tools provided, show they are engaged in the process.

### *Miro™ supporting playful behaviour*

The Miro™ boards showed to be particularly supportive of playful behaviour; they were intuitive to use as participants filled out the prompts prepared, but also started to draw and try out different features that Miro™ offers. As such, the platform enabled a playful, creative and exploratory setting.

Each participant had their personal Miro™ board on which to work on their idea. A few participants revisited their Miro™ boards, to adjust the activities they had done, or to catch-up on the homework they had missed. As homework was not mandatory, this is considered to be a sign of engagement of participants with the process. In their final presentations, five participants stated they are proud of their end result.

### *Creative exploration of design idea*

Participants used various techniques to explore their design idea and develop it into an artwork. In each of the workshops, one tool was introduced to create digital arts and most participants ended up using Canva™. Three participants started their artwork with sketches on paper and designed it further using computer software. The other participants went directly to the computer. Molly explains her process of creating her poster: “I did my small notebook. I ran a few ideas and find a piece that I like.” The digital making exercises during the workshops helped participants to explore their idea. Teresa talks about creating a breaking news item: “I like the breaking news one too, because as you said it looked quite real and I just thought that it’s kind of fun to create your own news kind of thing.”

## **Empowering**

The principle of empowerment is recognised in moments where participants talked about their motivation to create the artwork, based on their own vision and idea of the community.

### *Autonomy in making decisions during the summer school*

Teenagers wanted to participate in the summer school to learn something new, or to specifically learn about digital media. Most of the teenagers had a community-based issue in mind for the topic for their artwork. For example, farmers not getting enough credit for their work, people not appreciating the nature around

the community enough, or the need for the whole community to respect the COVID-19 restrictions. The underlying motivation in most teenagers' ideas was to evoke awareness on a specific topic and to create some kind of change in the community, as Brian explains: *"I think people just doesn't appreciate how farmers and how their food gets on like their plate when they eat and stuff. Like that's kind of really it."* Participants like Brian were observably autonomous in making decisions about the focus of their artwork, and the facilitators adjusted the further processes according to these decisions.

Facilitation supported the teenagers to reflect on their ideas, and to help them to narrow it down, or take it to the next level. For example, the facilitator asked Molly *"What do you want people to do when they see your piece?"*

Molly: *"Eh, I guess for people to go and walk more. To listen to the sounds around them, just like notice the smallest things, like the birds tweeting in the background."* Some participants tended to be led by the facilitators' feedback and had less strong personal opinions on what they wanted their artwork to evoke. They struggled to outline the message their artwork should bring: *"cause most of the feedback I got was like the message more clear and.. I didn't really know how to do that, so I kind of just fixed the art piece itself."* (Molly) Throughout the two weeks, Liam, Arthur, Teresa, Deidre, and Molly had difficulty developing or expanding their initial idea. As evident in this conversation between the facilitator and Liam: Liam: *"Well it's just about like encouraging team work in sports and stuff."*

Facilitator: *"Yeah, that sounds good. [...] And why do you think that's important? Teamwork or to encourage teamwork?"*

Liam: *"I am not really sure."*

Facilitator: *"You are not really sure?"*

Liam: *"No."*

Participants showed different levels of autonomy and self-determination in creating their artwork. During one-on-one sessions between participants and one facilitator the struggle to translate their idea into an artwork became clear: *"I am not really sure"*. Liam, Brian, Deidre, Teresa, and Arthur in particular needed guidance from facilitators to design their artwork. Facilitators adjusted their level of guidance according to the needs of participants, to support autonomous decision-making on where to go with their artworks.

Other participants felt more sure about designing their artwork. Lucas, for example, explains to the facilitator: *"I am thinking some kind of like a collage, just a lot of just things that ehm.. that the youth cafe means to me."* Specific activities during the workshops especially helped participants who were struggling before, to design their

artwork. Participants were, for example, asked to think about colouring. Brian: *"I suppose like kind of like brightly kind of colours like happy, but like then not like too happy, because I don't know. Just something that catches your eye probably."* Teresa, at first struggling, shows more confidence in her design during the final presentation: *"Because I thought like everyone is welcome like even when they have a disability or like they're a different race or anything and you can see that in the picture, that everyone is there and feeling included."* The specific questions and guidance in the homework activities encouraged the decision-making ability of participants about their artwork.

#### *Determining the need for change in the community*

Aaliya, Liam, Brian, Teresa, Beth, and Molly's ideas aimed to increase awareness on a specific part of the Northrock community. Molly, for example, uses her piece to celebrate the nature around Northrock, and feels it is not appreciated enough by the community: *"Yeah it's kinda like thinking that the nature and wildlife around Northrock isn't that, like it isn't very noticed."* Participants were thus autonomous in deciding how they wanted their artwork to impact the community and were supported by the facilitators in whichever direction they choose.

The other five participants (Dawn, Deidre, Patrick, Lucas, and Arthur) wanted to not only create awareness, but also activate the Northrock community to take action. As Deidre explains: *"The message is to encourage girls to join Gaelic Football and this improves the community by having an equal amount of girls and boys in sports."* Her wish is that when girls from Northrock see her piece, that they join the Gaelic Football team. Another example is the work of Arthur, who wants to encourage the community to stick to the COVID-19 regulations, such as wearing face masks. He specifically designed the colour scheme of his poster for this purpose, hoping that it leads to action: *"I feel like they're more serious colours, that would like maybe help people listen to them."* These examples of expressions of participants indicate that they felt eligible and able to make a change in the community. The summer school helped them to further outline their initial idea towards a digital artwork that could activate the community.

### **Emergence**

The principle of emergence concerns the impact of the summer school beyond the organised workshops: whether participants continued working on their idea after the summer school or whether they engaged with the community as a response to their participation.

## GETTING TO KNOW EACH OTHER...

- Type in the chat -  
which number are you  
today -



**Figure 5.6.:** One of the ice-breaker activities to support inclusion and playfulness.

### *Relationship building and empathy*

The ideas of six participants specifically concerned including a specific group of people in the community. These participants wanted to build empathy in the community through their design for this particular group. Brian, for example, felt that farmers were not appreciated enough by the community. Deirdre wants to include more girls in Gaelic football. Dawn and Lucas focused their piece on the reopening of the youth cafe, as they both feel teenagers lack a place to hang out.

Although participants had their own individual ideas and artwork, the summer school format supported the building of relationships between participants and with the facilitators. The icebreaker exercises at the beginning of each workshop encouraged participants to share something personal (see Figure 5.6). However, as Brian stated in the focus group, the distributed environment made connection more complicated: *“It’s just a bit more awkward talking to like a screen instead of a classroom environment or something.”* Molly explains how the icebreaker activities supported connection: *“it kind of let me get to know people’s personalities more.”* Molly and Lucas discussed in the focus group that building relationships was challenging because most participants left their cameras off during the workshops. One participant mentioned in the post-questionnaire that meeting new people was something they most enjoyed of the summer school.

### *Emerging empathy and social participation*

Some participants started to share their reflections on what they learned in the wider community. Patrick designed his piece to attract volunteers for a local charity, supporting social participation: *“The main message of this piece is kind of just to you know give them more support and they need more recognition and, you know, not to abide them...”* Arthur aimed to stress the importance of respecting the COVID-19 regulations, such as wearing a mask, to help local shops and restaurants serve their customers in a safe way. In fact, the

ideas of seven participants (Aaliya, Dawn, Brian, Patrick, Lucas, Beth, and Arthur) reflect the social engagement of the teenagers with the local community. Nine participants discussed their ideas for the community, and some ideas of the other participants, with their parents; in that sense further spreading their message in the community.

Due to the COVID19 pandemic, ways to connect with the community were more restricted than usual. Participants were mainly encouraged to think about digital ways of sharing their artworks with the community. Four participants decided to join the poster session organised after the workshop, in which the participants went into the community to hang up their posters at locations they deemed to be appropriate. One homework activity invited participants to think about sharing their artwork with the Northrock community. Most participants came up with the idea to hang up a poster of their artwork, or to share it on social media. Another homework activity asked participants to design a social media post to promote their artwork. Seven participants finished this activity. Two participants actually posted their artwork in a Northrock community Facebook group. Three participants who wanted to share their poster on social media, reflected in the focus group that they forgot about it, while one of them was really motivated and passionate about his idea. This indicates that emergence, in terms of sharing the outcomes of the summer school, may need to be further supported by the facilitators.

### **5.2.6. Discussion**

The results have showcased how the five principles for participatory place-making manifested themselves in the summer school in Northrock. In this section, a reflection is made on how designers of distributed PD need to deal with the 'distributed' element and what opportunities and challenges a distributed setting brings in relation to place-making

#### **Designing for 'distributed'**

The facilitators took various measures to mitigate challenges of distributed participation (Obendorf et al., 2009). The experience of using Miro™ during the summer school revealed extra advantages in distributed PD workshops. For example, the platform provided the flexibility to participants to use it in a way that they see fit, hence supporting inclusion, playfulness, and empowerment. To create their artwork, participants could choose from a range of digital tools, providing both constraints and benefits. Most participants did not have any experience in creating digital arts

and the remote setting made it challenging for the facilitators to demonstrate many different tools for digital arts, and to help participants explore those. Participants were on their own trying out different platforms and all ended up creating a poster to present their ideas. Most participants used a digital tool that was relatively easy to learn to use. In an analogue setting, it would probably have been easier for participants to try out different and more challenging tools as receiving help and support from other participants or facilitators is more accessible when everyone is in the same room. Hence, the distributed setting hindered the exploration of different digital tools for making artwork. An effective way of giving support in this type of exploration is, to our knowledge, yet to be found.

Similar to traditional PD settings, facilitation was essential in helping participants further their design process. In the distributed summer school setting, facilitation became more prominent because there was little interaction between participants. This reflects the work of Patel et al. (1997) who suggest that monitoring and mediation is required during all activities in distributed settings. In this research, five participants reflected in the focus groups on how the facilitator helped them to refine their ideas, make decisions, and develop the artwork. They mainly seemed to have benefited from facilitation in the one-on-one sessions; participants did not mention that feedback of their peers was really helpful to them. Despite the lack of direct interaction between participants, mutual learning still took place as participants learned about the stories and experiences of other participants in relation to the community. In line with findings from Hanzl (2007) and Miller et al. (1992), the distributed setting of the summer school avoided conflicts between participants but nevertheless supported mutual learning and reflection.

**Table 5.7.:** Identified challenges and opportunities of applying the five principles in a distributed setting.

<b>Principle</b>	<b>Challenge</b>	<b>Opportunity</b>
Inclusive	Prepare for various devices	Enable tailored participation
Reflective	Critiquing each other's work	Anonymous way to give feedback
Playful	Building trust	Many different tools to explore
Empowering	Giving true support to what participants need	Participant autonomy
Emergence	Facilitating the process of connecting with community	Involving family members in process

### **Reflection on the principles**

The five principles for participatory place-making that this study used for analysis have mostly been applied in traditional, analogue

PD settings. Table 5.7 outlines the opportunities and challenges for applying the principles in a distributed PD setting, based on the findings of this research.

#### *Challenges*

Designing a PD process that suits all participants in a distributed setting is challenging as participants use different types of devices (mobile phone, computer, tablet) to join in. Dealing with the dynamic balance between structure (supporting only one type of device) and flexibility (adjusting to the devices of the participants) is also described by Patel et al. (1997) as a challenge for facilitators in distributed PD. Related to this, is the challenge in supporting participants' autonomy and self-determination towards empowerment, as this requires a similar complex balance between providing structure and enabling flexibility (Carroll & Rosson, 2007; Emspak, 1993).

In terms of playfulness, the distributed setting influenced the interactions between participants, and between participants and facilitators (Hess & Pipek, 2012; Titlestad et al., 2009). This process was challenged because participants tended to keep their cameras off and the usual moments to share personal stories (e.g. during breaks) were necessarily organised in a different way. The facilitators put extra effort into building relationships and trust with the participants, using ice-breaker activities. The extent to which trust is built also influences whether participants feel comfortable to critique each other's ideas, and, as such, whether reflection is supported. The facilitators experienced the need for extra effort in supporting critical thinking, and the anonymous option that tools as Miro™ offer make participants feel more comfortable to share critique. The lack of interaction between participants is a common challenge in distributed settings, because participants experience their contribution as less evident (Grudin, 1993; Hess & Pipek, 2012; Miller et al., 1992). In the summer school, the facilitators aimed to tackle this issue by building relationships and trust through the ice-breaker activities and by focusing on the impact that participants potentially can make on the community with their artwork.

#### *Opportunities*

One of the opportunities of distributed participation is the possibility to tailor the participation process, supporting an inclusive setting. In the summer school, participants could decide if they wanted to share their stories about the community in the plenary group, in one-on-one meetings, in the WhatsApp™ group, or on their Miro™ boards. In an analogue setting, tailored participation is more challenging, as everybody is in the same room. In terms of empowerment, the distributed setting benefits the autonomy of participants. Power relations and the group dynamic may be of

less influence (Holtzblatt & Jones, 1993), and participants experience more agency to participate in a way they see fit (Slingerland et al., 2020). Enabling such tailored and personalised participation is mainly appropriate in small group settings, as for bigger distributed projects more structured approaches and process are required to support the asynchronous way of working (Gumm et al., 2006; Walsh, 2011).

As all of the participants used a device to join the summer school, playfulness was enhanced by offering different digital tools for participants to explore. Instead of connecting with the wider community, which was challenged due to lockdown measures, participants involved their family members in developing their idea and translating this into an artwork. As such, a different type of emergence was reflected through the summer school, more in the family setting rather than in public spaces. A combination of analogue and distributed participation could support the outcomes of participatory design to be shared in both of these places, reflected in the theory on infrastructuring (Hess & Pipek, 2012).

### 5.2.7. Conclusion

While Participatory Design (PD) researchers, especially in community settings, mostly use face-to-face and analogue methods, the COVID-19 pandemic spurred interest in exploring methods for organising distributed PD (Ali et al., 2021; Bakırloğlu et al., 2020). To adhere to PD's foundations, other types of activities and materials are needed for distributed PD (Ali et al., 2021; Hanzl, 2007; Miller et al., 1992; Obendorf et al., 2009). This study evaluated how the principles defined in Chapter 3 manifest in a distributed setting. A distributed summer school of two weeks was organised, involving the creation of a digital artwork by teenagers about their community. Making this artwork, teenagers engaged in place-making processes and learned new things about the community from each other.

The main findings of this research are that distributed PD can be inclusive to different types of participants when facilitators offer multiple ways to engage and to provide input to the workshops. In the summer school for example, participants valued the different tools and platforms (e.g. chat, Miro™ boards, group sessions, one-on-one facilitation). This flexibility in participation at the same time requires a certain structure, to make sure participants do not get lost in the number of ways they can engage (Patel et al., 1997; Wallace, McCarthy, Wright, & Olivier, 2013). The other main finding is that facilitators need to be extra careful in distributed PD to facilitate the need to build trust and relationship

with and between participants. In Zoom™ sessions, participants tend to keep their camera off and breaks do not bring the natural bonding moments as in analogue settings. Hence, facilitators of distributed PD workshops need to specifically consider what activities they will use to connect with the participants, and that enable participants to connect to each other.

### 5.3. Reflection on social connections

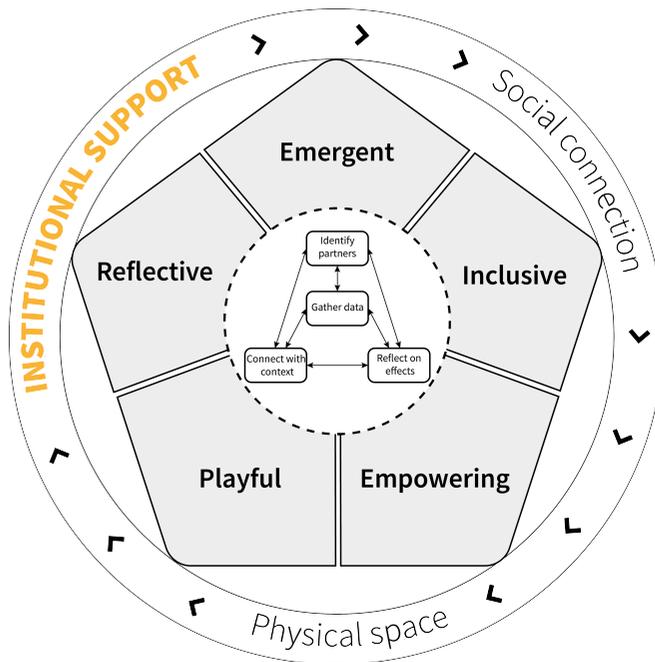
This chapter investigated two interventions that focus on social connection to enhance place-making. The first intervention was a community storytelling initiative 'Haags Verhaal' which invites residents of The Hague to tell their life story to each other. The second intervention was a distributed summer school, designed on the basis of Participatory Design, and in which teenagers created digital artworks to express their experience of living in their community. These two interventions contrast each other in the sense that Haags Verhaal is executed in an entirely face-to-face manner, while the summer school was fully distributed and virtual. Nevertheless, both interventions supported the creation of social connections between participants through sharing personal experiences and life stories. Storytelling opens up perspectives of residents and hence stimulates connection. Further, both interventions show that diversity in the community should be embraced, because exactly this diversity enables citizens to learn new things about their community. In line with this, reflection plays a major role in citizens gaining new insights on the place where they live, and the people who live in it. Both interventions described in this chapter enable shared reflection, to build relationships; in community face-to-face storytelling as well as in distributed Participatory Design. Through these expanded social connections, places get new meaning, and hence place-making is achieved.



## Institutional support

# 6.

After studying two interventions that focus on physical space, and two that mainly concentrate on social connection, this chapter presents two interventions that make use of institutional support to foster place-making. The first intervention comprises of eight participatory activities, grounded in the frame of the Playable City, to engage citizens in place-making processes. The second intervention is a resilience programme based on the principles of asset-based community development, outlined in a neighbourhood in Rotterdam. The integral programme sees connection to place as one of the contributors to social resilience. The review of these two interventions outlines the role of the local government and other institutions to support place-making. The chapter concludes with a reflection on the role and responsibilities of formal and informal actors as part of the institutional support for participatory place-making.



6.1 Intervention 5: Playable cities . . . . .	165
Motivation . . . . .	166
Background . . . . .	167
Intervention design . . . . .	168
Method . . . . .	172
Results . . . . .	172
Discussion . . . . .	177
Conclusion . . . . .	180
6.2 Intervention 6: Asset-based community development . . . . .	181
Motivation . . . . .	182
Background . . . . .	183
Intervention design . . . . .	186
Method . . . . .	187
Results . . . . .	190
Discussion . . . . .	196
Conclusion . . . . .	200
6.3 Reflection on institutional support . . . . .	203

This chapter is based on:

**Intervention 5:** Slingerland, G., Lukosch, S., den Hengst, M., Nevejan, C., & Brazier, F. (2020). Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities. *Frontiers in Computer Science*, 2 (December), 1-16.

**Intervention 6:** Slingerland, G., Edua-Mensah, E., van Gils, M., Kleinans, R., & Brazier, F. We're in this together: Capacities and relationships to enable community resilience. *Under review*





## Design intervention

### 6.1. Intervention 5: Playable cities

The Playable City intervention is summarised below, using the four activities of the participatory place-making framework, presented in Chapter 3. This intervention consists of a set of eight activities and ran over a period of two years in Bouwlust, a neighbourhood in The Hague. The rest of the chapter explains in more detail why this intervention was designed, what it entails, which methods were used to study it, and what were the identified effects of the playable city approach in relation to place-making.

**Connect with local context:** Field visits, desk research, and mapping activities with citizens were used to get an understanding of Bouwlust. Several (municipal) documents provided by local actors provided background information on this area.

**Identify key partners and stakeholders:** Social media pages on the neighbourhood gave first insight into who are key partners here. Further, researchers held interviews with community police officers and ran questionnaires and focus groups with citizens to deepen insight.

**Gather data and doing analysis:** All of the interviews, mapping activities, focus groups, and other activities were combined to analyse Bouwlust and understand how place-making can be achieved here.

**Reflect on effects with stakeholders:** An interactive installation was deployed in Bouwlust and a design workshop was held that both served to discuss the effects and outcomes of the playable city approach with residents and other stakeholders.

### 6.1.1. Motivation

Whereas the technology in top-down smart city design regularly focuses on making city life more efficient (Nam & Pardo, 2011), Playable City (Nijholt, 2017c) design focuses on the use of smart city technology to engage citizens with their physical space to increase participation in their neighbourhood community (Nijholt, 2020). (Serious) games (Schouten, Ferri, De Lange, & Millenaar, 2017) have successfully been used as a talking tool to facilitate discussion between different stakeholders (Tan & Portugali, 2012) or to include citizens in city-making (Stokes, 2020). Citizens can play an urban planning game to experience decisions and considerations that city planners have to make (Ashtari & Lange, 2019). Another successful approach has been to place playful interventions in neighbourhoods to gather citizen input on city life (Claes & Moere, 2017; Claes, Coenen, & Moere, 2017; Golsteijn et al., 2016), create discussion on local issues (Hespanhol et al., 2015; Schroeter, 2012; Wouters et al., 2014), or explore alternate designs of the physical space (Golsteijn et al., 2016; Fredericks et al., 2015; Custers et al., 2020). Consideration of the technological, social, and physical structure and networks between people, and of the city, are key to the design of such interventions (Brazier & Nevejan, 2014). These structures and networks define the design space to be considered by all city stakeholders in participatory design of a Playable City.

For people, social and physical, and on- and offline realities merge into one experience and understanding of the world (Nevejan, 2007; Nevejan, Sefkatly, & Cunningham, 2018). A clear need exists to include the perspectives of all stakeholders in city-making and place-making (Juujärvi & Pessa, 2013; Harding et al., 2015) and the Playable City provides a promising perspective, as it aims to exploit the physical, digital, and social layers of the city to foster citizen engagement (Stokes, 2020).

While the importance of including the local community and stakeholders is widely acknowledged, it remains a challenge how to organise such processes (Harding et al., 2015; Leminen et al., 2012; Stokes, 2020). This intervention addresses this challenge by studying a set of eight activities that aim to involve a wide range of stakeholders in city-making and place-making processes. The next section further elaborates on how the playable city and participatory approaches connect. The intervention design, comprised of eight activities is then outlined in Section 6.1.3 and has been deployed in Bouwlust, a neighbourhood in The Hague (NL), where citizens and professionals are looking for ways to work together to improve liveability and safety. The intervention is analysed using the four activities from the participatory design

framework (Chapter 3). Insights from this intervention study shed light on the applicability of specific methods for the four types of activities in the framework.

### 6.1.2. Background

The notion of the Playable City was introduced as a novel perspective on the city: one that is playful, open, exploratory, interactive, and participatory. While several books (e.g. (Stokes, 2020; Nijholt, 2017c, 2020)) and many research articles have been published on this playful perspective, the field is still developing and exploring the notion of a Playable City (Nijholt, 2017c, p. 6), its contribution to current thinking (Nijholt, 2017c, p. 9), and how the success of Playable Cities can be evaluated (Fisher2017; Nijholt, 2017c, p. 17). In other words, much work is being (and has still to be) done. Earlier work introduced the notion of *playgrounds*; physical places in the city where citizens interact on the streets in fun, open, and spontaneous ways (Slingerland et al., 2019; Slingerland et al., 2020a). These playful environments, potentially mediated by technology, were designed to create safe spaces for citizens to explore, experience, and reflect on city life (Ferreira, Anacleto, & Bueno, 2017). In these spaces, citizens need to trust each other and experience each other's presence (Harding et al., 2015; Brazier & Nevejan, 2014).

To be successful at fostering participation, these spaces need to be designed to embrace the technological, physical, and social aspects of the city (Brazier & Nevejan, 2014). The use of technology in the city seems to become more apparent now that many cities label their city as 'smart' (Nijholt, 2017c). Technology also plays an important role to mediate the Playable City. Researchers question who should design and use this technology, hence the Playable City (Nijholt, 2017c, p. 3).

The question remains how a Playable City can be co-created in collaboration with all city stakeholders, resulting in an engaging and empowering participatory place to live. Prior work argues for the need of city actors for increased transparency, influence, and exchange when working together on city-making (De Koning et al., 2018). To our knowledge, current literature lacks overarching guidelines or frameworks for participatory design processes in which multiple stakeholders jointly explore their playable city. Therefore, this study addresses the following research question: *How can all stakeholders be included in exploring the design space of their playable city?*

### 6.1.3. Intervention design

The intervention in this study is a research project that explored the design space for liveability and safety in a participatory process in a neighbourhood in The Hague (NL). The local government and police of The Hague identified the neighbourhood of Bouwlust as one with a low level of citizen participation for which a new approach was needed. The liveability and safety issues with which citizens are confronted include drug abuse, litter, and youth gangs. Several initiatives have been started in the past by both the local government, the police and citizens to address these issues, often initiated and executed by one of these actors, often for a designated period of time. The design intervention of this study analyses was initiated by these parties to together explore options for inclusive participation to address liveability and safety issues. A research team of Delft University of Technology was invited in this context to, jointly with citizens and other partners, explore the design space of participation in Bouwlust. The eight activities that comprise this intervention are described below.

#### Artistic research

<sup>1</sup> Afaina was part of the research team.

Architect Afaina de Jong<sup>1</sup> made an architectural visual analysis of the neighbourhood. At different moments during the week she visited Bouwlust and took photographs of the physical environment and the buildings. The architect walked through the neighbourhood and explored if and how the physical environment supports social interaction and community building. The architect used the YUTPA framework (Nevejan, 2009) to do her architectural and artistic analyses. YUTPA is the acronym for 'being with You in Unity of Time, Place and Action'. The YUTPA framework has been developed to analyse trade-offs in presence design and facilitate discussion about different presence configurations (Nevejan & Brazier, 2015). To this purpose, each presence design is analysed along four dimensions: time, place, action, and relation (Nevejan & Brazier, 2011). Different underlying factors are specified for each dimension. The YUTPA dimensions resonate well with the need to acquire insight into the physical (dimensions place and time) and social (dimensions relation and action) structure of and networks within Bouwlust. This framework has also been used in other settings (e.g. (Nevejan & Brazier, 2012)) to understand the design space for participation. In Bouwlust, the YUTPA analysis, for example, revealed that there are many green areas, such as small parks and playgrounds, but that those are rarely used. Such insights were documented by the architect using photographs taken, and notes made, during the site visits.

## **Desk research**

For desk research the team relied highly on municipal documentation, such as urban district plans, safety and security reports, and neighbourhood monitors. The Municipality provided reports with evaluations of different participation initiatives that had been performed in the past. The Police provided crime reports on, for example, burglaries, robberies, and (domestic) violence. Furthermore, the results of two surveys were provided, one on liveability and safety issues according to the citizens, and one on the digital means available to the citizens. The researchers themselves also analysed several citizen participation initiatives they found on the internet through, for example, Facebook accounts of the neighbourhood and of the community police officer.

## **Neighbourhood mapping**

Two student groups from three different universities following an MSc programme on Responsible Innovation engaged in a mapping exercise in Bouwlust. They visited Bouwlust for two days and asked citizens to map places in the neighbourhood where they feel happy. The collected locations and stories of citizens were put on an interactive digital map by the students for everyone to access.

## **Interviews with community officers**

One of the first engagements with the community of Bouwlust were interviews held with five community professionals (four community police officers, one community worker). They played an important role in building up rapport with citizens in Bouwlust. The interviews were semi-structured and focused on three main topics. The first topic was the tasks of the police officer and community worker: their daily routines, which tasks lead to a good feeling (under which circumstances) and which ones cause frustration (under what circumstances). The second topic concerned the interaction and collaboration between professional partners, within the police force and outside with, for example, the Municipality and housing associations with questions such as: How do you negotiate and tune activities?, How do you support each other?, How do you receive and show appreciation? The third topic was about the way interaction and collaboration with citizens was organised, and its importance with questions such as: How do you interact with citizens? What is important in your work for citizens?

### **Citizen questionnaire and interviews**

Following the interviews with community professionals, a questionnaire and semi-structured interview guide were developed to address the perspective of citizens. Again, the YUTPA framework (Nevejan, 2009) was used to structure and analyse the interviews with citizens. The questionnaire included one question for each of the factors underlying the four dimensions of the YUTPA framework, resulting in a questionnaire with 16 questions in total. For example, the 'duration of engagement' factor was translated to the question 'How long do you live here?'. The factor 'body sense' resulted in the question 'Do you feel connected with the people in the neighbourhood?'. A question about the factor 'reciprocity' was rephrased as 'Do people help each other in this neighbourhood?'. As a final example, the 'role' factor was translated to the question 'Are you as a citizen important for actions that happen in the neighbourhood?'. The questionnaire addressed the social infrastructure in Bouwlust, to which extent citizens enjoy living in Bouwlust, whether they can take responsibility for the neighbourhood, and how much they feel they can collaborate with other citizens or community professionals. Each question required an answer on a scale of 1 (hardly) to 10 (very much).

In a similar vain were questions formulated for the semi-structured interview, using the YUTPA framework, to trigger the respondents to express their experiences of living and participating in the neighbourhood. Citizens were informed about the research project and the option to participate, by leaflets that researchers distributed in the neighbourhood, in physical mailboxes. These leaflets also offered the option for citizens to go to a website and answer some questions, instead of having a face-to-face interview. The researchers set themselves up in a mobile unit for a few days near the shopping centre in Bouwlust and approached citizens on the street inviting them to either fill out the questionnaire on paper or to participate in a more elaborate interview. This setting is shown in Figure 6.1. In total 22 citizens participated in the physical interview which resulted in rich qualitative stories and experiences of citizens to complement the questionnaire outcomes. The questionnaire was filled in by 72 citizens.

### **Citizen focus groups**

Participants for the citizen focus groups were recruited by visiting locations where citizens come together and approaching citizens to participate. For the focus groups, primary schools were visited to invite mothers to discuss their situations with the researchers. The researchers also visited the community centre to talk to



**Figure 6.1:** The researchers invited citizens for an interview or to fill out the questionnaire in the mobile unit.

other citizens. In total 11 persons participated in the discussions. The topics addressed, and questions asked, were similar to the semi-structured interviews with citizens in the mobile unit.

### Installation

To understand which circumstances in Bouwlust (e.g. emerging safety issues) could foster citizens to connect with each other and community professionals, an installation was setup for two days in the neighbourhood, one day close to a mosque, and one day near the shopping centre. This installation confronted citizens with specific circumstances, for example an increase of burglaries, and researchers asked citizens to respond, in terms of whom they would contact and in what way (face-to-face, email, phone, etc.). The answers provided by citizens gave further insight into the social structure of, and networks within Bouwlust and the possibilities to build and extend relationships between the various stakeholders.

### Design workshop

As a final activity, a design workshop was organised in which citizens and community police officers discussed the outcomes of the other activities and explored design options for Bouwlust. Twelve citizens, two community police officers and a community worker gathered on an evening in the community centre to co-design solutions for the three problems most frequently addressed in earlier activities: loiterers, litter and burglaries. The participants were triggered to think of solutions from three perspectives, from the perspective of the most likely responsible stakeholder, such as the police or city council, from the perspective of social institutions such as schools, mosques, health care and shops, and from the perspective of physical and digital installations, such as apps, sensors and street light. Solutions varied from larger garbage bins, improving locks on houses, via social influencing through school, church and mosque, understanding what loiterers need, to digital

apps to report and inform citizens and government, and placing cameras and sensors at crucial places.

#### **6.1.4. Method**

The four activities from Chapter 3 guide the analysis of this intervention. The eight methods (described above) are mapped onto the four activities. The Bouwlust case was analysed by first collecting all available documentation and data on the research project. These were reports and slide decks used to present the research to stakeholders, transcripts and survey data which were collected during the research, and the project website<sup>2</sup> that was used to keep local actors informed about the research. Three researchers were involved in the research project in Bouwlust and hence their experiences also informed the analysis. Each of the research methods used in Bouwlust were described as a first step in the analysis. Following, one researcher made an initial analysis by reflecting on the contribution of each of the methods to the aims of the four activities in the framework and determining to which extent the methods fit the four pillars. As a result, the methods were sorted and mapped on each of the activities to which they contributed. This initial outcome was discussed amongst the complete research team and further iterated by adding reflections and experiences of the other researchers, leading towards the results presented in the next section.

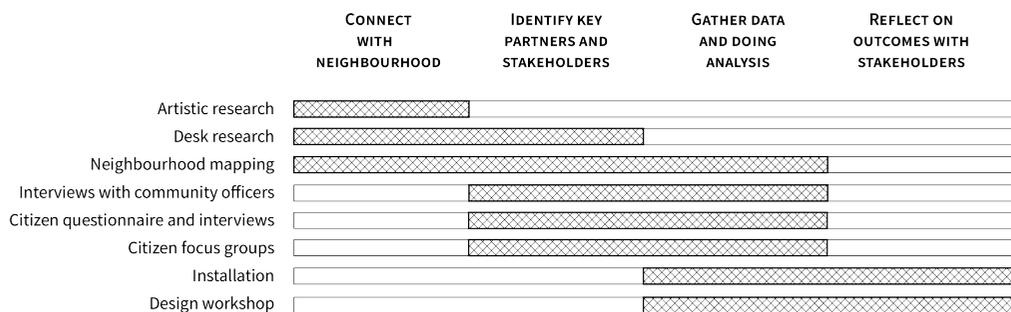
<sup>2</sup> See <http://vital.gingerresearch.net> (last visited October 5, 2020).

#### **6.1.5. Results**

This section analyses and outlines to what extent the methods helped to fulfil the aim of each of the activities of the framework. An overview of this analysis is shown in Figure 6.2. It depicts the relation between the methods that are part of the design intervention and the activities of the framework from Chapter 3.

#### **Connect with the neighbourhood**

The aim of this activity is to acquire insight into the social, physical, and technological structure of the neighbourhood. Initial involvement with the field through the artistic research, desk research, and neighbourhood mapping was used in the intervention as part of this activity. The artistic research was valuable for the researchers to develop a sense for Bouwlust, mostly in terms of the physical structure. For example, one observation was that many signs and fences restrict how public places are used in the



**Figure 6.2:** An overview of how the applied methods in Bouwlust fit within the four activities from the participatory place-making framework.



**Figure 6.3:** The community centre in Bouwlust has a rather closed appearance.

neighbourhood and that the community centre building itself is visually closed off from the street (see Figure 6.3). As in the previous activities, the YUTPA framework (Nevejan, 2009) was used to structure the analysis of the observations and to interpret the photographs taken.

The desk research provided insight into demographics of Bouwlust, participation initiatives, and the liveability and safety problems citizens experience. The documents helped to understand the history of the neighbourhood; how it has developed over the years into the very diverse and dynamic community it now is. An important insight in terms of social structure was, for example, that citizens, on average, live in Bouwlust for just three years. This high turnover of citizens complicates a general neighbourhood sense of community. There is, however, a huge variation in the number of years citizens live in Bouwlust: from just one year to extremes up to 40 years. In terms of becoming acquainted with Bouwlust, the field visits were useful to get to know the important places in the neighbourhood (such as the

community centre), while the desk research provided insights on what people in Bouwlust care about, which participation initiatives exist(ed), and the way the neighbourhood is structured in terms of demographics. The methods helped to paint a rather conceptual picture of Bouwlust as there was limited engagement with the people whom live or work in Bouwlust. The interviews, focus groups, and installation used in the other activities provided much more insight into the social structure of, and networks in the neighbourhood.

### **Identify key partners and stakeholders**

The aim of this activity is to acquire insight into the main actors in a neighbourhood in terms of participation. The desk research contributed to this activity, complemented with the interviews, questionnaires, and focus groups with several of the obvious stakeholders. As in this research programme, the researchers were invited by the local police and government to explore citizen participation, these three stakeholders were an obvious starting point to identify other actors. The four methods used in this activity (see Figure 6.2) allowed to identify actors from different perspectives. Throughout these four methods, and the ones used beyond this activity, other key actors were identified. Insights in Bouwlust became more detailed and nuanced. This resulted in the notable insight that the notion of a *key stakeholder* is very dependent on context. For example, in some cases citizens are considered to be a single (type of) stakeholder in this context, while the desk research documents, citizen interviews and questionnaire showed that citizens organise themselves in communities according to cultural or ethnic background. For example one citizen said: *“Everybody is only connected to their own group, their own culture, and not with other people.”* Citizens can, in this context, not be considered to be a single stakeholder, but rather as multiple stakeholders who are organised based on culture. People are part of different cultures, around schools, religion, sports, housing blocks for example. Culture is used here in a broad sense and reflects a multiplicity of identities (Jong, 2020).

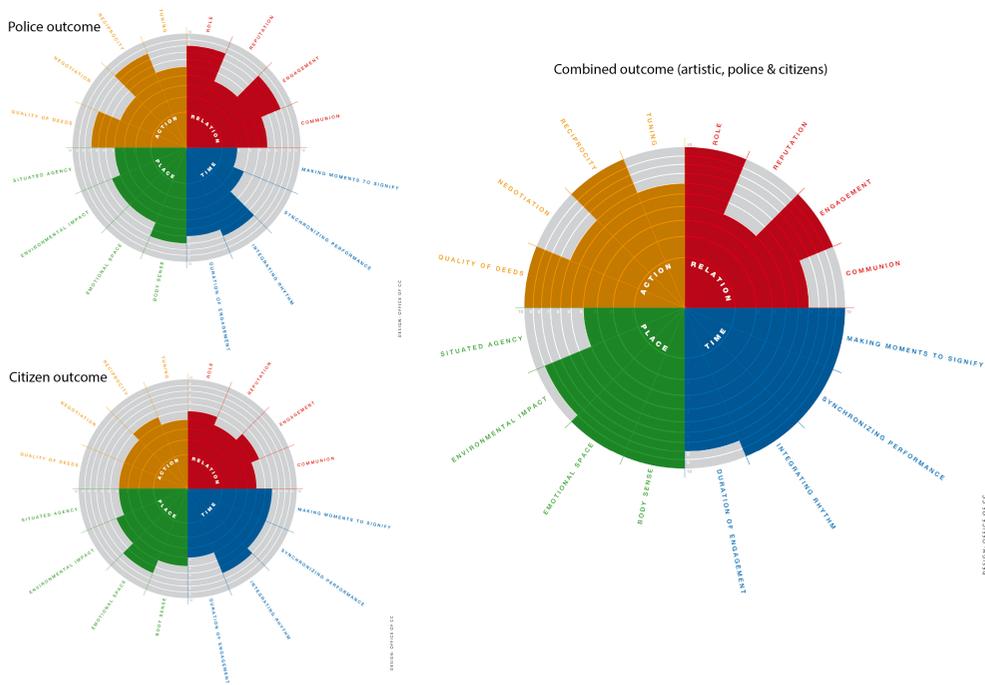
The key stakeholders identified by the community police officers included the municipality, local care institutions, and housing corporations. Citizens did not make this distinction: they grouped these various governmental actors together as the community police officer stakeholder. This became clear during the focus groups and citizen interviews, in which citizens indicated that they reach out to their community police officers when they need help, independent of the issue. One of the community police officers stated: *“We fill many gaps. We are in contact with schools, shops, care*

*institutions and youth work.” Another one said: “These professional partners come to me, [...] They call me to ask to go by one of their clients from which they haven’t heard in a while. In these cases I decide if this is part of my job or if it’s the partner’s responsibility.”* The officer is the first contact point for most citizens when they need help and also for the professional organisations when they want to reach citizens. The three methods in this activity taught that there are different perceptions on key stakeholders and that for Bouwlust, the main interaction is between the community police officer and different groups of citizens. The focus groups stimulated an open and exploratory discussion between different citizens. The discussions were dynamic and interactive, contributing to a playful ambience. The research showed every specific and important social role these community police officers have, according to the interviewed residents.

### **Gather data and doing analysis**

This activity comprised of many methods as shown in Figure 6.2. The interviews, questionnaires, and focus groups with citizens and community officers contributed to building relationships needed to gather data and analyse Bouwlust. Neighbourhood mapping, the installation, and design workshop supported this activity as well. This variation of methods enables city stakeholders to engage at different moments, as it suits them. They were playful in the way data was collected, using traditional methods (interviews, questionnaires, focus groups) and methods that fostered creativity, openness, and interaction (neighbourhood mapping, installation, design workshop). These methods created an iterative cycle to connect more and more with the neighbourhood and deepen the relationships with stakeholders. City stakeholders simultaneously became familiar with the research project, decreasing the effort to convince stakeholders to participate. Strategic locations to attract a variety of citizen groups were selected: visiting schools, shopping areas, mosques, and playgrounds. The fact that these methods were mainly conducted out on the streets, using a visible mobile unit or installation, lowered the barrier for stakeholders to talk to the researchers and thus relaxed the effort to collect data.

On the other hand, this activity aims to invest in the relationships between the city stakeholders themselves. The design workshop brought citizens, police officers and community workers together to discuss outcomes and collaboratively design solutions for three frequently mentioned problems in the neighbourhood. Different stakeholders collaborated on a commonly felt problem, which contributed to their shared feeling and relationship. The design workshop was playful because it fostered an open and exploratory



**Figure 6.4:** Left part shows the difference between the YUTPA outcomes for citizens and police officers. Right graph is the result of combing all YUTPA analyses to identify possible design spaces. Scores higher than 5 show potential for design.

mindset of participants, as they were asked to consider perspectives of other stakeholders, social institutions, and physical/digital installations when coming up with solutions.

### Reflect on effects with stakeholders

The aim of this activity is to find out where and how effects and learnings of the other activities can be fed back to the city stakeholders for reflection and discussion. In the design workshop the results so far were summarised and presented to the participants. The main reason for this is to validate whether the participants recognise these results and are willing to adopt them further on in the process. To this end, the insights of the interviews and questionnaires were mapped on the YUTPA framework to understand the relationships between the different actors and how they perceive each other. This is illustrated in Figure 6.4, showing the YUTPA results for citizens and community police officers. These graphs highlight which factors are supported, for which support is lacking, and how this differs between citizens and community police officers. This tool illuminates which factors have a basis

and which relationships between the various city stakeholders can be developed. The right graph shows the YUTPA result when all graphs are combined, visualising the potential design spaces for participation in Bouwlust. The factors that score higher than 5 on this combined graph are considered to indicate a potential design space.

In Bouwlust, neighbourhood mapping, an installation, and the design workshop were used to reflect on effects with stakeholders. In addition, a website was made available for citizens and other stakeholders to be informed on the progress of the research and intermediate results<sup>3</sup>. Asking citizens to indicate which places in Bouwlust make them happy resulted in a list of locations that might be appropriate to disseminate outcomes. The installation provided insight into motivators for citizens to engage with their neighbours and neighbourhood and other city stakeholders. The topic of safety in Bouwlust was identified as a topic that motivates citizens to contribute to neighbourhood initiatives for a longer period of time.

As result of the research it became apparent that the time dimension of the YUTPA framework offers the best design solution space for enhancing social safety in Bouwlust. The first factor that can be enhanced in the time dimension is *integrating rhythm*. Many residents have reported that sharing activities like walking the dog, meeting at the school yard, shopping at the same time, makes it easier to engage with a basic trust among one another. Rhythms of daily life affect the sense of social safety in a neighbourhood. The second factor that many residents agreed upon is the fact that the Bouwlust lost 'moments to signify'. In a neighbourhood both the history of the place as well as a yearly festival for example, or a monthly newsletter give people a shared sense of where they are. The sharing of meaning, the actively being involved with contributing to this meaning of and in a neighbourhood, enhances the sense of social cohesion and the sense of social safety as result. The longing for more meaning and active engagement with neighbourhood histories is visible in local social media activities, but is not yet visible in the physical environment.

### 6.1.6. Discussion

Analysis of the case study in Bouwlust provides insight into which methods can help to fulfil the activities of the participatory place-making framework. To untangle participatory design processes and methods is a challenge (Sawhney & Tran, 2020): they are not easily separated because they influence each other constantly. To this end, researchers can move back and forth between the four activities of the framework using methods that can contribute

<sup>3</sup> See <http://vital.gingerresearch.net>. (last visited October 6, 2020)

to multiple activities at the same time as depicted in Figure 6.5. Such an iterative process is needed as the neighbourhood is also continually changing. For example, the analysis showed that key partners and stakeholders are fluid, depending on who and when you ask. Going through multiple iterations using various methods also allows to step by step deepen the understanding and connection with the context, and to continuously inform next steps on what was learned. The resulting account to use different types of methods and to iterate within and between the four activities are the two main topics for discussing the analysis.

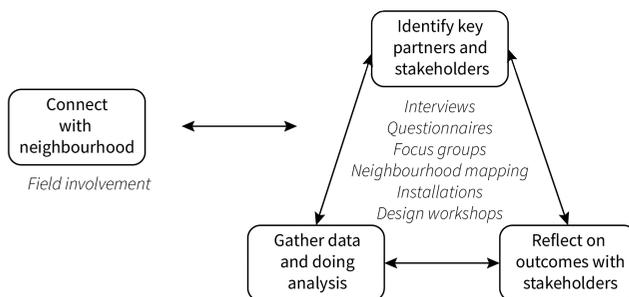
### **Method variety in each of the activities**

Eight different methods were used to explore participation with various stakeholders in Bouwlust. These methods purposefully offered neighbourhood actors multiple ways to participate in the research. Citizens could engage in a way that suited their availability and commitment. The benefit of providing different modes or mediums to tailor participation was also highlighted in case studies on grassroots citizen communities (Slingerland et al., 2019). The findings in Bouwlust show as well that multiple methods should be used in this kind of work to provide actors distinct ways to be involved and provide input to the research.

One activity in which many distinct methods were used was *gather data and doing analysis*. While the mobile unit for the citizen interviews received a lot of attention because it was placed at a strategic location where many people frequent, digital engagement on the website was considerably lower. Engagement, in this case, was measured in terms of how many citizens responded. These two channels nonetheless enabled different types of citizens to participate: ones whom do not find their way to a website or app and enjoy talking to a researcher, and ones whom prefer to give their feedback at home using their computer at a time that suits them. The YUTPA framework was helpful to integrate the insights from the various methods providing a generic coding scheme for the analysis of the variety of results, enabling comparison needed to identify design spaces for participation in the neighbourhood.

### **Timing and sequence of methods and activities**

The four activities of the proposed framework were initially introduced without a pre-defined order. The case study in Bouwlust, however, suggests a preferred sequence of activities and methods. This sequence suggestion is added to Figure 6.5. Initial field involvement is an essential first step before any of the other methods



**Figure 6.5:** The design framework suggests a sequence of activities and which methods to be used in them.

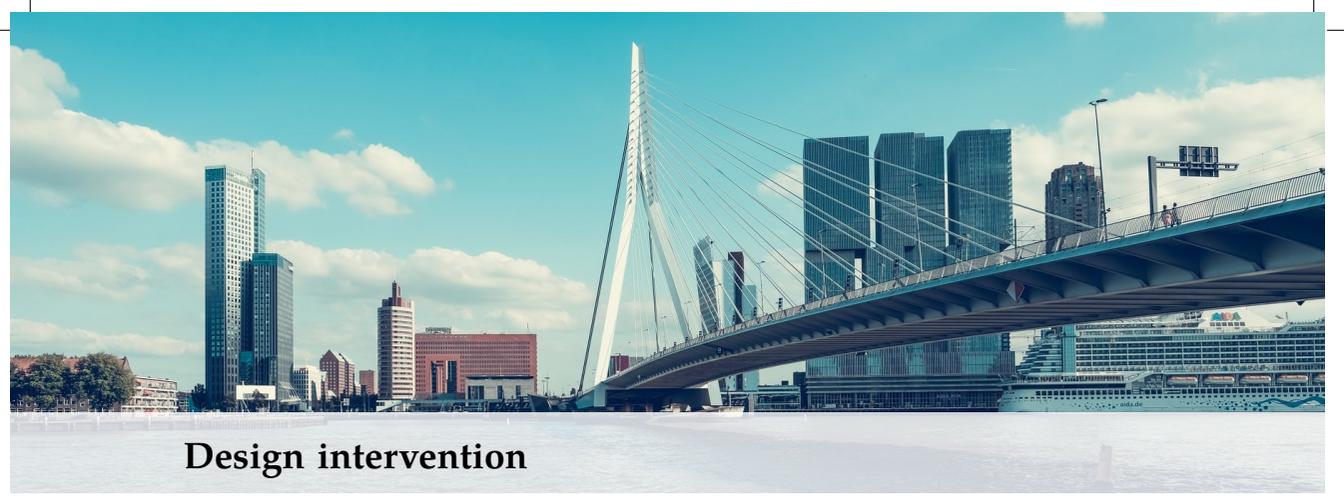
can be applied. This initial step informs the researchers on which locations in the neighbourhood people can be found and which people or parties should be considered in the furthering research. Interviews with citizens or city officials, for example, will not be less informative to researchers if they do not first engage with desk research and field visits to know which topics to address in the interviews. Interactive installations could also be used to become acquainted with the neighbourhood, but researchers first need to know which are crowded locations to strategically place an installation. The prominent presence of such initial field work in seminal literature (e.g. (Crivellaro et al., 2015; Parraagudelo et al., 2018; Custers et al., 2020; Aoki et al., 2009)) confirms that field involvement as part of *connecting with the neighbourhood* is a critical first step in the proposed framework.

Following the case study analysis, *connecting with the neighbourhood* seems to be the activity that needs to be executed first before the other three activities can be done. In contrast, the other three activities do not presume a specific sequence and continue to inform each other and the first activity as well. In the case of Bouwlust, results were mostly made visible to the community during the final stages of the research. Some methods (e.g. the installation) could have been applied already earlier to visualise intermediate outcomes. At the same time, the installation in Bouwlust was, for example, designed using insights from the interviews and questionnaire. The method sequence needs to be carefully considered, to find an appropriate chain of activities that build on each other's outcomes and disseminates these outcomes to the local community. A method such as focus groups is also suitable to feed results back and discuss them with the community to inform further research activities (Pickering, Kintrea, & Bannister, 2012). Such a process, where directions and outcomes become apparent on the go, requires a lot of flexibility from researchers, participants and funders, which is not always an option.

### 6.1.7. Conclusion

This study explored a design intervention to support city actors to make it work together, despite their sometimes conflicting values and interests. The intervention was inspired by the Playable City perspective. The intervention was ran in Bouwlust, a neighbourhood in The Hague, and analysed using the four activities of the participatory place-making framework from Chapter 3. The intervention lasted in Bouwlust for two years in collaboration with the police and local government. Eight different methods were part of the study, to involve community professionals and citizens in thinking about improving the liveability and safety in Bouwlust. Using the framework activities to analyse the place-making process in Bouwlust resulted in valuable and relevant insights into how such processes can be best organised.

The first insight was that method variety in each of the activities is needed to offer city stakeholders multiple ways to get involved, using digital channels or real-life engagements, with various levels of commitment. The second insight was the activity *connect with the neighbourhood* needs to be done before the other three. The outcome from this activity informs the activities to *identify key partners*, *gather data and doing analysis*, and *make effects visible and accessible*. Current research extends this research to focus on the development of a data approach to enhance rhythms in neighbourhoods (2018-2023) in urban environments (Nevejan et al., 2018). Current research also explores a variety of interfaces in which online local activity becomes visible in the physical environment where the stories and data are gathered in a playful endeavour (Suurenbroek, Nio, & De Waal, 2019). Further analysis of other playable participatory case studies using these four activities is one of the directions of our future work and aims to strengthen the contribution of the participatory place-making framework to the field of playable cities.



## Design intervention

### 6.2. Intervention 6: Asset-based community development

The asset-based community development (ABCD) intervention has been implemented in the context of the Resilient Cities programme in Rotterdam. A summary of this intervention, using the four activities of the participatory place-making framework, is given below. The rest of the chapter explains in more detail why ABCD was applied in this intervention, what the programme entails, which methods were used to study it, and in what way the intervention supported resilience and place attachment of the community.

**Connect with local context:** The intervention was deployed in Bospolder-Tussendijken (BoTu), a neighbourhood in Rotterdam. The VeldAcademie has engaged in extensive research in this area. A researcher who grew up in this neighbourhood engaged in a large part of the research and hence has a close connection with the context.

**Identify key partners and stakeholders:** Key partners and stakeholders were recruited from the network of the VeldAcademie, in the context of the resilience programme. The local researcher also recruited partners from his personal network.

**Gather data and doing analysis:** Interviews were held with community members, representatives of local government, and other informal and formal actors to establish an understanding of how the community responded to the first lockdown and how ABCD had prepared them for this.

**Reflect on effects with stakeholders:** The results of the interviews and gained insights are shared in a report by the VeldAcademie with all relevant stakeholders. The VeldAcademie further presents and discusses the results with the key partners.

### 6.2.1. Motivation

The well-being of people in cities is built on a complex network of institutions, infrastructure and information, but also networks within and between communities and associational life (The Rockefeller Foundation & Arup, 2014). These networks are under pressure when confronted with crises, such as floods, extreme weather, or migration streams (Adger, Safra De Campos, Siddiqui, & Szaboova, 2020). Resilient city approaches have gained popularity amongst policy makers and urban planners to enable the city and its urban community to adequately respond to such sudden shocks or stressors (Torabi, Dedekorkut-Howes, & Howes, 2021). This intervention study specifically focuses on community resilience: the capacity of an urban community to withstand or adapt with change (Keck & Sakdapolrak, 2013; Mehmood, 2016), through the “management and engagement of community resources by community members to thrive in such an uncertain environment (Magis, 2010)” (Matarrita-Cascante, Trejos, Qin, Joo, & Sebner, 2017).

Resilient communities benefit from collaboration between formal community actors, such as local institutions, and informal community actors, such as residents and associations (Galal Ahmed, 2019). These actors collaborate to organise the fulfilment of functions in a community (Colten, Kates, & Laska, 2008; Edelenbos, Meerkerk, & Schenk, 2016). From the dynamic and interaction between the actors, an engaged and cohesive community emerges and this is essential to urban resilience (Slingerland et al., 2020a).

While the need for collaboration between formal and informal actors for community resilience is acknowledged (Linnell, 2014; Nespeca, Comes, Meesters, & Brazier, 2020), much uncertainty still exists about adequate ways of working together. As such, practitioners and researchers struggle to formulate strategies and policies to enable and support community resilience in cities (Torabi et al., 2021). Current studies into community resilience from the resident perspective (e.g. (Fastiggi, Meerow, & Thaddeus, 2020; Linnell, 2014), or governance perspective (Beilin & Wilkinson, 2015)) contribute to understanding what a resilient community in practice really needs to deal with crises.

These scholars have identified resources that play an important role for communities in crisis situations. The value and necessity of these resources is partly determined by the nature of the crisis they face (Vos & Sullivan, 2014). For example, natural hazard crises require fast coordination between actors as well as prepared infrastructure that can withstand the hazard (Colten et al., 2008). In contrast, social crises such as the COVID-19 pandemic require established social structures that can quickly adapt their activities

and be creative in dealing with the imposed restrictions and rules (Caruso, Mela, & Pede, 2020). In general, people's behaviour in crisis closely follows their past routinised patterns of movement, influenced by their historic behaviour and their social bonds. Community infrastructure is vital to reduce inequalities caused by crisis and cascading effects (Klinenberg, 2018; Portugali, 2011).

This study takes a closer look at the required community assets that enable resilience by posing the following research question: Which capacities and relationships enable a community to be resilient? To answer this question, the next section starts to identify core assets of resilient communities described in literature. These assets are then analysed in the context of a Dutch neighbourhood-based community that was faced with sudden lockdown restrictions due to the breakout of the COVID-19 pandemic. An analysis reveals which of their capacities and relationships the community needed to respond adequately to the imposed lockdown. The analysis further identifies five factors that support the community to access these assets or to strengthen these relationships and capacities.

### 6.2.2. Background

Many cities have realised the need to be prepared for unexpected crises, shocks, or stressors: to address their strategies for resilience (The Rockefeller Foundation & Arup, 2014). Linnell (2014), for example, has shown that coordination and interaction during crisis response requires formal and informal actors to work together to adapt to the crisis situation. Asset-based approaches to community development (such as ABCD (Kretzman & McKnight, 1993)) provide a promising approach to this end. Assets, in these approaches, are defined to include skills, knowledge and networks of local residents and voluntary associations, physical and economic resources of the place, resources of public, private and non-profit institutions, and stories and shared experiences of residents (Kretzman & McKnight, 1993); see also (Russell, 2020). Mathie and Cunningham (2003) consider the focus on social relationships the core of ABCD. Formal and informal networks also provide a means to gain access to other community assets and resources (Mathie & Cunningham, 2003). In the presented case, ABCD aims to develop the district bottom up, by sustainably working together to create strong and connected local communities, where residents can experience and utilise their collective strength (Visser, 2021). During the past five years, the case study neighbourhood on which this paper focuses, has followed an ABCD approach to strengthen the local community. Specifically,

efforts were made by formal actors to gain trust, share responsibility in neighbourhood development and emphasize the need to collaborate. Key actors such as active residents, local civil servants, police and the main housing corporation explored and found different ways to work together. This study concentrates on the assets the community used in their response to the COVID-19 crisis.

### **Social structures as a pre-requisite for community resilience**

Many scholars describe activities such as coordination, collaboration, and interaction as key processes in resilient responses of communities to crisis (e.g. (Colten et al., 2008; Comes, 2016; Linnell, 2014; Nespeca et al., 2020)). Community resilience comes to practice when interaction between agents actually takes place (Adger et al., 2020). In fact, social structures, interconnectedness, and networks within and between communities are described by many as the main pre-requisites for communities to access other resources and start up key processes during crisis (Berkes & Ross, 2013; Linnell, 2014; Vos & Sullivan, 2014). Established social structures and working relationships enable ad-hoc coordination of actors (Comes, 2016), knowledge exchange (Grube & Storr, 2014), and mobilisation of other resources (Nespeca et al., 2020). When there is no existing social structure, a lack of trust, or exclusion of particular groups, community resilience is undermined because actors have difficulty finding each other, communicating, and working towards mutual goals (Adger et al., 2020; Spialek & Houston, 2019). In this context, the presence of social structures, working relationships, and social interaction is considered as the starting point of resilient communities, enabling access to other necessary assets (Keck & Sakdapolrak, 2013).

### **Assets for community resilience**

Assets that influence community resilience have been identified from literature published between 2000 and 2018. Google Scholar and Scopus were searched using (strings of) the keywords crisis management, social resilience, community resilience, self-organisation, governance, local, and neighbourhood. All abstracts were first reviewed to determine relevance with respect to the topic of community resilience. All relevant papers were reviewed in more detail to understand what community resilience requires. These findings are discussed in the next paragraphs and conclude by identifying four key assets to community resilience in crises.

As outlined above, these assets become available through interactions between actors, that, in turn, requires an established social structure in the community.

#### *Adequate communication*

Resilient communities communicate and collaborate effectively and adequately (Comes, 2016; Nespeca et al., 2020). Walsh (2007) addresses the need for clear and consistent information sharing during problem solving processes, as well as collaborative decision-making, planning, preparedness and resourcefulness. Stronger community resilience is also signalled when communication enables citizens to share stories about disasters and to validate this emerging knowledge (Goldstein et al., 2015; Spialek & Houston, 2019). Vos and Sullivan (2014) stress the need to include all formal and informal actors in crisis communication. Comes (2016) focuses on the role of expert networks with changing roles, fast communication and coordination support in distributed networks, and ad hoc reasoning to address challenges and changes. Nespeca et al. (2020) propose a framework for decentralised information management to support flexibility and adaptability of actor roles and dynamic information sharing in crises.

#### *Governance of community resilience*

Governance and policies also influence community resilience (Beilin & Wilkinson, 2015). Wilson (2013) studied the interaction between policy and resilience, and found that most successful policies are directed at the needs of specific communities and based on the correct timing of implementation. The importance and influence of local control and culture are addressed by Hills (2002) and Stark and Taylor (2014). When governments direct and shape transformations for strong community resilience (Wilson, 2013), this has been coined by Ross and Berkes (2014) to be engaged governance.

Nespeca et al. (2020) concentrate on mutual coordination between actors during a crisis and the required ability to effectively self-organise. Their earlier mentioned framework provides a way to focus on actor roles and interaction. Goldstein et al. (2015) stress the importance of engaging multiple voices for self-organisation. Ross and Berkes (2014) conceptualise this self-organisation as leadership, requiring certain citizens to take on the role of community leaders, to facilitate resilient actions in times of crisis.

#### *Problem-solving ability through social capital*

According to the US National Research Council (2011), social capital is key to community resilience in private-public collaborations. ABCD, with a strong focus on relationships, considers social capital as a community asset (Mathie & Cunningham, 2003). Social capital describes the potential resources a community can

access through its networks, for example to facilitate actions to reach community goals (Magis, 2010; Bourdieu, 1983; Coleman, 1988; Eizaguirre & Parés, 2019). In the same vein, Slingerland et al. (2020b) propose a framework for city actors to “together make it work” in which they distinguish five principles: community-focused, inclusive, playful, self-sustaining, and reflective. These principles overlap with the principles of ABCD and provide guidelines for fruitful collaboration between city actors to tackle the problems with which they are confronted (Doff, 2017; Edelenbos et al., 2016; Grube & Storr, 2014; Kapucu & Sadiq, 2016; Slingerland et al., 2020b).

### 6.2.3. Intervention design

Bospolder-Tussendijken has been selected by the City of Rotterdam for a ten-year programme to improve the neighbourhood’s resilience, as part of the Resilient Rotterdam Strategy (Rotterdam, 2017). The goal of the “Resilient BoTu 2028” programme is to develop the resilience of the neighbourhoods’ residents. BoTu aims to be the first resilient neighbourhood of Rotterdam within 10 years, increasing its social index score, one of the metrics used by the municipality to measure urban development<sup>1</sup>. The goal is to rise the metrics of Bospolder (=99) and Tussendijken (=88) to the city’s average of 2018 (=110).

BoTu consists of two neighbourhoods (Bospolder and Tussendijken) and contains 14.500 residents and approximately 7.100 households. Many young people live in BoTu: more than 20% of the neighbourhood is under the age of 18 years old, while the percentage of elderly (11%) is below city average (Rotterdam, 2020). Almost 80 percent of the neighbourhood’s community has an immigrant background, of which almost 70 percent has a non-western background (Rotterdam, 2020). Furthermore, these neighbourhoods are two of the poorest neighbourhoods in the Netherlands. Due to a high concentration of social problems such as unemployment, high indebtedness, and low quality of housing in the areas, BoTu is often described as a ‘disadvantaged’ area (Rotterdam, 2020).

The strong (informal) social networks in BoTu are clearly an asset. Improving community resilience by strengthening and expanding these social networks is the focus of the Resilient BoTu 2028 programme, building on existing ABCD initiatives that had been started to mobilise key actors on local issues such as safety. An illustrative example is that local police, community workers, and local organisations met on a regular basis to discuss safety of BoTu, and possible initiatives to increase safety. The BoTu 2028 programme further builds on such interventions and particularly

<sup>1</sup> The social index includes how citizens perceive the liveability in their neighbourhood, citizen participation, and place attachment. The scores go from 0 (low) to 200 (high) and the benchmark is the Rotterdam average in 2014 (100) (Rotterdam, 2020).

used ABCD to strengthen the connections and relationships between formal and informal actors in BoTu.

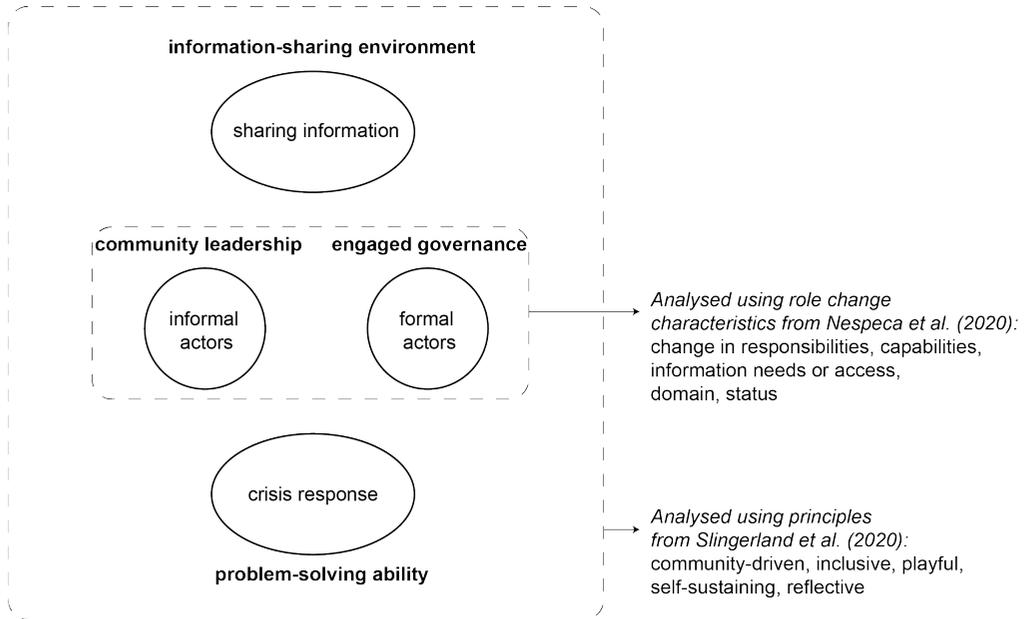
#### 6.2.4. Method

The literature illustrates the multitude of perspectives on community resilience and highlights four assets that many scholars mention as essential to community resilience: *information sharing environment*, *engaged governance*, *community leadership*, and *problem-solving ability*. An *information-sharing environment* determines how actors communicate. *Engaged governance* relates to the extent to which formal and informal actors who govern or manage procedures in a community respond to the needs of a community to develop specific community related policies and practices that influence a community's resilience. *Community leadership* functions as a bridge between informal citizen groups and formal authorities with active engagement of community members in various roles and connections to actors outside the community. The fourth asset, *problem-solving ability*, relates to the activities a community takes towards a resilient response. The problem-solving ability as such is where community resilience is manifested: through coping, adapting and transforming. These four assets (see Figure 6.6) are analysed on how they work in practice when a neighbourhood-based community is faced with a crisis.

The intervention takes place in the Bospolder-Tussendijken area (BoTu) in the city of Rotterdam. The area was already part of a community development programme (initiated and supported by the City of Rotterdam) when faced with sudden lockdown restrictions. The research team had studied the community before the COVID-19 pandemic struck the Netherlands and hence had the unique opportunity to observe what changed in the community in response to the lockdown.

#### Approach and data collection

The social crisis that resulted of the strict COVID-19 lockdown provided unique insight into the resilience of the BoTu community, to answer the research question *What capacities and relationships enable a community to be resilient?*. The lockdown required community members of BoTu to take action. This situation provided a unique opportunity to study how the earlier identified four key assets for community resilience (information sharing environment, engaged governance, community leadership, and problem-solving ability) work in practice. A semi-structured interview guide was designed (Strauss & Corbin, 2015; Stuckey, 2013) based on an interview



**Figure 6.6:** The four key assets for community resilience and how they are analysed in the context of the intervention study.

guide earlier used in the Resilient BoTu 2028 project to monitor existing initiatives in the community. As such, the guide included questions about how the interviewee continued or started their initiative during the lockdown, which neighbourhood networks the initiative included, what activities the initiative organised, how initiators organised themselves, and which milestones have been achieved so far.

<sup>2</sup> Interviews were held by researchers of the university and of Veldacademie. Participants interviewed by the university gave their written consent for participation (9). Participants interviewed by the Veldacademie gave their oral consent (37). All participants who are quoted gave their consent for their quote to be included in this dissertation.

Participants were recruited from the existing inventory of initiatives, through snowball sampling and from personal networks of the researchers within the community. The participants were mostly but not exclusively active actors. Those who were not active were recruited from the researchers' personal networks. In total, 65 interviews were held, from April to July 2020, recorded and transcribed with the consent of interviewees<sup>2</sup>, and analysed. Among 47 individual participants were 24 who represent formal actors and 23 who represent informal actors. Eleven key actors, including civil servants who act as 'neighbourhood networkers', were interviewed multiple times (two to four interviews) over the course of the research period to acquire updates on the emergence of new initiatives. As a result, the length of the interviews varied widely (2 - 58 min). On average, an interview lasted 30 minutes (standard deviation: 17 minutes).

## Data analysis

As visualised in Figure 6.6, analysis of the interviews focused on the four key assets for community resilience and how they are manifested in the interaction between formal and informal actors in Bospolder-Tussendijken, by performing an inductive process through consensus on the interview transcripts (Braun & Clarke, 2006). Three researchers coded the interview transcripts using the earlier mentioned framework of Nespeca et al. (2020) and principles of Slingerland et al. (2020b) (see Figure 6.6).

The assets *engaged governance* and *community leadership* were coded from the perspective of the formal and informal actors. The formal and informal actors that participants mentioned to have played a role during the lockdown are listed in Table 6.1. Institutions and organisations with a top-down structure, with formal decision-making power and influence, possibly with ties to the municipality, are considered to be formal actors. They relate to the asset of engaged governance. Foundations, small-scale (social) entrepreneurs and citizen driven (bottom-up) initiatives initiated by local residents are considered to be informal actors. They relate to the asset of community leadership. In line with Nespeca et al. (2020) understanding of actor roles and possible role changes, the research team coded the moments where participants described themselves or another actor to change their (1) responsibilities or duty related to a role, (2) capabilities to perform certain activities, (3) information needs and access, (4) domain of expertise and (5) status, regarding formal and informal status.

The assets *information sharing environment* and *problem-solving ability* were coded using the principles proposed by Slingerland et al. (2020b) for city actors to “together make it work” as briefly described above. One researcher coded moments in the transcripts that indicate if and how the actions taken by the city actor adhere to the five principles of being (1) focused on the community, (2) inclusive to all actors, (3) playful and open-ended, (4) self-sustaining the activities, and (5) supporting reflection on the position and role of city actors in the wider community. One University researcher started with initial coding, that was then checked and adjusted by the two other researchers from the Veldacademie. This checking and adjusting of the coding was discussed in several meetings until all of the researchers agreed on the results as presented in this paper. Discussions related to both placement in the framework of Nespeca et al. (2020) and that of Slingerland et al. (2020b). With respect to the framework of Nespeca et al. (2020), most discussion revolved on the codes placed in ‘capabilities’: researchers debated whether actors really acted on new capabilities or whether these were capabilities

**Table 6.1.** List of formal and informal actors that were mentioned in the interviews to play a role in the community response of BoTu during the pandemic.

<b>Formal actors</b>	<b>Informal actors</b>
Mosque	Community council
Salvation army	Restaurants
General practitioner	Community foundations
Charities	COVID-19 response community initiative
Neighbourhood committee	Collaboration and network platform
Church	Network and meeting centre
Municipality of Rotterdam	Care foundations
Housing corporation	Sports clubs
Youth organisation	Social entrepreneurs
Supermarket	Islamic foodbank
Municipal community centre	Community garden
Schools	Volunteers
Food multinational	Community initiatives
Local police officer	Community members
Organised community care	
District nurse	
Formal welfare organisation	
Makerspace	
Non-profit organisation for refugees	
National foodbank	

already within their capacity, but not used. With respect to the framework of Slingerland et al. (2020b), most debate concerned the sustainment of activities: researchers discussed which aspects indicate that activities were sustained, or have the possibility to be sustained, and which not. Due to varying circumstances, the researchers involved in the coding did not keep track of a specific percentage of the initial agreement.

### 6.2.5. Results

The results should provide an answer to the research question: Which capacities and relationships enable a community to be resilient? Hence, the analysis focused on the roles and the actions that individual members of the BoTu community took in response to the COVID-19 crisis, and which of the four key assets the community were used in this process.

Type of role change	Informal actors	Formal actors
Responsibilities	7	3
Capabilities	14	17
Information needs	1	6
Domain	0	0
Status	1	2

**Table 6.2.:** Overview of what type of role changes were mentioned in the interviews of informal and formal actors.

### Community Leadership and Engaged Governance through actors changing roles

The two key assets Community Leadership and Engaged Governance were analysed by focusing on the formal and informal actors in BoTu, and whether they made any changes in their role to support these assets. Role changes were mentioned 33 times during the interviews and through actor interaction. Role changes were made both by representatives of informal actors (to support community leadership) and of formal actors (to support engaged governance). Table 6.2 outlines the type of role changes that were mentioned in the interviews of informal and formal actors. Please note that one actor could engage in multiple types of role changes (e.g. changing responsibilities and expanding capabilities).

#### *Community leadership of informal actors*

Three citizens changed their role to achieve community leadership, when they received signals from the community that vulnerable people needed help during the lockdown. One of these citizens shared this problem online, and two other citizens reacted to this post. These three citizens started to connect significant actors and further identify the needs in the community: “... she was worried about elderly people and she wrote ‘adopt an elderly person’ or something. And then I thought, yes, that might be a good idea to get some more people to join in.” (community leader, informal). These citizens became community leaders whereas in the past they were active residents and/or social entrepreneurs involved in initiatives in the neighbourhood and networked with formal and informal actors through collaboration prior to the crisis. They responded to the COVID-19 crisis by acting as individuals independently of their organisations to initiate the local initiative “Delfshaven Helpt” because they considered it to be necessary. They were able to do this, because of the existing social structures in BoTu that they were part of. “People were able to play an effective role here because they were already doing that, so they have the right networks, knowledge and experience at their disposal and know the area well.” (informal initiative respondent).

All informal actors who made a role change were facilitated through the existing network; it made it easier to connect, collaborate and communicate. Furthermore, a significant group of new

volunteers, mainly students, stood up to support the community. Their role change was supported by flexibility in tasks: a result of job loss and working from home. *“People who usually just go out to work, they are working from home now. Some volunteers said they normally don’t do anything for their district.”* (informal initiative respondent).

The interviewees mentioned 17 informal actors whose role changed, six whose did not. Table 6.2 shows that informal actors mainly changed roles by changing or expanding their activities, using different capabilities. Some organisations switched to online communication, facilitated by digital resources and communication. Existing social networks within the community and contacts to formal organisations played an important role, as did physical resources such as a work place in the neighbourhood.

Informal actors used their personal networks to recruit sponsors for a laptop project. *“A great deal of money has been collected through sponsoring, so there are a number of people in the Delfshaven Helpt network who just have a very good professional network and who manage to get money out of all sorts of major organisations. And this money is now being used to buy lots of laptops.”* (informal initiative respondent).

As mentioned above, 6 informal actors were not able to adapt their role. The main frustrations that stood in the way of role changes were regulations and restrictions. For example, the market place was closed and a local festival was cancelled due to the ban of events. Ineffective communication also frustrated community resilience. Meetings were cancelled and meeting places closed, resulting in inaccessible formal aid and insufficient knowledge about what was happening in the neighbourhood, and therefore little action was taken. *“You hear less news from the neighbourhood, even though everyone from the neighbourhood committee lives close by. Because we no longer see each other and we don’t use Zoom, for example, I didn’t hear anything anymore”* (member neighbourhood committee, informal). Also, an overflow of irrelevant information in online groups, and poor digital resources and skills frustrated role changes: *“Not everyone is equipped to deal with Whatsapp, websites, entering passwords. That can be quite a disability for someone. You can call but they will just refer you to the Whatsapp group or website. That is when people get stuck.”* (informal initiative respondent). Furthermore, role changes were obstructed by financial constraints and limited network access.

#### *Formal actors operating as engaged governance*

Formal actors who changed their activities to support local initiatives were already part of an existing initiative or part of the local network through previous collaboration. As such, the existing

social structures of BoTu played a major role in supporting formal actors to deal with the crisis. For example, community leadership actors met with formal actors to discuss the needs and problems within the community, and to propose possible solutions. They could easily contact each other because they had worked together or already knew each other. Formal actors supported informal actors with capacities and resources necessary to perform their tasks and develop their activities. Housing association Havensteder provided a vacant building to the new initiative “Delfshaven Helpt”, that was then used as a volunteer-based grocery giveaway shop to distribute food packages. The rent was waived for the first months. The use of PIER 80, a municipal “House of the Neighbourhood” enabled actors to work together and facilitate storage of goods. Also, cars and bicycles were needed for the distribution of materials, such as aid packages and flyers.

The interviewees mentioned that 18 formal actors made a role change in response to the imposed lockdown and became involved in engaged governance, one actor did not, and for three actors this is unknown due to lack of data. As illustrated in Table 6.2, the most common type of role change of formal actors was that their activities changed or expanded (capability related).

Actors who changed responsibilities often also changed or expanded their capabilities. For example, healthcare professionals, like general practitioners, changed their role by exchanging information about a need for support for vulnerable patients that could be fulfilled through emerging local COVID-19 initiatives.

Another role change that occurred is a shift in status among formal actors, as actors started to act more informally, carrying out activities as a group of equals and formal roles did not determine who took on what task. *“It no longer matters who works where or who has which role, whether you are an official neighbourhood manager or area networker, all have been handing out flyers,”* (community leader, informal). Furthermore, formal actors worked as individuals at the periphery of their organisations, and offered individual skills that go beyond their formal tasks and capabilities. *“There was someone from the daycare who apparently could also build a website,”* (community worker, formal). Local formal actors, such as the municipal neighbourhood team, worked from home on the basis of the municipal protocol. They acted fairly quickly at their own discretion, including presence in the neighbourhood (against the official directive), where possible. *“You can certainly notice that one official creates more freedom in dealing with the rules compared to another,”* (informal initiative respondent). Local professionals were frustrated by the rules and regulations. The message from the Municipality was *“work from home, limit contacts. There was actually*

*nothing like 'make sure you maintain your network''' (neighbourhood manager, formal).*

In response to the lockdown, Table 6.2 shows that formal and informal actors changed responsibilities, capabilities, information access, or status. The fourth dimension of roles changes (domain) was not observed for the informal and formal actors in BoTu. The role changes found were from informal actor to community leader, and from formal actor to engaged governance. The existing social network and relationships in BoTu were essential to facilitate these role changes. The next section focuses on the actions these actors took, supported by their information sharing environment and their problem-solving ability.

### **Interactions and activities: Information-sharing environment and problem-solving**

The *information sharing environment* and *problem-solving ability* of the community enable actors to initiative activities to help the community cope and adapt in a crisis situation. They can access these assets through the social structures and interactions. This part of the results focuses on the coding of factors that supported or frustrated organising activities, such as Delfshaven Helpt, and to what extent they adhered to the principles that support the problem-solving ability of communities, identified by Slingerland et al. (2020b).

#### *Actor interaction: Community-driven and self-sustaining*

The interaction between the formal and informal actors activated the existing social network in BoTu for initiatives to emerge and evolve in response to the lockdown. In other words: formal and informal actors in BoTu accessed required resources to deal with the lockdown through the existing social structure. The earlier presented actor role analysis shows clearly that the informal community members took the initial initiative as community leaders in response to the lockdown. This is a result from the earlier investments in the BoTu community, explained by one of its residents: *"I think the reason why it came about so quickly in this district, or more specifically in Delfshaven, is because in recent times, years already, investments have been made in the resilience of various networks. So we can find each other very quickly and therefore also have a kind of shared framework of values, which makes it easier to work together on the basis of trust"* (community leader, informal). This quote shows that the informal actors feel they are able to make a change and take up responsibility, indicating that problem-solving takes place in a community-driven manner.

The problem-solving ability of the BoTu community was shown to be self-sustaining through the established social relationships that were activated and strengthened among actors who collaborated in response to the lockdown. The existing working relationship and previous experiences could be leveraged during this crisis. This, for example, provoked formal actors to be more flexible in dealing with the official rules. Several municipal employees bypassed the official guidelines to facilitate activities that were initiated by the informal actors. These officials were aware of the importance of visibility and trust in the neighbourhood, as means to inform and engage residents. Such a response from the formal actors shows that activities can be self-sustaining, due to the collaboration between formal and informal actors to solve local problems. Such a response needs an established relationship that is built on trust, mutual respect, and empathy (Wellman & Wortley, 1990).

*Emerging activities: Inclusive, playful, and reflective*

Many citizens and professionals in BoTu took initiative as a response to the lockdown. The Delfshaven Helpt initiative in BoTu is inclusive, based on close collaboration between formal and informal actors reaching a greater group within the community than other smaller local informal initiatives. As one formal actor explains: *“Now we have a common goal. That is to help as many elderly and vulnerable people as possible. [. . .] Previously, of course, you also had other goals and now you work together on a task that is more inclusive.”* (volunteer organisation member, formal). On the other hand, another interviewee mentioned that despite door-to-door distributing of flyers to promote Delfshaven Helpt, still many residents in BoTu were not aware of the existence of this initiative.

The problem-solving ability of BoTu shows flexibility: *“We are resilient because we are relaxed and deal well with the things that come our way. Nobody sits down to cry. At the beginning of the crisis, women came here and gave all the mothers a flower bouquet to cheer us up. Yes, they came from BoTu, so there is enough flexibility here.”* (neighbourhood committee member, informal). The BoTu community continuously explores what support residents need, and adjusts their activities to that. These activities and initiatives included: a caller hotline, groceries and food packages, home visits, distribution of laptops for schooling, gifting flowers, a grocery giveaway shop, and youth activities. The high flexibility that the BoTu community shows is exactly the kind of playfulness and open-endedness that resilient communities need.

To be successful to this purpose, information management is vital. Sharing information mainly happened digitally. While crucial on the one hand, this also caused frustration due to inefficient

communication and accessibility problems: “. . . and everyone added or asked people to add at some point [to messaging groups]. So, that became more and more extensive, which resulted in a message every three seconds. So that was also a bit, uh, intense.” (community foundation member, informal). In dealing with these new ways of communicating and organising, the BoTu community shows that its problem-solving ability is also reflective: actors are willing to learn new things and adjust their ways of working when required.

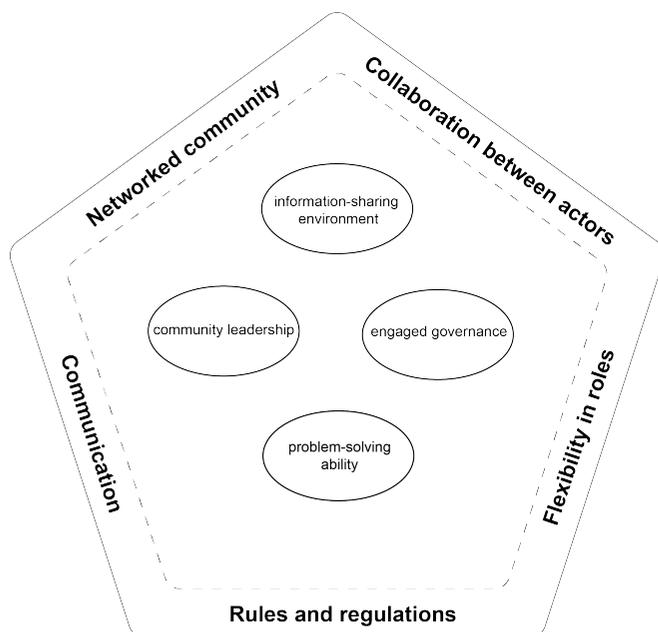
### 6.2.6. Discussion

The results described how the formal and informal actors in the BoTu community worked together to engage in activities to support residents during the lockdown period. A reflection on these results helps to further understand which factors support a community to be resilient and as such answers the research question: *Which capacities and relationships enable a community to be resilient?* In addition to outlining these factors, the discussion also provides policy implications on how to strengthen these community capacities and relationships, based on the findings of this research. The identified factors are networked community, collaboration between actors, flexibility in roles, rules and regulations, and communication. As illustrated in Figure 6.7, these factors support the community to leverage its assets in times of crisis (Mathie & Cunningham, 2003).

#### Networked community

The crisis response of the BoTu community clearly shows the advantage of a networked place-based community. Existing networks in BoTu made it easier to connect and allocate resources. Actors know each other’s strengths and have a relationship of trust from prior collaborative experiences. The investment made in the network as part of the Resilient BoTu 2028 project paid off, because informal community members were empowered to take action and could easily connect with formal actors for needed support.

The community response in BoTu, where action was initiated by informal actors, followed the logic of Linnell (2014), who discussed that semi-organised and non-organised volunteers may be potential resources for enhancement of community resilience. One of the challenges is to connect significant community actors to each other (Comes, 2016). The prior investments in the BoTu network gave the community a big advantage in responding to the COVID-19 crisis, because contacts and relationships were already



**Figure 6.7.:** Four community assets can be accessed in times of crisis, and five factors support this process.

established (Berkes & Ross, 2013; Eizaguirre & Parés, 2019; Walsh, 2007). Informal and formal actors could easily find each other to set up expert networks and fast communication and coordination as suggested by Comes (2016) and Caruso et al. (2020).

This shows that a significant level of internal and external networks and networking (activity) is essential for a community to be resilient. Investments in formal and informal networks in a neighbourhood community have shown to pay off, because an established neighbourhood network, including formal and informal actors, becomes a community asset that can be used in times of crisis. During crisis response, this network is further strengthened, although it remains unknown whether it leads to structural change (Magis, 2010). As such, policy makers should continue to invest in neighbourhood networks and establish relationships between formal and informal actors to strengthen the community's resilience.

### **Collaboration between actors**

The established network, as discussed above, also eased the collaboration between the various actors in BoTu. While prior to the crisis some initiatives experienced competition, in the lockdown actors aligned to a common goal and shared vision to help the residents of BoTu. Initiatives, formal and informal actors collaborated and for that reason had more access to resources

to solve problems. For example, Pier 80, also known as a 'Home of the Neighbourhood', originally is a meeting place, became a central hub, that allowed storage of goods and functioned as a workplace for formal actors in the community.

In line with Williams, Gruber, Sutcliffe, Shepherd, and Zhao (2017) and Caruso et al. (2020), this research shows that when formal and informal actors collaborate, they are better able to solve problems in response to a crisis event. Resources and community assets become available through the community network and relationships (Mathie & Cunningham, 2003). The initiated collaboration could develop into a long-term participative collaboration network and become another asset of the BoTu community (Magis, 2010). Involvement of formal and informal actors in such collaboration is necessary, as they have different types of characteristics and qualities which are both needed (Goldstein et al., 2015; Hills, 2002). To prevail the collaboration, policy makers should offer some infrastructure for support and sustain actor collaboration (Caruso et al., 2020). Municipalities should enable continuity to local initiatives and other types of collaboration, for example through long-term funding or stable initiative policies.

### **Flexibility in roles**

The role changes of several actors showed the flexibility of individuals and as such enabled more actions and activities to be possible in response to the lockdown. The results identified that almost all actors in BoTu adapted their role, either making use of other capabilities, focusing on other responsibilities, or even formal actors acting towards the informal domain. This flexibility of actors to their role facilitates actions or access to several resources (Bourdieu, 1983; Coleman, 1988; Nespeca et al., 2020). In the case of BoTu, the role adaptations facilitated the community to problem-solve in a crisis response.

While several formal and informal actors changed their role within the community to fulfil a function that was needed, formal actors sometimes failed to act when informal actors needed their support, for example civil servants who were not available when needed, institutions not stepping up to reach a bigger group in the community, or not supporting initiatives in administrative burdens to financially cope with the crisis.

In general, the actions taken in the BoTu community came from established formal and informal actors in the community. New volunteers stood up to support these actions, however the BoTu community was not able to extend participation with other initiators to include even more citizens. Self-organised citizens need to

represent a large group of citizens to succeed (Edelenbos et al., 2016). Policy makers can play a role in this: they should facilitate and support activities that enable informal actors to reach a more diverse group of community leaders, and adjust initiative policies to being more focused on reaching different types of citizen groups, rather than on focusing on efficiency.

### **Rules and regulations**

The policies and guidelines that affected the community in the case study were mostly nationally imposed and, on several occasions frustrated the ability to act resilient. For example, municipality employees were, according to the protocols, not allowed to meet in person with partners or collaborators, which meant being limited in the support these employees would be able to provide the community. Another aspect was financial constraints, that limited actions of informal actors. Due to the pandemic some initiatives had to halt usual operations and therefore endured a financial hit. Additionally, institutions initially fully closed meeting places that residents are used to visit for information exchange, instead of finding another useful function for these valuable meeting and information points.

Although municipalities had some flexibility in the policies, they were not able to adapt, to incorporate the community's local practices, thus frustrating the community's ability to act (Stark & Taylor, 2014; Wilson, 2013), and hence their resilience (Edelenbos et al., 2016; Grube & Storr, 2014; Kapucu & Sadiq, 2016). This lack of action from the formal actors was partially caused by the imposed regulations and rules, and the lack of mandate that local actors were given to adapt protocols to the local situation. Nevertheless, this research has shown that flexibility of actors, in terms of their roles and corresponding actions, is required for community resilience (Beilin & Wilkinson, 2015; Caruso et al., 2020). Policy makers should further experiment with this flexibility in terms of boundary spanning (Aldrich & Herker, 1977), to give local actors the space (mandate or financial) to act adequately in times of crisis (Fastiggi et al., 2020).

### **Communication**

To effectively solve problems in times of crisis, communication between community members, formal and informal, is essential (Grube & Storr, 2014). From the start of the COVID-19 crisis, the BoTu community set up communication between various actors and expressed the need to further structure communication to better respond to the needs of the community. Initial communication

could be setup quickly, due to existing connections between actors. Digital resources or devices played a major role in furthering the communication between actors, especially informal. Mobile communication applications and video conferencing software were used to form communication groups and have online meetings. ICT and social media are clearly an asset in crisis response (Linnell, 2014). Therefore, the aim to develop technological means to allow collective contributions of residents during crises is very much justified (Comes, 2016; Vos & Sullivan, 2014).

The value of meeting places was affirmed in light of community resilience, because meeting places were closed as a consequence of the measures to prevent the spread of COVID-19. As previously stated, meeting places like Pier 80, 'Home of the Neighbourhood', provide an environment in which some locals get their information or help with other aspects of their lives. In contrast, ineffective communication was experienced during communication with digital resources, and for promoting local initiatives such as Delfshaven Helpt. Although flyers were spread from door to door, many citizens did not read or see them, as many locals did not know of the existence of the support initiatives. While much information was distributed through digital media, not all residents are digitally literate. As such, closing down meeting places in BoTu hindered the possibility of people to gather together and share information. Digital communication tools supported the BoTu community to organise themselves, but the closing of physical meeting points, such as community centres, frustrated communication at the same time. Closing off parts of the community from the network undermines resilience (Edelenbos et al., 2016). Policy makers should be careful when closing down these public places, because they are communication nodes and by closing them, some residents in the community lose access to local information.

### **6.2.7. Conclusion**

Resilient communities respond to ultimate challenges through adequate communication (Comes, 2016) and effective collaboration between formal and informal actors (Linnell, 2014). To further understand what capacities and relationships resilient communities need in times of crisis, and how they access it through existing social structures, this research studied how a neighbourhood-based community in Bospolder-Tussendijken (BoTu) dealt with lockdown restrictions due to the COVID-19 crisis. A literature review identified four key assets that communities may use to be resilient: *community leadership, engaged governance, problem-solving ability, and information sharing environment*. These assets require

the existence of social relationships and interactions between members of the community (Keck & Sakdapolrak, 2013).

Semi-structured interviews with representatives of formal and informal actors in the BoTu neighbourhood were analysed to understand which actions community members took, and how they adapted their role in the community to help others during the lockdown. The results show that those who were active in the community were aware of, and most often involved in, the many initiatives in the community, whereas those who were not actively involved, were most often not aware of community initiatives. The analysis showed that the use of key assets to community resilience was supported by five factors: networked community, collaboration between actors, flexibility in roles, rules and regulations, and communication.

In their response to the lockdown, the BoTu community benefitted from the existing network in the community. Formal and informal actors had prior relationships which made it easier to connect, communicate, and collaborate to start local initiatives in response to the crisis. The research further showed that many actors, both formal and informal, were flexible in changing their roles to this purpose, for example taking up other responsibilities, using different capabilities, or being more open in sharing information with other actors. The nationally imposed rules and regulations sometimes frustrated these role changes, and restricted the flexibility to adjust to the local context.

While this study confirms findings on community resilience from others, such as the benefit of existing networks (Berkes & Ross, 2013; Walsh, 2007), the need for adequate collaboration (Williams et al., 2017), and the required flexibility of actors to change roles in crisis response (Nespeca et al., 2020), it produces more specific knowledge on the capacities and relationships that are needed for community resilience, and how these can be strengthened and accessed by local actors. Institutions such as the local government can help communities to be more resilient, and this study suggested five policy implications that will help communities leverage their assets in dealing with crisis.

The findings of this research open up new questions on the capacities and relationships needed for community resilience. For example, how does prior collaboration between local actors influence their ability to effectively connect and collaborate in times of crisis? Or to what extent are the four key assets identified from literature exhaustive? And are the five factors, found in this research to help communities leverage their assets, all of equal importance for community resilience? Another burning question following a heated debate in resilience literature (Berkes

& Ross, 2013), is to what extent communities such as BoTu should “bounce back” to their original state to show resiliency, or what would indicate that they have adapted to be better prepared for future crisis. The researchers look forward to further exploring how community resilience works in practice, based on these questions, to help policy makers and communities better prepare for challenging times.

### 6.3. Reflection on institutional support

This chapter studied two interventions that incorporate institutional support to the purpose of participatory place-making. The first intervention was the Playable City approach, consisting of eight activities in which formal and informal actors together explore place-making. The second intervention is a resilience programme based on asset-based community development (ABCD) that was rolled out in a neighbourhood in Rotterdam. While this last intervention did not specifically focus on place-making, it yields insights into how formal and informal actors collaborate in the neighbourhood to a common goal, using assets from ABCD. The first intervention identified that stakeholders in the neighbourhood are very diverse, and hence various activities, methods, and tools should be included in participatory place-making, for everyone to participate on their terms. The second intervention highlighted several tensions and challenges that occur when formal and informal actors try to work together. Collaboration and participation requires flexibility of both types of actors; to change roles and take up other responsibilities than they are used to. This is particularly challenging for institutional partners. Hence, for local governments and other formal partners to provide institutional support to place-making, they need to be adaptive with their own role and responsibilities, and prepare for diversity of partners in participatory place-making.



**Part III.**

**SYNTHESIS**



# Design guidelines for participatory place-making

# 7.

*Part III of the thesis will synthesise the insights of all six intervention studies and conclude the thesis. In this chapter, the interventions are evaluated using the Participatory Place-making framework. Seven researchers valued the five principles (emergent, empowering, inclusive, playful, reflective) for each intervention and judged which principle was most present. The results of this evaluation study expose deeper insights into how the principles can be applied in interventions for participatory place-making. These insights inform five design guidelines for participatory place-making that conclude the chapter.*

7.1 Introduction . . . . .	207
7.2 Evaluation method . . .	208
7.3 Results . . . . .	210
7.4 Discussion: Reflection on the principles . . .	215
7.5 Guidelines to design for Participatory Place-making . . . . .	219
7.6 Conclusion . . . . .	221

## 7.1. Introduction

The framework for participatory place-making that was introduced in Chapter 3 is utilised to evaluate the six interventions presented in the previous chapters. In Part II, all interventions were developed and studied separately in research-through-design iterations. Table 7.1 outlines the design output and the knowledge output of these intervention studies. The current meta-analysis aims to answer the third research question of this thesis: *Which guidelines can be identified to design interventions for participatory place-making in urban settings?* As such, the evaluation aims to understand how the framework can be applied to design interventions for participatory place-making, using its principles<sup>1</sup> and its activities<sup>2</sup>.

<sup>1</sup> Emergent, Empowering, Inclusive, Playful, Reflective

<sup>2</sup> Connect with context, Identify partners, Gather data, Reflect with stakeholders

**Table 7.1.:** An overview of the knowledge and design output of each intervention. The numbers of the design intervention (DI) correspond with the numbers in Part II.

<b>Intervention</b>	<b>Time run</b>	<b>Design output</b>	<b>Knowledge output</b>
DI 1: Location-based games	Two weeks	Place-making challenge activities	Preferences for place-making challenges
DI 2: Co-creation	One week	Co-creation approach and materials	Guidelines for place-making with children
DI 3: Community storytelling	Two years	Haags Verhaal initiative	Reflective storytelling framework
DI 4: Distributed PD	One month	Summer School process and activities	Guidelines for distributed place-making
DI 5: Playable cities	Two years	A set of eight place-making activities	Effectiveness of activities to place-making
DI 6: ABCD	Two years	Resilient BoTu programme	Policy implications to support social resilience and place-making

## 7.2. Evaluation method

The synthesis of six intervention studies through a meta-analysis aids to elaborate the developed theory (Ketokivi & Choi, 2014) with design guidelines and to explore the validity of the elements in the Participatory Place-making framework (Leung, 2015). Rigour and accountability are supported in this qualitative research through “debate, critique and reflection” (Frauenberger, Good, Fitzpatrick, & Iversen, 2015). As such, seven researchers performed a meta-analysis on the framework using the six interventions. These researchers are experienced in Participatory Design and/or place-making. They were asked to evaluate each intervention using the framework for participatory place-making. The evaluation approach attains credibility by involving seven researchers with different backgrounds in the evaluation study, who confirm or challenge the elements in the framework (Graneheim & Lundman, 2004). Involving these researchers also aids to discover the dependability of the framework: they can evaluate inconsistencies between the framework elements (Graneheim & Lundman, 2004). The evaluation further provides insights into the transferability of the framework, because they evaluate six interventions that were applied in different contexts (Graneheim & Lundman, 2004).

### 7.2.1. Procedure

The evaluation of design interventions was carried out using Qualtrics<sup>3</sup>, an online survey tool. Participants received a link to the online survey and after providing consent, could start the

<sup>3</sup> <https://www.qualtrics.com>

evaluation. Participants could use multiple days to fill out the complete survey; interruption of the evaluation was possible. Six interventions were subject to evaluation, taking about one hour per intervention. Participants had to evaluate at least two interventions and, depending on their availability, evaluated up to all six. Interventions were presented in the same order to all participants. In case a participant requested to do less than six interventions, they were instructed which interventions to evaluate. This was to ensure that each intervention would receive the same number of evaluations.

### **Evaluation form**

After the consent page, the survey provided a page with guidelines on how to evaluate the interventions. Next, six evaluation forms followed, one for each intervention. The evaluation form contained a published or submitted article describing the intervention with marked text to indicate which parts participants should read for the evaluation. These excerpts described the intervention design and how it was used and experienced by intervention participants (e.g. residents). Further, the researchers received a description of the principles (similar to how they are presented in Chapter 3). They were asked to read through the intervention description and evaluate the intervention, using the five principles.

### **Evaluation questions**

On the evaluation form, participants were asked to answer two questions to evaluate each intervention. The first question was: *Which of the principles were present in this intervention according to you?* Participants were presented with a multiple-selection list box, one box for each principle, and could select from none to five boxes. If a participant felt that all five principles were present in the intervention, they selected all five boxes. If they felt that none of the principles were present, they selected no boxes. Participants also had the option to motivate their selection.

The second question was: *Which principle was most present according to you? Please sort the principles you choose in order (top – most present, bottom – least present).* This question carried forward the choices that a participant had made in the previous question. For example, had they selected ‘reflective’ and ‘empowering’ as being present in an intervention, they were now asked to order these to indicate which one they felt was the most present. Participants could again motivate their answer in a text box.

### 7.2.2. Participants

Ten researchers who are experienced in Participatory Design and/or place-making were invited to take part in the evaluation study. They were recruited based on their results in these fields and from interactions at academic conferences. Seven researchers ended up participating in the evaluation (evaluating two or more interventions) and received a gift card of €20 as compensation and reward for their efforts.

### 7.2.3. Analysis

In total, all interventions were evaluated by at least five researchers. The evaluation forms were analysed using counting and simple data visualisation techniques. Tables, bar charts, and spider charts were made to interpret the figures resulting from the evaluation forms (see Figure 7.1, Table 7.2 and 7.3, Figure 7.2). These data visualisations allow to gain insight into the relation between the principles and the intervention (e.g. which principles were recognised in an intervention, which ones were very prominent), and to interpret the connection between the principles themselves (e.g. does each intervention need all five principles to be successful in fostering place-making?). The results and interpretation of this analysis are presented in the next section.

## 7.3. Results

The results outline which principles were recognised by the researchers who evaluated the six interventions, and which ones they found the most prominent.

### 7.3.1. Principles per intervention

<sup>4</sup> Which of the principles were present in this intervention according to you?

The first part of the results focuses on the first evaluation question<sup>4</sup>, indicating which principles were recognised in each intervention. The spider charts in Figure 7.1 visualise how often participants recognised a principle in an intervention. As each intervention was evaluated by five researchers, a principle could be selected between 0 to 5 times. The colour of the spider charts indicate to which cornerstones the intervention belongs (blue for physical space, green for social connection, and orange for institutional support). The visualisations immediately show that while each principle was at least one time marked as present in an intervention, some had a weak presence<sup>5</sup>, while others were recognised by all five researchers<sup>6</sup>.

<sup>5</sup> e.g. emergence in location-based games

<sup>6</sup> e.g. reflective and emergence in community storytelling

**Table 7.2.:** Which principles were clearly recognised (4 out of 5) for each intervention. The numbers of the design intervention (DI) correspond with the numbers in Part II.

	<b>Emergent</b>	<b>Empowering</b>	<b>Inclusive</b>	<b>Playful</b>	<b>Reflective</b>
DI 1: LBG				X	
DI 2: Co-creation				X	
DI 3: Storytelling	X				X
DI 4: DPD					X
DI 5: Playable Cities			X		
DI 6: ABCD	X	X			

The spider charts also exhibit that the physical space interventions have no principles that were recognised by all five researchers who evaluated them. In contrast, the community storytelling and distributed Participatory Design intervention (social connection cornerstone) had one or two principles that all participants agreed on to be present. Similarly for institutional support; five participants agreed that inclusive<sup>7</sup> and emergent<sup>8</sup> were present.

<sup>7</sup> The playable cities intervention

Four interventions were assessed with a weak presence of one principle: only one researcher who evaluated the intervention recognised this principle. Location-based games, for example, seem to not be so emergent, and community storytelling was not recognised to be playful. Given that there is a spread in principles that were assessed a weak (n=1) and a strong (n=5) presence, we assume this result not to be due to the principle, but due to the intervention. In other words, because it is not always emergent that is assessed weakly, one may conclude that location-based games do not really support emergence.

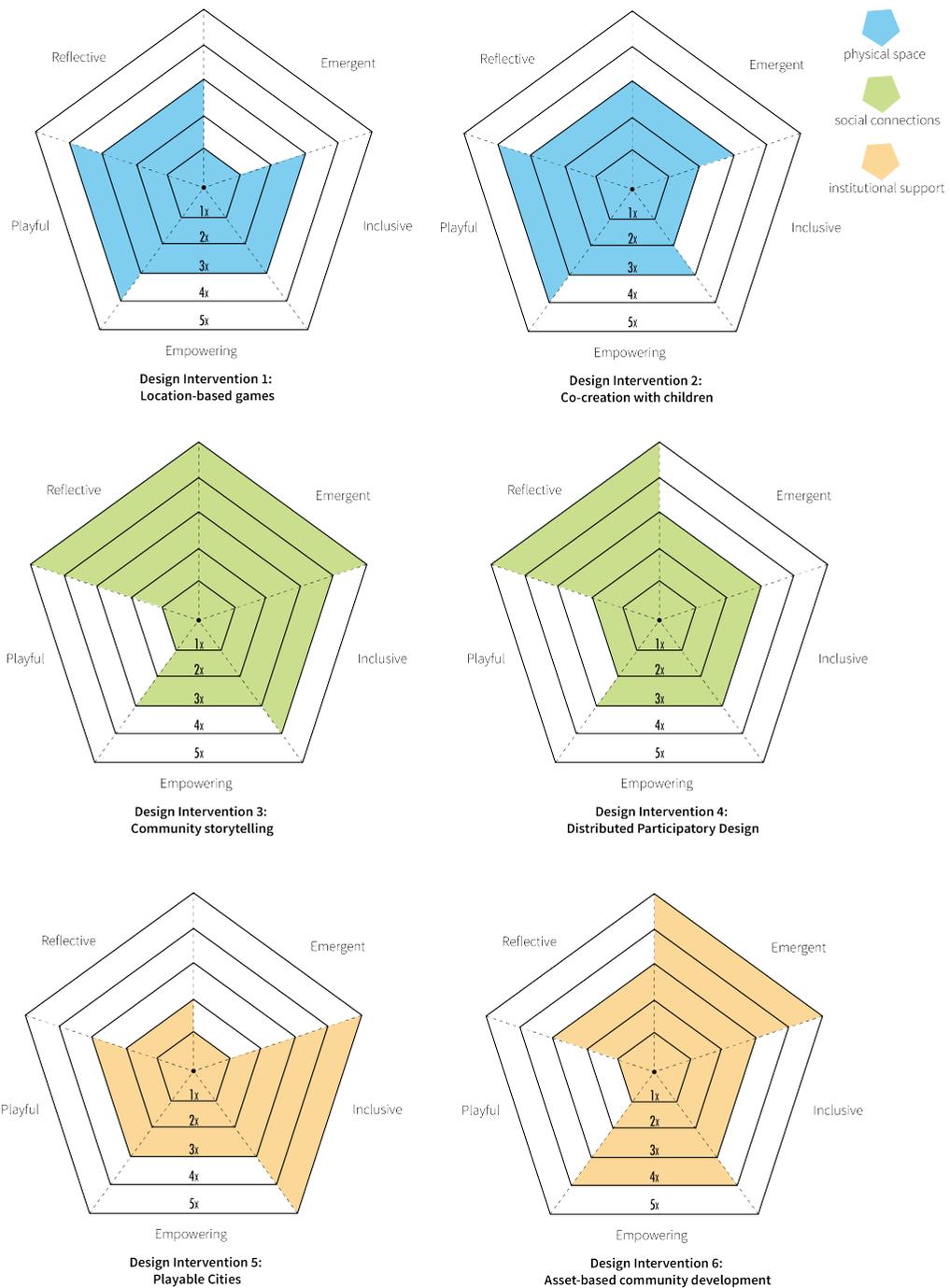
<sup>8</sup> The asset-based community development intervention

### 7.3.2. Clearly recognised principles

Table 7.2 presents which principles were clearly recognised for each intervention. Clearly recognised here means that four out of five researchers who evaluated the intervention, marked this principle as present. Each intervention has at least one principle that is clearly present and some even have two<sup>9</sup>. Since all principles are marked as clearly present at least once, it again confirms that it is not due to the principle, but due to its manifestation.

<sup>9</sup> Community storytelling and Asset-based community development.

One researcher motivated why the co-creation intervention was playful in the following way: *“Playful, because children go outside in a small group, and think outside, at the location itself about new ideas and initiatives. Thereby they had several tasks to search for at the location for instance, or had different roles to take on, some of which they might not even would take before the game. This is in my opinion a playful way of having a brainstorm session.”* Playful was recognised by four out of five researchers in both the location-based games



**Figure 7.1.:** Results of the evaluation study, indicating how often a principle was recognised for each intervention (between 0 to 5 times).

and the co-creation intervention. Researchers clearly recognised emergent and reflective as principles in community storytelling: *“Reflective, because by hearing stories of others you can reflect on your own perspective and maybe even change it. Emergent, because I feel this initiative is really something that citizens initiated at first, and will still run after research has left.”* Reflective was selected by all five researchers for distributed participatory design: *“Reflective, because of the assignment of creating an artwork regarding the community, one can reflect on the community and also reflect on it when one sees other artwork or hears stories from other participants.”* The presence of the inclusive principle in the playable cities intervention was motivated in the following way: *“Mostly inclusive, because the paper focused mainly on how to include different types of stakeholders, and how they can participate in the way they prefer.”* Emergent and empowering were clearly recognised in the ABCD intervention, because *“actors took action in the crisis, felt responsible!”*

### 7.3.3. Agreement on most present principle

The next two subsections focus on the second question in the evaluation<sup>10</sup>, which asked the researchers to order the principles they selected in terms of presence. The bar graphs in Figure 7.2 depict which principles were ordered as most present by the researchers. The same colour coding is applied as with the spider charts in Figure 7.1.

The interventions for physical space (blue) and institutional support (orange) expose a spread in the principle that was ordered as being most present. For location-based games, for example, the five researchers ordered four principles<sup>11</sup> as the most present one. It means that for these interventions, there is little agreement on which principle is most strongly present.

In contrast, the two interventions which support social connections have only one<sup>12</sup> or two<sup>13</sup> principles that all five researchers ordered as the most strongly present. In the case of distributed Participatory Design, the five researchers agreed that reflective was the most present principle in this intervention.

### 7.3.4. Most strongly present principle

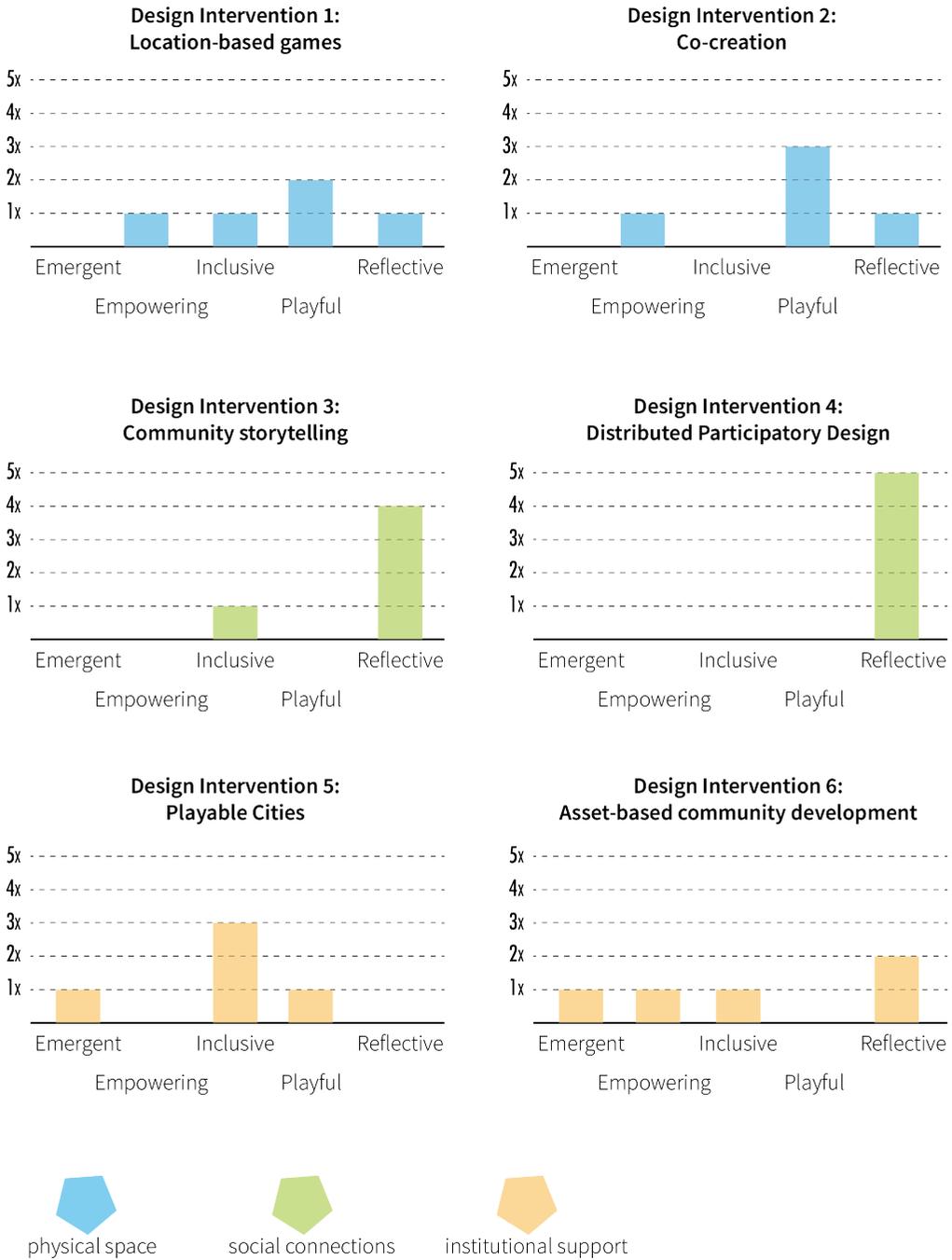
From Figure 7.2 one can infer how often a principle was ordered the most present one in an intervention. Table 7.3 shows an overview of this. For example, playful was twice ordered as the most strongly present principle in the location-based games intervention.

<sup>10</sup> Which principle was most present according to you? Please sort the principles you choose in order (top – most present, bottom – least present)

<sup>11</sup> Empowering, Inclusive, Playful, Reflective

<sup>12</sup> Distributed participatory design

<sup>13</sup> Community storytelling



**Figure 7.2.:** Results of the evaluation study, indicating the distribution of selecting the most prominent principle (between 0 to 5 times).

Intervention	Most recognised principle
DI 1: Location-based games	Playful (2x)
DI 2: Co-creation	Playful (3x)
DI 3: Community storytelling	Reflective (4x)
DI 4: Distributed PD	Reflective (5x)
DI 5: Playable cities	Inclusive (3x)
DI 6: ABCD	Reflective (2x)

**Table 7.3.:** Which principle was most often selected as the most prominent one. The numbers of the design intervention (DI) correspond with the numbers in Part II.

Location-based games and co-creation both have playful as the strongly present principle (ordered highest by 2 or 3 researchers). For co-creation, one researcher motivated putting playful on top: *“This way of participating is very playful in my opinion, especially when compared to just sit in a classroom and talk about your neighbourhood.”* For community storytelling and distributed Participatory Design (DPD), researchers most clearly recognised the reflective principle. One researcher explained why they ranked this principle the highest for DPD: *“The mostly strongly present principle to me seemed to be Reflective. Participants learned a lot about other people’s experiences in the community and other.”* Playable cities has inclusive as the most strongly present principle: *“The methods of collecting data and interacting with the participants were very varied and seemed to engage with a wide variety of participants.”* The two researchers who ranked reflective the most present for ABCD did not motivate this decision.

## 7.4. Discussion: Reflection on the principles

The results of the evaluation study provide lessons learned about the five principles of the participatory place-making framework. A reflection on each principle is discussed below, leading to guidelines for participatory place-making concluding the chapter.

### 7.4.1. Emergent

Emergence as an outcome of participatory interventions is heavily discussed in literature (Simonsen & Robertson, 2013b; Simonsen & Hertzum, 2012)<sup>14</sup>. This dissertation found that two interventions<sup>15</sup> were rated to be very emergent, because of their independence from the researchers: residents start new initiatives or continue an activity as a result of the intervention. This was clearly reflected in the community storytelling intervention where participants of storytelling events organised follow-up meetings with people they met at the event.

The question remains, however, how one can design for emergence in participatory place-making interventions (Robertson

<sup>14</sup> See page 53 for the definition of emergent in this thesis.

<sup>15</sup> Community storytelling and Asset-based community development

<sup>16</sup> Location-based games and Playable cities

<sup>17</sup> Community storytelling and Asset-based community development

& Simonsen, 2012). Not all interventions supported emergence convincingly, and two had only one researcher recognising emergence as a principle<sup>16</sup>. The two lowest scoring interventions did not seem to have any support for emergence included. In contrast, the highest scoring interventions<sup>17</sup> supported emergence through explicit facilitation during the intervention and through a focus on assets (such as community networks or resources). This accords with observations of others (Simonsen & Hertzum, 2012; Dalsgaard, 2012) that emergent interventions require explicit facilitation (Smith & Iversen, 2018) in terms of sustained resources (Robertson & Simonsen, 2012). This means that even though emergence is defined as being independent of researchers (Hess & Pipek, 2012; Robertson & Wagner, 2013), other resources need to be in place for participatory place-making to continue. Institutions, such as local governance, have a major role in creating the the appropriate conditions for emergence (Simonsen & Hertzum, 2012), such as providing committed resources.

#### 7.4.2. Empowering

Of all six interventions, empowering was most present in the asset-based community development intervention. As defined on page 54, interventions are empowering when they support participant's motivation and agency to engage in place-making. The asset-based community development intervention had a strong focus on advancing community competences, and hence provided city stakeholders with the capacity to do something, contributing to their agency. Similarly, empowerment was achieved in the storytelling and co-creation interventions because participants gained new skills and experienced self-efficacy in practising these skills. In the distributed Participatory Design intervention, teenagers felt empowered to address an issue in their community by learning about digital art works and social media, to achieve their aims. Following the literature, all of these interventions build capacity of city stakeholders, in terms of learning new skills or gaining the ability to do something (Zimmerman, 1995).

These observations infer that empowering interventions for participatory place-making require a focus on capacity building (Simonsen & Robertson, 2013b; Dong, Sarkar, Nichols, & Kvan, 2013). Interventions should facilitate its users to do something they have not done before, to experience their competence in something they may not have imagined doing (Hansen et al., 2019; Obendorf et al., 2009). Such capacity building also may redistribute power in neighbourhoods (Cilliers & Timmermans, 2014), within the neighbourhood community, and in relation to the local government. Although empowerment was not very

strongly present in the studied interventions, the studies align with others (Drain, Shekar, & Grigg, 2018; Ertner, Kragelund, & Malmberg, 2010) showing that through practising new skills and building competence, residents experience empowerment. Furthermore, many scholars acknowledge the difficulty to recognise when people are empowered (Schneider et al., 2018), which was also a challenge in this research.

### 7.4.3. Inclusive

Inclusive has gained importance as a principle for place-making since the field embraced a more democratic and participatory perspective (Strydom et al., 2018)<sup>18</sup>. The playable cities intervention was evaluated to be the most inclusive of all interventions that were studied in this thesis, because of its variance in engaging with participants. Different kinds of groups were involved, and they could also participate in a variety of ways. The distributed Participatory Design intervention showed that combining online and face-to-face approaches enable people to participate on their terms. Interventions that offer multiple ways of engaging are more likely to tailor to different kinds of people and are accordingly more inclusive.

<sup>18</sup> See page 55 for the definition of inclusive in this thesis.

The heterogeneous character of neighbourhood communities requires interventions to be designed for a multiplicity of groups with varied skills and interests (Manuel et al., 2017). Deliberate design choices in interventions for participatory place-making are required (Robertson & Wagner, 2013). This thesis highlights that designers need to consider accessibility of their intervention, as well as its appropriateness and suitability for the people who will use it. For example, during the asset-based community intervention parts of the neighbourhood were closed<sup>19</sup>, and this led to specific residents groups being excluded from receiving certain information about neighbourhood initiatives. Citizens who are not digital literate were excluded because communication moved to social media platforms. Inclusion further requires to be open to the perspectives of others (Grønbaek et al., 1993), as for instance storytelling achieves (Ganz, 2009). Nevertheless, some people may not feel comfortable to engage in storytelling events, and prefer other ways of being included. This exposition illustrates that inclusion is never without tensions (McCarthy & Wright, 2015), and asks for a deliberate consideration of who is included and excluded when designing for participation in interventions.

<sup>19</sup> e.g. the community centre

#### 7.4.4. Playful

<sup>20</sup> See page 56 for the definition of playful in this thesis.

Play and playfulness have been extensively explored as a principle for participation, for example in the Playable Cities initiative (Nijholt, 2017c)<sup>20</sup>. As confirmed by this research, playful interactions and behaviour are a way to foster place-making through the physical space (Saker & Evans, 2016; Jones et al., 2019). Earlier studies on location-based games, for example Pokemon Go, have already shown that these types of interventions, which build on playfulness, support place-making (Innocent, 2016). The interventions studied in this dissertation strongly encounter playfulness in the two physical space interventions<sup>21</sup>, but not so strongly in the other ones. It reflects the natural relationship there seems to be between play and physical space (Lentini & Decortis, 2010).

<sup>21</sup> Location-based games and Co-creation with children

Most studies that concern playful place-making in physical spaces, consider what type of activities are appropriate to this aim. Interventions should foster playful interactions in itself (De Waal et al., 2021) or between the people using the intervention (Balestrini et al., 2016). This dissertation confirms the ideas of Brandt et al. (2013) and Ehn (1993) on playfulness; this behaviour is not necessarily caused by games, but rather reflects an open, experimental, and exploratory mindset. The presented analysis suggests that the physical space provides a good starting point for designing for playfulness as a principle in participatory place-making.

#### 7.4.5. Reflective

<sup>22</sup> Community storytelling and Distributed participatory design

<sup>23</sup> See page 56 for the definition of reflective in this thesis.

Both of the interventions in the social connections cornerstone<sup>22</sup> exposed a strong presence of reflection<sup>23</sup>. This indicates that reflection seems to be important to foster place-making through social connections. In other words: it is not just about people talking to each other and connecting, but to engage in a conversation to learn about each other and the community (Fang et al., 2016; Lentini & Decortis, 2010). The community storytelling intervention exhibited that reflection is essential in these kinds of interventions, to create meaningful connections between people (Goldstein et al., 2015). Such reflection needs to be facilitated as part of the intervention.

Participatory place-making interventions that are reflective foster shared learning and opening up perspectives (Robertson & Simonsen, 2013). They make residents reconsider the physical space, and the people who live in it, in a new way (Manuel et al., 2017). This can happen during the intervention, such as with community storytelling, but also afterwards. The teenagers who participated in the distributed Participatory Design intervention started to engage in reflection during the focus groups, that took

place after the actual intervention. Consistent with findings from others (Robertson & Wagner, 2013; Bossen et al., 2010), this thesis shows the value of joint reflection for place-making; reflection that happens in (small) groups and is shared in interaction with others (Schön, 1983). Accordingly, interventions focused on social connections naturally fit this principle.

#### 7.4.6. Limitations of the study

Given there are always limitations to research in terms of time, focus, and other resources, also this meta-analysis study was limited. One of the most important limitations is the small sample size of the study: each intervention was evaluated by five researchers. This complicates interpretation of the results, especially when the researchers did not agree with each other on the principles. For example, the principles empowerment and playful were never recognised by all five researchers in an intervention. Also, for most interventions there was little consensus among the researchers on what was the most prominent principle in an intervention. Without undermining the basis of this study, careful interpretation is required of these results, taking these limitations into account. More research is necessary to further validate the principles of the Participatory Place-making framework and to explore the generalisability of the interventions.

### 7.5. Guidelines to design for Participatory Place-making

This thesis has presented a framework for participatory place-making that was explored using six design interventions. The evaluation of the design interventions, using the five principles of the framework provided a deep reflection and suggests five guidelines to design for participatory place-making.

#### **Guideline 1: Place-making interventions need to be designed, implemented, and evaluated together with key stakeholders.**

Although many scholars talk about stakeholder participation in place-making initiatives (Beza & Hernández-García, 2018; Cilliers & Timmermans, 2014; Kalandides, 2018), the field is still indecisive as to how different stakeholders can be included. Place-making interventions, as such, are still very often designed from top-down, or only with one stakeholder involved. The Participatory Place-making framework that this thesis presents contributes four activities<sup>24</sup> to design place-making interventions and in which

<sup>24</sup> 1. Connect with local context; 2. Identify key partners and stakeholders; 3. Gather data and doing analysis, and 4. Reflect on effects with stakeholders.

local actors in have to be included. All six interventions studied in this thesis followed these four activities, and had key local stakeholders involved in the design, implementation, and/or evaluation of place-making interventions.

**Guideline 2: Participatory place-making interventions should be guided by several of the five principles (emergent, empowering, inclusive, playful, reflective) to enable stakeholder participation.**

The six interventions that were included in this dissertation were evaluated for the five principles that are presented in the participatory place-making framework. The evaluation indicated that not all principles have to be present for an intervention to be participatory and foster place-making. Yet this thesis found evidence that a combination of several of the five principles, present in varying degree, supports participatory place-making. The combination has to be selected considering the context of place-making and its participants.

**Guideline 3: Participatory place-making can be achieved through interventions that focus on physical space, social connections, and/or institutional support.**

<sup>25</sup> Physical space, social connections, and institutional support

This thesis identified three pathways to place-making<sup>25</sup> and conceptualised them as cornerstones for place-making. Within each of these cornerstones, this thesis studied two interventions that achieved place-making using the cornerstone. For example, the first intervention (location-based games) used the physical space to support participatory place-making. As such, interventions that aim to achieve participatory place-making should focus on one (or more) of these cornerstones, again considering what would fit in the intended context and what would work for the local actors.

**Guideline 4: The local context should be taken into account while designing participatory place-making interventions.**

As comes forward from the guidelines so far, as well as the activities in the participatory place-making framework, and literature on place-making and Participatory Design in general; the local context should be taken into account during the design of the intended intervention. This thesis, for example, showed that discovery of new places in a familiar context supports place-making, and intervention designers then need to know which places are familiar, and which ones might be interesting for residents to explore. Many of the design decisions that need to be made for the

intervention, have to be based on a thorough understanding of the context which can only be achieved through activities of getting acquainted, such as field visits, observations, and (informal) interviews with local actors.

**Guideline 5: Participatory place-making interventions should be multi-faceted to tailor to different participation needs.**

Urban neighbourhoods inhabit residents from various backgrounds, challenging a one-size-fits-all approach that is often applied for participation and place-making. The need for diversifying participation has already been recognised described in literature (Halskov & Hansen, 2015), yet implementation requires extra resources and efforts of local governments and is often not done. This thesis showed three examples of interventions<sup>26</sup> that enabled residents to participate on their terms. The interventions catered for the motivations, skills, and wishes of different stakeholders. By offering a multiplicity of options for local actors to join the design or use of place-making interventions, a more diverse group is enabled to participate and the intervention will better reflect the needs and wishes of all stakeholders.

<sup>26</sup> Co-creation with children, Distributed participatory design, Playable cities

## 7.6. Conclusion

This chapter presented an evaluation study of the six interventions for participatory place-making to answer RQ3: *Which guidelines can be identified to design interventions for participatory place-making in urban settings?* Seven researchers participated in the evaluation study and each intervention was judged by at least five researchers. The results indicate which principles the researchers valued to be present in an intervention, and the order of presence. Analysis of the results provided deeper insights into application of the principles in design interventions for participatory place-making. This reflection puts forward five design guidelines for participatory place-making interventions, answering the final research question of this dissertation. The next chapter leaves the conclusion of this research, in which all research questions are revisited and an outlook for future work is given.



Place-making initiatives have gained momentum in recent years to establish stronger urban communities (Strydom et al., 2018). Through place-making, people attach meaning to spaces and to become places (Harrison & Tatar, 2008). While place-making initiatives have traditionally been designed and implemented from top-down, more and more scholars call for a participatory and bottom-up approach (Beza & Hernández-Garcia, 2018; Cilliers & Timmermans, 2014; Kalandides, 2018), for place-making to realise its full potential in creating strong neighbourhood communities. In this context, the thesis explored how the knowledge from Participatory Design (PD) and place-making may confluence to move from spaces to places in a more inclusive and community-driven way. This chapter draws up the conclusions from the research, starting by revising the research questions, then stating the main contributions of this dissertation, and finally giving an outlook for future research topics.

8.1 Research questions revisited . . . . . 223
8.2 Contributions . . . . . 227
8.3 Future research . . . . . 228

8.1. Research questions revisited

The main research question that this dissertation addressed was: How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support? This question is answered through three sub-questions.

Research question 1: Framework

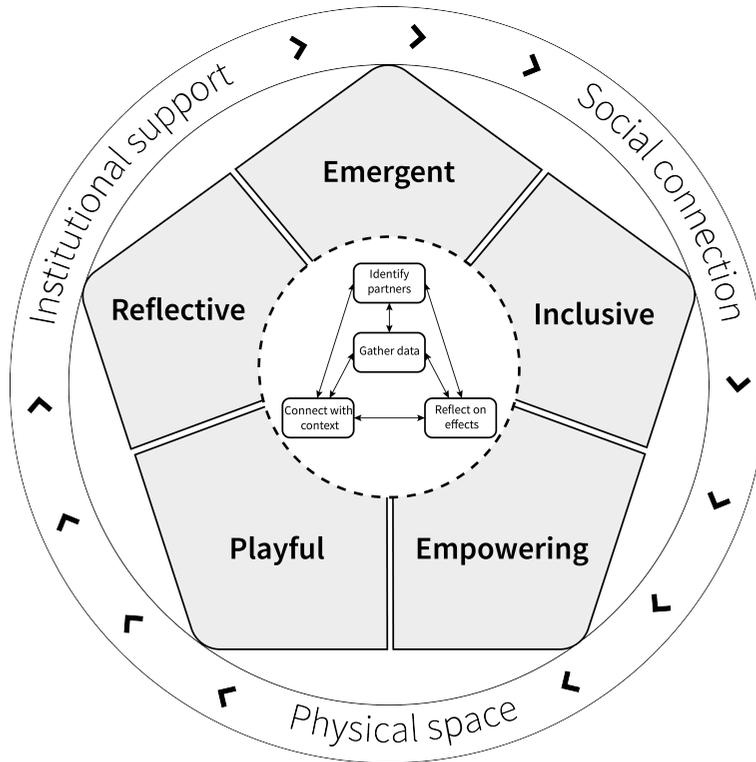
The first research question was: Which factors are needed to guide Participatory Design for place-making in a framework? In Part I of the dissertation, a literature review on place-making and Participatory Design was performed to draw up a framework. The review considered articles that study participatory interventions for place-making, and aimed to distil core principles, mechanisms, and factors of place-making interventions.

The outcome of the literature review is the Participatory Place-making framework (see Figure 8.1), that can be used to analyse existing participatory place-making interventions or to guide the design of new ones. The framework contains five principles<sup>1</sup> and four activities<sup>2</sup> that illustrate how stakeholder participation in place-making interventions can be facilitated.

The Participatory Place-making framework responds to the calls of several researchers (Strydom et al., 2018; Kalandides, 2018),

<sup>1</sup> Emergent, empowering, inclusive, playful, reflective

<sup>2</sup> Connect with context, Identify partners, Gather data, Reflect with stakeholders

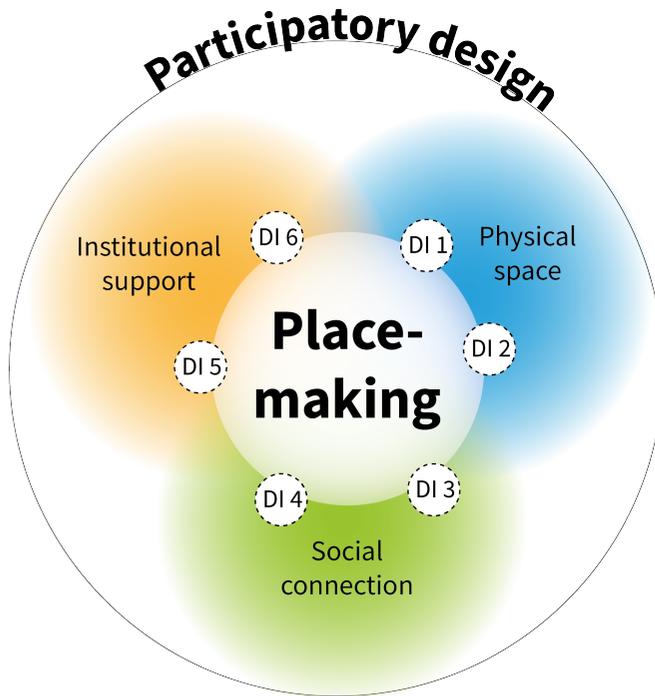


**Figure 8.1:** The Participatory Place-making framework is one of the main contributions of this thesis. It contains five principles encircling four activities to engage local stakeholders in making places.

to find ways to include citizens in place-making processes. The framework builds on and extends knowledge from the field of Participatory Design (PD) (Schuler & Namioka, 1993). In particular, the five principles and four activities provide specific guidance for researchers and designers to fulfil the aim of PD in the city: to establish stronger connected communities who have democratic influence (Huybrechts et al., 2017).

### Research question 2: Cornerstones and interventions

This dissertation identified three cornerstones for participatory place-making interventions, namely physical space, social connection, and institutional support (see Figure 8.2). The second research question hence was: *What role do each of the three cornerstones (physical space, social connection, institutional support) play in interventions to facilitate participatory place-making?* This question was answered through six intervention studies of participatory place-making initiatives in Part II of the thesis.



**Figure 8.2.:** This thesis contributes six interventions (indicated with DI) for place-making that particularly focus on one of the three cornerstones: Physical Space, Social Connection, and Institutional Support.

For the *physical space* cornerstone, a location-based game ‘Secrets of the South’ was the first intervention and was play tested with a group of citizens from The Hague, who also designed content for the game. The second intervention was a co-creation method with children in Rotterdam, who explored and designed improvements for their neighbourhood. Both interventions used the physical space as a prompt for place-making. Evidence was found that the familiarity of the spatial context, because the research took place in participants’ neighbourhoods, supported residents to explore the physical space and discover new things. Through this discovery, the physical spaces become more meaningful and hence fosters place-making.

The *social connection* cornerstone presented two other interventions; one that uses community storytelling and one based on distributed Participatory Design. In both interventions, storytelling played a prominent role to establish social connections between participants to facilitate place-making. This required that the stories supported reflection about the neighbourhood community. The intervention studies found that achieving place-making through reflective storytelling asks for deliberate facilitation of joint reflection between storytellers and story receivers.

The two interventions that were build on the *institutional support*

cornerstone were the Playable Cities approach and asset-based community development (ABCD). These interventions provided specific insights in how formal and informal urban actors can work together effectively towards place-making. Jointly designing interventions for place-making requires flexibility and adaptability, which this thesis found is challenging for institutional parties.

The six interventions that were studied in this thesis illuminate how participation can be organised in different ways, for citizens to contribute based on their motivation, interest, and time. The interventions showcase examples of achieving diversity computing (Fletcher-Watson et al., 2018), and exhibits ways to address the participation divide (Slingerland, Mulder, & Jaskiewicz, 2019).

### Research question 3: Design guidelines

The third research question was addressed in Part III of the thesis: *Which guidelines can be identified to design interventions for participatory place-making in urban settings?* To answer this question, a meta-analysis of all interventions was performed using the Participatory Place-making framework. The analysis focused on assessing which principles were present in which intervention, to so better understand how interventions for participatory place-making should be designed.

This thesis identified five guidelines to design for participatory place-making (see the box below), which give specific suggestions on how to organise participation in the intervention design, who to involve in this process, which activities facilitate participation in place-making, and how place-making interventions can cater for a diverse group of citizens.

#### Five design guidelines for place-making

1. Place-making interventions need to be designed, implemented, and evaluated together with key stakeholders.
2. Participatory place-making interventions should be guided by several of the five principles (emergent, empowering, inclusive, playful, reflective) to enable stakeholder participation.
3. Participatory place-making can be achieved through interventions that focus on physical space, social connections, and/or institutional support.
4. The local context should be taken into account while designing participatory place-making interventions.
5. Participatory place-making interventions should be multi-faceted to tailor to different participation needs.

Together with the framework, these guidelines form the theory of participatory place-making. New theories are necessary and a

contribution to the Human-computer Interaction field, because the design of (technology) interventions is often not based on theoretical foundations (Beaudouin-Lafon, Mackay, & Bødker, 2021). The theory developed in this thesis is reflected in the guidelines, to provide researchers and designers with a clear starting point to design interventions for participatory place-making. While the suggestions to include the local context in participatory approaches is not new (Blomberg, Giacomi, Mosher, & Pat, 1993; DiSalvo et al., 2013), this thesis provides very specific examples on how researchers and designers can work with communities and what are challenges to organise such kind of work.

## 8.2. Contributions

This thesis contributes to the understanding of organising participation in place-making, with the ultimate aim to support stronger urban communities. It develops insights needed to facilitate urban actors to jointly shape interventions for place-making. The contributions of this thesis are both theoretical and practical. The theoretical contribution concerns the Participatory Place-making framework, that conceptualises the notion of participation in place-making and extends the state-of-the-art with five principles for establishing participation in place-making. The design guidelines contribute to the practical perspective, because they facilitate designers, residents, and policy makers in developing successful interventions for participatory place-making. The six interventions included in this thesis showcase the practical implication of the elements of the Participatory Place-making framework.

In summary, the three main contributions of this thesis are:

1. **Conceptualising participation in place-making in the Participatory Place-making framework** (Chapter 3).  
This thesis contributes the Participatory Place-making framework, build from place-making and Participatory Design literature and evaluated using six participatory place-making interventions that were designed, implemented, and evaluated in neighbourhoods in The Hague, Rotterdam, and Cork (Ireland). The framework contains five principles and four activities that should guide the design of participatory place-making interventions.
2. **Six possible interventions for participatory place-making** (Chapters 4, 5, and 6)  
Six interventions for participatory place-making have been studied in this dissertation and leveraged the physical space,

social connections, or institutional support to make place-making and participation happen. The in-depth intervention studies provide specific insights on how and why these interventions were successful at achieving place-making. They also showcase how the elements of the Participatory Place-making framework can be implemented and applied in urban interventions.

### 3. **Five guidelines to design for participatory place-making** (Chapter 7)

To further support designers, residents, and urban institutions to develop successful interventions for participatory place-making, this thesis draws up five design guidelines. These inform, together with the framework, the process and necessary building blocks of participatory place-making interventions. The guidelines are meant to give hands-on suggestions on how to apply the theoretical knowledge and insights that this thesis has produced.

This dissertation combines multiple disciplines, specifically design, urban studies, human-computer interaction, and community development. Its contributions can thus be relevant to researchers from these disciplines, and others, as well as for local governments, policy makers, community builders, and interaction designers.

## 8.3. Future research

This thesis contributes to the growing body of literature that addresses Participatory Design in urban settings, with the aim of establishing stronger connected citizen communities (Huybrechts et al., 2017). While a lot of research has been done, there are still challenges to be addressed. Based on the insights of this research, the following directions deserve attention in future studies.

**Further validation of the framework elements.** This thesis developed the Participatory Place-making framework, containing five principles for participatory place-making. While the framework has been build from the literature, and was validated using six interventions in a meta-analysis, further validation of the framework is necessary. The participant number of the analysis study was small and the results were not always clearly pointing in one direction. For example, the principles empowerment and playfulness were for none of the interventions recognised by all five evaluators. Future research should focus on further validating the principles of the framework, using a larger participant sample in evaluating the six interventions presented in this thesis, or adding more interventions for participatory place-making to the evaluation study.

**Application of Participatory Place-making framework in other domains.** The essence of the Participatory Place-making framework is the organisation of participation in place-making processes. In this view, the framework could also be applied in other domains where participation of city actors is required and needs to be organised. Future research could apply and test the framework in urban transitions, such as developments towards a sustainable society, that require the input of residents. The framework can be further generalised by studying whether the five principles still apply in other domains, and if the three cornerstones keep on being relevant.

**Dealing with tensions around diversity and inclusion in Participatory Design.** Diversity and inclusion are profound topics in Participatory Design and bring tensions to participation processes. Questions such as: who decides who are key stakeholders? How do we make sure they can all participate? need to be considered for all types of participation processes in cities. This thesis showed that inclusion of diverse groups requires specific support, for example in the community storytelling initiative (Haags Verhaal), but this is challenged due to limited resources. The complexity, challenges, and opportunities that come with diversity and inclusion in urban participation have recently come to the forefront, and future research needs to continue answering these questions to deepen our understanding how to best organise for diversity and inclusion in urban participation processes.

**Hybrid participatory approaches in the urban space.** Under the pressure of COVID-19, this thesis explored the opportunities of distributed and virtual Participatory Design. Also outside of this dissertation, many scholars started to investigate how we can best leverage the opportunities of online and face-to-face co-design and participation. A combination of these two strands may open up participation processes for a larger group of stakeholders, and allow to better cater for specific needs and interests. This thesis made a first attempt in this line of research by studying the distributed Participatory Design intervention, and future research should explore other types of distributed interventions, as well as explicit combinations of distributed and face-to-face co-design methods in the future.



## Bibliography

- Adger, Neil et al. (2020). 'Commentary: Inequality, precarity and sustainable ecosystems as elements of urban resilience'. In: *Urban Studies Journal Limited* 57.7, pp. 1588–1595. doi: [10.1177/0042098020904594](https://doi.org/10.1177/0042098020904594) (cited on pages 182, 184).
- Adger, W. Neil (2006). 'Vulnerability'. In: *Global Environmental Change* 16.1, pp. 268–281. doi: [10.1016/j.gloenvcha.2006.02.006](https://doi.org/10.1016/j.gloenvcha.2006.02.006) (cited on pages 1, 23).
- Adler, Richard P, Judy Goggin, and George W Bush (2005). 'What Do We Mean By "Civic Engagement"?' In: *Journal of Transformative Education* 3.3, pp. 236–253. doi: [10.1177/1541344605276792](https://doi.org/10.1177/1541344605276792) (cited on pages 1, 22).
- Aldrich, Howard and Diane Herker (1977). 'Boundary Spanning Roles and Organization Structure'. In: *The Academy of Management Review* 2.2, pp. 217–230 (cited on page 199).
- Ali, Abdullah X, Meredith Ringel Morris, and Jacob O Wobbrock (2021). 'Distributed Interaction Design Designing Human-Centered Interactions in a Time of Social Distancing'. In: *Interactions*, pp. 83–87. doi: [10.1145/3447790](https://doi.org/10.1145/3447790) (cited on pages 142, 159).
- Allan, Cherie, Michael Dezuanni, and Kerry Mallan (2017). 'Digital Storytelling for Community Participation: The Storyelling Social Living Lab'. In: *Digital Participation through Social Living Labs*. Ed. by Michael Dezuanni et al. Elsevier Ltd. Chap. Chapter 13, pp. 245–262. doi: [10.1016/B978-0-08-102059-3.00013-7](https://doi.org/10.1016/B978-0-08-102059-3.00013-7) (cited on pages 25, 120).
- Angus, Alice et al. (2008). 'Urban social tapestries'. In: *IEEE Pervasive Computing* 7.4, pp. 44–51. doi: [10.1109/MPRV.2008.84](https://doi.org/10.1109/MPRV.2008.84) (cited on pages 22, 29, 42, 47, 48).
- Aoki, Paul M et al. (2009). 'A Vehicle for Research: Using Street Sweepers to Explore the Landscape of Environmental Community Action'. In: *Proceedings of Conference on Human Factors in Computing Systems*, pp. 375–384 (cited on pages 43, 46–48, 179).
- Arango-López, Jeferson et al. (2017a). 'A systematic review of geolocated pervasive games: a perspective from game development methodologies, software metrics and linked open data'. In: *International Conference of Design, User Experience, and Usability*. Springer, pp. 335–346 (cited on page 64).
- Arango-López, Jeferson et al. (2017b). 'Pervasive games: giving a meaning based on the player experience'. In: *Proceedings of the XVIII International Conference on Human Computer Interaction*. ACM, p. 9 (cited on page 64).
- Arendt, Hannah (1958). *The Human Condition*. University of Chicago Press (cited on page 33).
- Arnstein, Sherry R. (1969). 'A Ladder Of Citizen Participation'. In: *Journal of the American Planning Association* 35.4, pp. 216–224. doi: [10.1080/01944366908977225](https://doi.org/10.1080/01944366908977225) (cited on page 33).
- Aronson, By Robert E et al. (2007). 'Neighbourhood mapping and evaluation: A methodology for participatory community health initiatives'. In: *The Maternal and Child Health Journal* 11, pp. 373–383 (cited on page 33).
- Aronson, Jodi (1995). 'A Pragmatic View of Thematic Analysis'. In: *The Qualitative Report* 2.1, pp. 1–3 (cited on page 147).
- Asad, Mariam et al. (2017). 'Creating a Sociotechnical API: Designing City-Scale Community Engagement'. In: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. ACM, pp. 2295–2306. doi: [10.1145/3025453.3025963](https://doi.org/10.1145/3025453.3025963) (cited on pages 1, 22).
- Ashtari, Delaram and Michiel de Lange (June 2019). 'Playful civic skills: A transdisciplinary approach to analyse participatory civic games'. In: *Cities* 89, pp. 70–79. doi: [10.1016/j.cities.2019.01.022](https://doi.org/10.1016/j.cities.2019.01.022) (cited on pages 31, 166).

- Atkinson, Rowland and Keith Kintrea (2000). 'Owner-occupation, Social Mix and Neighbourhood Impacts'. In: *Policy and Politics* 28.1, pp. 93–108. doi: [10.1332/0305573002500857](https://doi.org/10.1332/0305573002500857) (cited on pages 1, 2, 35).
- Avison, David and Guy Fitzgerald (2003). *Information systems development: methodologies, techniques and tools*. McGraw Hill (cited on page 64).
- Back, Jon et al. (2016a). 'Designing Children's Digital-Physical Play in Natural Outdoors Settings'. In: *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, pp. 1359–1366. doi: [10.1145/2851581.2892416](https://doi.org/10.1145/2851581.2892416) (cited on pages 93, 94).
- (2016b). 'Designing for Children's Outdoor Play'. In: *Proceedings of the 2016 ACM Conference on Designing Interactive Systems (DIS '16)*, pp. 28–38. doi: [10.1145/2901790.2901875](https://doi.org/10.1145/2901790.2901875) (cited on pages 93, 94, 108).
- Back, Jon et al. (2018). 'Playing Close to Home: Interaction and Emerging Play in Outdoor Play Installations'. In: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, pp. 1–11. doi: [10.1145/3173574.3173730](https://doi.org/10.1145/3173574.3173730) (cited on pages 22, 93, 94, 96–98, 104).
- Bakırloğlu, Yekta, María Laura Ramírez Galleguillos, and Aykut Coşkun (2020). 'Dreaming of Immersive Interactions to Navigate Forced Distributed Collaboration During Covid-19'. In: *Interactions* xxvii.5, pp. 20–21. doi: [10.1145/3414462](https://doi.org/10.1145/3414462) (cited on pages 142, 159).
- Balestrini, Mara et al. (2016). 'Jokebox: Coordinating Shared Encounters in Public Spaces'. In: *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*. ACM, pp. 38–49. doi: [10.1145/2818048.2835203](https://doi.org/10.1145/2818048.2835203) (cited on pages 5, 22, 63, 218).
- Balestrini, Mara et al. (2017). 'A City in Common: A Framework to Orchestrate Large-scale Citizen Engagement around Urban Issues'. In: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, pp. 2282–2294. doi: [10.1145/3025453.3025915](https://doi.org/10.1145/3025453.3025915) (cited on page 87).
- Ball-Rokeach, S.J., Y. Kim, and Sorin Matei (2001). 'Storytelling Neighborhood: Paths to Belonging in Diverse Urban Environments'. In: *Communication Research* 28.4, pp. 392–428 (cited on pages 120, 139).
- Bannon, Liam J. and Pelle Ehn (2013). 'Design: Design matters in Participatory Design'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 3, pp. 37–63 (cited on page 51).
- Barendregt, Wolmet et al. (2018). 'Modelling the Roles of Designers and Teaching Staff when Doing Participatory Design with Children in Special Education'. In: *PDC'18: Proceedings of the 15th Participatory Design Conference - Volume 1*. Vol. 1, pp. 1–11. doi: [10.1145/3210586.3210589](https://doi.org/10.1145/3210586.3210589) (cited on pages 95, 96, 98, 112).
- Bartle, Richard (1996). 'Hearts, clubs, diamonds, spades: Players who suit MUDs'. In: *Journal of MUD research* 1.1, p. 19 (cited on page 88).
- (2005). 'Virtual Worlds: Why People Play A New Player Types Model'. In: *Massively Multiplayer Game Development 2*, pp. 3–18 (cited on page 88).
- Beaudouin-Lafon, Michel, Wendy E Mackay, and Susanne Bødker (2021). 'Generative Theories of Interaction'. In: *ACM Transactions on Computer-Human Interaction* 28.6, pp. 1–54. doi: [10.1145/3468505](https://doi.org/10.1145/3468505) (cited on page 227).
- Beilin, Ruth and Cathy Wilkinson (2015). 'Introduction: Governing for urban resilience'. In: *Urban Studies* 52.7, pp. 1205–1217. doi: [10.1177/0042098015574955](https://doi.org/10.1177/0042098015574955) (cited on pages 182, 185, 199).
- Bekker, Mathilde et al. (2003). 'KidReporter: a user requirements gathering technique for designing with children'. In: *Interacting with Computers* 15, pp. 187–202. doi: [10.1016/S0953-5438\(03\)00007-9](https://doi.org/10.1016/S0953-5438(03)00007-9) (cited on pages 92, 95, 97).
- Berg, Bruce L. (2004). 'Action Research'. In: *Qualitative Research Methods for the Social Sciences*. Ed. by Bruce L. Berg. Fifth. Boston: Pearson Education. Chap. 7, pp. 195–208 (cited on page 9).

- Bergström, Karl et al. (2014). 'Gaming in the crucible of science: gamifying the science center visit'. In: *Proceedings of the 11th Conference on Advances in Computer Entertainment Technology*. ACM, p. 2 (cited on page 64).
- Berkes, Fikret and Helen Ross (2013). 'Community Resilience: Toward an Integrated Approach'. In: *Society & Natural Resources* 26.1, pp. 5–20. doi: [10.1080/08941920.2012.736605](https://doi.org/10.1080/08941920.2012.736605) (cited on pages 184, 197, 201).
- Betancur, John (2011). 'Gentrification and Community Fabric in Chicago'. In: *Urban Studies* 48.2, pp. 383–406. doi: [10.1177/0042098009360680](https://doi.org/10.1177/0042098009360680) (cited on page 120).
- Beza, Beau Bradley and Jaime Hernández-García (2018). 'From placemaking to sustainability citizenship: An evolution in the understanding of community realised public spaces in Bogotá's informal settlements'. In: *Journal of Place Management and Development* 11.2, pp. 1–15. doi: [10.1108/JPM-D-2017-0051](https://doi.org/10.1108/JPM-D-2017-0051) (cited on pages 3, 5–7, 9, 26, 28, 29, 31, 36, 44, 48, 219, 223).
- Bidwell, Nicola J et al. (2010). 'Designing with Mobile Digital Storytelling in Rural Africa'. In: *Proceedings of Conference on Human Factors in Computing Systems*, pp. 1593–1602. doi: [10.1145/1753326.1753564](https://doi.org/10.1145/1753326.1753564) (cited on pages 121, 123, 124).
- Bilandzic, Mark and Marcus Foth (2012). 'A review of locative media, mobile and embodied spatial interaction'. In: *International Journal of Human Computer Studies* 70.1, pp. 66–71. doi: [10.1016/j.ijhcs.2011.08.004](https://doi.org/10.1016/j.ijhcs.2011.08.004) (cited on pages 62, 64).
- Birch, Jo et al. (2017). 'Creativity, play and transgression: children transforming spatial design'. In: *CoDesign* 13.4, pp. 245–260. doi: [10.1080/15710882.2016.1169300](https://doi.org/10.1080/15710882.2016.1169300) (cited on pages 92, 93, 96, 113).
- Björgvinsson, Erling, Pelle Ehn, and Anders Hillgren (2012). 'Design Things and Design Thinking: Contemporary Participatory Design Challenges'. In: *Design Issues* 28.3, pp. 101–116 (cited on pages 36, 45, 51, 84).
- Blomberg, Jeanette L. and Austin Henderson (1990). 'Reflections on Participatory Design: Lessons from the Trillium Experience'. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. CHI '90. Seattle, Washington, USA: Association for Computing Machinery, pp. 353–360. doi: [10.1145/97243.97307](https://doi.org/10.1145/97243.97307) (cited on page 31).
- Blomberg, Jeanette and Helena Karasti (2013). 'Ethnography: Positioning ethnography within Participatory Design'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 5, pp. 86–116 (cited on pages 36, 51).
- Blomberg, Jeanette et al. (1993). 'Ethnographic Field Methods and Their Relation to Design'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 7, pp. 123–155 (cited on page 227).
- Bloor, Michael and Fiona Wood (2006). *Keywords in Qualitative Methods*. London: SAGE Publications Ltd (cited on page 126).
- Boase, Catherine (2013). *Digital Storytelling for Reflection and Engagement: a study of the uses and potential of digital storytelling*. Tech. rep. Centre for Active Learning & Department of Education, University of Gloucestershire, pp. 1–17 (cited on pages 120–123).
- Bødker, Susanne, Kaj Grønbaek, and Morten Kyng (1993). 'Cooperative Design: Techniques and Experiences From the Scandinavian Scene'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 8, pp. 157–175 (cited on page 52).
- Bossen, Claus, Christian Dindler, and Ole Sejer Iversen (2010). 'User Gains and PD Aims: Assessment From a Participatory Design Project'. In: *Proceedings of the 11th Biennial Participatory Conference*. ACM, pp. 141–150 (cited on pages 53, 219).

- Bourdieu, Pierre (1983). 'The Forms of Capital'. In: *The Handbook for Theory: Research for the Sociology of Education*. Ed. by John G. Richardson. New York: Greenwood Press, pp. 241–258 (cited on pages 186, 198).
- Brandrup Kortbek, Hjørdis (2018). 'Contradictions in Participatory Public Art: Placemaking as an Instrument of Urban Cultural Policy'. In: *The Journal of Arts Management, Law, and Society* 49.1, pp. 30–44. doi: [10.1080/10632921.2018.1473310](https://doi.org/10.1080/10632921.2018.1473310) (cited on pages 28, 29, 42, 47).
- Brandt, Eva (2006). 'Designing Exploratory Design Games: A Framework for Participation in Participatory Design?' In: *Proceedings of the Ninth Participatory Design Conference 2006*, pp. 57–66. doi: [10.1145/1147261.1147271](https://doi.org/10.1145/1147261.1147271) (cited on page 46).
- Brandt, Eva, Thomas Binder, and Elizabeth B. N. Sanders (2013). 'Tools and techniques: Ways to engage telling, making and enacting'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 7, pp. 145–181 (cited on pages 53, 218).
- Bratteteig, Tone et al. (2013). 'Methods: Organising principles and general guidelines for Participatory Design projects'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 6, pp. 117–144 (cited on pages 51, 53, 144).
- Braun, V. and V. Clarke (2006). 'Using Thematic Analysis in Psychology'. In: *Qualitative Research in Psychology* 3.2, pp. 77–101. doi: [10.1191/1478088706qp0630a](https://doi.org/10.1191/1478088706qp0630a) (cited on page 189).
- Brazier, Frances M.T. and Caroline Nevejan (2014). 'Vision for Participatory Systems Design'. In: *4th International Engineering Systems Symposium (CESUN 2014)* (cited on pages 65, 166, 167).
- Brooke, John (1996). 'SUS - A Quick and Dirty Usability Scale'. In: *Usability Evaluation in Industry* 189.194, pp. 4–7 (cited on pages 73, 76, 81).
- Bruner, Jerome (2004). 'Life as Narrative'. In: *Social Research* 71.3, pp. 691–710 (cited on pages 121, 138).
- Brydon-Miller, Mary, Davydd Greenwood, and Patricia Maguire (2003). 'Why action research?' In: *Action Research* 1.1, pp. 9–28 (cited on page 9).
- Buttler, Tanja, Stephan G Lukosch, and Alexander Verbraeck (2011). 'Frozen stories - Capturing and utilizing frozen stories for teaching of project managers'. In: *Proceedings of the 3rd International Conference on Computer Supported Education*, pp. 120–129. doi: [10.5220/0003344701200129](https://doi.org/10.5220/0003344701200129) (cited on pages 121, 122).
- Callele, David, Eric Neufeld, and Kevin Schneider (2006). 'Emotional requirements in video games'. In: *14th IEEE International Requirements Engineering Conference (RE'06)*. IEEE, pp. 299–302 (cited on page 64).
- (2010). 'An introduction to experience requirements'. In: *2010 18th IEEE International Requirements Engineering Conference*. IEEE, pp. 395–396 (cited on page 64).
- Campos, Fabio and Leiny Garcia (2018). 'Fostering civic engagement through native maps: a preliminary study'. In: *Interaction Design & Children*, pp. 605–610. doi: [10.1145/3202185.3210780](https://doi.org/10.1145/3202185.3210780) (cited on pages 92, 97).
- Carroll, John M. and Mary Beth Rosson (2013). 'Wild at home: The neighborhood as a living laboratory for HCI'. In: *ACM Transactions on Computer-Human Interaction* 20.3, pp. 1–28. doi: [10.1145/2491500.2491504](https://doi.org/10.1145/2491500.2491504) (cited on page 5).
- Carroll, John M and Mary Beth Rosson (2007). 'Participatory design in community informatics'. In: *Design Studies* 28, pp. 243–261. doi: [10.1016/j.destud.2007.02.007](https://doi.org/10.1016/j.destud.2007.02.007) (cited on pages 35, 51, 52, 144, 158).

- Caruso, Nadia, Sara Mela, and Elena Pede (2020). 'A resilient response to the social-economic implications of coronavirus. The case of Snodi Solidali in Turin'. In: *Urban Research & Practice* 13.5, pp. 566–570. doi: [10.1080/17535069.2020.1817692](https://doi.org/10.1080/17535069.2020.1817692) (cited on pages 183, 197–199).
- Casey, Edward (1996). 'How to Get From Space to Place in a Fairly Short Space of Time'. In: *Senses of Place (School of American Research Advanced Seminar Series)*. Ed. by S. Feld and K. Basso. Santa Fe, NM: School of American Research Press, pp. 13–52 (cited on page 3).
- Certomà, Chiara et al. (2017). *Citizen Empowerment and Innovation in the Data-Rich City*. Ed. by Chiara Certomà et al. Cham: Springer Nature (cited on page 30).
- Chen, N.-T.N. et al. (2012). 'Building a New Media Platform for Local Storytelling and Civic Engagement in Ethnically Diverse Neighborhoods'. In: *New Media and Society* 14.6, pp. 931–950. doi: [10.1177/1461444811435640](https://doi.org/10.1177/1461444811435640) (cited on page 25).
- Chiao-Yin Hsiao, Joey and Tawanna R Dillahunt (2017). 'People-Nearby Applications: How Newcomers Move Their Relationships Offline and Develop Social and Cultural Capital'. In: *Proceedings of the ACM Conference Companion on Computer Supported Cooperative Work & Social Computing - CSCW'17 Companion*. Portland: ACM, pp. 26–40. doi: [10.1145/2998181.2998280](https://doi.org/10.1145/2998181.2998280) (cited on page 25).
- Cila, Nazli et al. (2015). 'Thing-Centred Narratives: A Study of Object Personas'. In: *Seminar 3: Collaborative Formation of Issues Research Network for Design Anthropology*. Research Network for Design Anthropology, pp. 1–17 (cited on page 84).
- Cila, Nazli et al. (2016). 'Look! A Healthy Neighborhood: Means to Motivate Participants in Using an App for Monitoring Community health'. In: *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*. ACM, pp. 889–898. doi: [10.1145/2851581.2851591](https://doi.org/10.1145/2851581.2851591) (cited on page 42).
- Cilliers, Elizelle J. and Wim Timmermans (2014). 'The importance of creative participatory planning in the public place-making process'. In: *Environment and Planning B: Planning and Design* 41.3, pp. 413–429. doi: [10.1068/b39098](https://doi.org/10.1068/b39098) (cited on pages 2–8, 26–30, 33, 42, 45, 47, 216, 219, 223).
- Cioffi, Luigina, Geraldine Fitzpatrick, and Liam Bannon (2008). 'Settings for collaboration: The role of place'. In: *Computer Supported Cooperative Work* 17.2-3, pp. 91–96. doi: [10.1007/s10606-007-9074-z](https://doi.org/10.1007/s10606-007-9074-z) (cited on page 22).
- Claes, Sandy, Jorgos Coenen, and Andrew Vande Moere (2017). 'Empowering Citizens with Spatially Distributed Public Visualization Displays'. In: *DIS'17 Companion: Proceedings of the 2017 ACM Conference Companion Publication on Designing Interactive Systems*, pp. 213–217. doi: [10.1145/3064857.3079148](https://doi.org/10.1145/3064857.3079148) (cited on page 166).
- Claes, Sandy and Andrew Vande Moere (2017). 'The Impact of a Narrative Design Strategy for Information Visualization on a Public Display'. In: *DIS'17: Proceedings of the 2017 Conference on Designing Interactive Ssystems*, pp. 833–838. doi: [10.1145/3064663.3064684](https://doi.org/10.1145/3064663.3064684) (cited on pages 42, 47, 166).
- Clark, Alexander M and Matthew TG Clark (2016). *Pokémon Go and research: Qualitative, mixed methods research, and the supercomplexity of interventions* (cited on pages 64, 85).
- Coenraad, Merijke et al. (2019). 'Enacting Identities: Participatory Design as a Context for Youth to Reflect, Project, and Apply their Emerging Identities ACM Reference format'. In: *Interaction Design & Children*, pp. 185–196. doi: [10.1145/3311927.3323148](https://doi.org/10.1145/3311927.3323148) (cited on pages 95–98).
- Cohen, Anthony P. (2003). *Symbolic Construction of Community*. 1st editio. London: Routledge (cited on page 35).
- Coleman, James (1988). 'Social Capital in the Creation of Human Capital'. In: *American Journal of Sociology* 94, pp. 95–120 (cited on pages 186, 198).

- Colley, Ashley et al. (2017). 'The geography of Pokémon GO: beneficial and problematic effects on places and movement'. In: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. ACM, pp. 1179–1192 (cited on page 64).
- Collins, C.R., J.W. Neal, and Z.P. Neal (2014). 'Transforming Individual Civic Engagement into Community Collective Efficacy: The Role of Bonding Social Capital'. In: *American Journal of Community Psychology* 54.3-4, pp. 328–336. doi: [10.1007/s10464-014-9675-x](https://doi.org/10.1007/s10464-014-9675-x) (cited on page 85).
- Colten, Craig E., Robert W. Kates, and Shirley B. Laska (2008). 'Three Years after Katrina: Lessons for Community Resilience'. In: *Environment: Science and Policy for Sustainable Development* 50.5, pp. 36–47. doi: [10.3200/ENVT.50.5.36-47](https://doi.org/10.3200/ENVT.50.5.36-47) (cited on pages 182, 184).
- Comes, Tina (2016). 'Designing for networked community resilience'. In: *Procedia Engineering* 159, pp. 6–11. doi: [10.1016/j.proeng.2016.08.057](https://doi.org/10.1016/j.proeng.2016.08.057) (cited on pages 1, 87, 184, 185, 196, 197, 200).
- Comes, Tina, Niek Wijngaards, and Bartel Van de Walle (2015). 'Exploring the future: Runtime scenario selection for complex and time-bound decisions'. In: *Technological Forecasting and Social Change* 97, pp. 29–46. doi: [10.1016/j.techfore.2014.03.009](https://doi.org/10.1016/j.techfore.2014.03.009) (cited on page 33).
- Copeland, Sarah and Aldo De Moor (2018). 'Community Digital Storytelling for Collective Intelligence: Towards a Storytelling Cycle of Trust'. In: *AI & SOCIETY* 33.1, pp. 101–111 (cited on pages 22, 23, 25, 27, 28, 43, 120, 137).
- Corcoran, Rhiannon, Graham Marshall, and Erin Walsh (2018). 'The psychological benefits of cooperative place-making: a mixed methods analyses of co-design workshops'. In: *CoDesign: International Journal of CoCreation in Design and the Arts* 14.4, pp. 314–328. doi: [10.1080/15710882.2017.1340484](https://doi.org/10.1080/15710882.2017.1340484) (cited on pages 7, 30, 42, 46).
- Cornwall, Andrea (2008). 'Unpacking 'Participation' Models, meanings and practices'. In: *Community Development Journal* 43.3, pp. 269–283. doi: [10.1093/cdj/bsn010](https://doi.org/10.1093/cdj/bsn010) (cited on page 33).
- Council, National Research (2011). *Building Community Disaster Resilience Through Private-Public Collaboration*. Washington: The National Academies Press, p. 143 (cited on page 185).
- Creswell, John W. (2009). *Research Design*. Third edit. Sage (cited on pages 9, 10).
- Crivellaro, Clara et al. (2015). 'Contesting the City: Enacting the Political Through Digitally Supported Urban Walks'. In: *Proceedings of Conference on Human Factors in Computing Systems*, pp. 2853–2862. doi: [10.1145/2702123.2702176](https://doi.org/10.1145/2702123.2702176) (cited on pages 6, 24, 26–30, 44, 45, 47, 48, 84, 179).
- Crivellaro, Clara et al. (2016). 'Re-Making Places: HCI, 'Community Building' and Change'. In: *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, pp. 2958–2969. doi: [10.1145/2858036.2858332](https://doi.org/10.1145/2858036.2858332) (cited on pages 3, 22, 28, 29, 42, 51, 142).
- Custers, Lieve, Oswald Devisch, and Liesbeth Huybrechts (2020). 'Experiential evaluation as a way to talk about livability in a neighborhood in transformation'. In: *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 2 (PDC '20: Vol. 2)*. New York: ACM, pp. 114–118. doi: [10.1145/3384772.3385128](https://doi.org/10.1145/3384772.3385128) (cited on pages 44, 46–48, 166, 179).
- Dahl, Robert A (1994). 'A Democratic Dilemma: System Effectiveness versus Citizen Participation'. In: *Political Science Quarterly* 109.1, pp. 23–34. doi: [10.2307/2151659](https://doi.org/10.2307/2151659) (cited on page 33).
- Dalsgaard, Peter (2012). 'Participatory Design in Large-Scale Public Projects: Challenges and Opportunities'. In: *Design Issues* 28.3, pp. 34–47 (cited on pages 35, 144, 216).
- Danielsson, Karin et al. (2008). 'Distributed Participatory Design'. In: *CHI EA '08: CHI '08 Extended Abstracts on Human Factors in Computing Systems*. Florence, pp. 3953–3956 (cited on page 142).
- Davis, Dylan (2011). 'Intergenerational digital storytelling: a sustainable community initiative with inner-city residents'. In: *Visual Communication* 10.4, pp. 527–540. doi: [10.1177/1470357211415781](https://doi.org/10.1177/1470357211415781) (cited on pages 120–123).

- De Koning, Jotte I.J.C. et al. (2018). 'Design-Enabled Participatory City Making'. In: *2018 IEEE International Conference on Engineering, Technology and Innovation, ICE/ITMC 2018 - Proceedings*, pp. 1–9. doi: [10.1109/ICE.2018.8436356](https://doi.org/10.1109/ICE.2018.8436356) (cited on pages 31, 167).
- De Lange, Michiel (2014). *Playful Planning: Citizens Making The Smart and Social City: ECLECTIS report: A contribution from cultural and creative actors to citizens' empowerment*. Tech. rep. (cited on pages 33, 63).
- de Lange, Michiel and Martijn de Waal (2013). 'Owning the City: New Media and Citizen Engagement in Urban Design'. In: *First Monday* 18.11, pp. 1–13. doi: [10.5210/fm.v18i11.4954](https://doi.org/10.5210/fm.v18i11.4954) (cited on pages 1, 22, 30, 33, 34, 62, 89, 142).
- eds. (2019). *The Hackable City: Digital Media and Collaborative City-Making in the Network Society*. Singapore: Springer, p. 306 (cited on page 34).
- De Waal, Martijn, Frank Suurenbroek, and Ivan Nio (2021). 'Responsive public spaces: Five mechanisms for the design of public space in the era of networked urbanism'. In: *Shaping Smart for Better Cities*. Elsevier Inc., pp. 33–55. doi: [10.1016/B978-0-12-818636-7.00009-3](https://doi.org/10.1016/B978-0-12-818636-7.00009-3) (cited on pages 22, 218).
- Den Haag (2015). *Wijkprogramma 2016-2019: Stadsdeel Escamp*. Tech. rep. Gemeente Den Haag (cited on page 69).
- Derr, Victoria (2015). 'Integrating community engagement and children's voices into design and planning education'. In: *CoDesign* 11.2, pp. 119–133. doi: [10.1080/15710882.2015.1054842](https://doi.org/10.1080/15710882.2015.1054842) (cited on pages 92, 95, 96, 98, 103).
- Derr, Victoria et al. (2013). 'A City for All Citizens: Integrating Children and Youth from Marginalized Populations into City Planning'. In: *Buildings* 3.3, pp. 482–505. doi: [10.3390/buildings3030482](https://doi.org/10.3390/buildings3030482) (cited on pages 24, 27–29, 36, 44, 46).
- Dickinson, Janis L et al. (2012). 'The current state of citizen science as a tool for ecological research and public engagement'. In: *Frontiers in Ecology and the Environment* 10.6, pp. 291–297. doi: [10.1890/110236](https://doi.org/10.1890/110236) (cited on page 33).
- DiSalvo, Carl, Andrew Clement, and Volkmar Pipek (2013). 'Communities: Participatory Design for, with and by communities'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 8, pp. 182–209 (cited on pages 32, 34, 142, 227).
- DiSalvo, Carl et al. (2008). 'The Neighborhood Networks Project: A Case Study of Critical Engagement and Creative Expression Through Participatory Design'. In: *Tenth Anniversary Conference on Participatory Design 2008*. ACM, pp. 41–50 (cited on page 84).
- DiSalvo, Carl et al. (2009). 'Local Issues, Local Uses: Tools for Robotics and Sensing in Community Contexts'. In: *ACM Conference on Creativity and Cognition*, pp. 245–254. doi: [10.1145/1640233.1640271](https://doi.org/10.1145/1640233.1640271) (cited on pages 24, 30, 33, 35, 142).
- DiSalvo, Carl et al. (2014). 'Making Public Things: How HCI Design Can Express Matters of Concern'. In: *Proceedings of the SIGCHI conference on Human Factors in Computing Systems*. ACM, pp. 2397–2406. doi: [10.1145/2556288.2557359](https://doi.org/10.1145/2556288.2557359) (cited on page 35).
- Doff, Wenda (2017). 'Veerkracht van lokale gemeenschappen: de Literatuur op een rij' (cited on page 186).
- Dong, Andy et al. (2013). 'The capability approach as a framework for the assessment of policies toward civic engagement in design'. In: *Design Studies* 34.3, pp. 326–344. doi: [10.1016/j.destud.2012.10.002](https://doi.org/10.1016/j.destud.2012.10.002) (cited on page 216).
- Dörk, Marian and David Monteye (2011). 'Urban Co-Creation: Envisioning New Digital Tools for Activism and Experimentation in the City'. In: *Proceedings of the CHI Conference*. May, pp. 1–4 (cited on pages 2, 24, 30, 142).

- Drain, Andrew, Aruna Shekar, and Nigel Grigg (2018). 'Insights, Solutions and Empowerment: a framework for evaluating participatory design'. In: *International Journal of CoCreation in Design and the Arts (CoDesign)*, pp. 1–21. doi: [10.1080/15710882.2018.1540641](https://doi.org/10.1080/15710882.2018.1540641) (cited on page 217).
- Dreher, Tanja and Jemima Mowbray (2012). *The Power of One on One: Human Libraries and the challenges of antiracism work*. UTSePress, p. 77 (cited on pages 120, 122–124, 137).
- Druin, Allison (1999). 'Cooperative Inquiry: Developing New Technologies for Children with Children'. In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*, pp. 99–113 (cited on pages 95–98, 112, 113).
- (2002). 'The Role of Children in the Design of New Technology'. In: *Behaviour and Information Technology (BIT)* 21.1, pp. 1–25 (cited on pages 92, 95–98, 104, 111, 112).
- Edelenbos, Jurian, Ingmar van Meerkerk, and Todd Schenk (2016). 'The Evolution of Community Self-Organization in Interaction With Government Institutions: Cross-Case Insights From Three Countries'. In: *The American Review of Public Administration* 48.1, pp. 52–66. doi: [10.1177/0275074016651142](https://doi.org/10.1177/0275074016651142) (cited on pages 182, 186, 199, 200).
- Ehn, Pelle (1993). 'Scandinavian Design: On Participation and Skill'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 4, pp. 41–77 (cited on pages 53, 218).
- (2008). 'Participation in Design Things'. In: *Tenth Anniversary Conference on Participatory Design 2008*, pp. 91–101 (cited on pages 84, 87).
- Eizaguirre, Santiago and Marc Parés (2019). 'Communities making social change from below. Social innovation and democratic leadership in two disenfranchised neighbourhoods in Barcelona'. In: *Urban Research & Practice* 12.2, pp. 173–191. doi: [10.1080/17535069.2018.1426782](https://doi.org/10.1080/17535069.2018.1426782) (cited on pages 186, 197).
- Elkins, Donna M (2018). 'Book Review: The Ethics of Storytelling: Narrative Hermeneutics, History and the Possible'. In: *Journal of Language and Social Psychology* 37.5, pp. 594–599. doi: [10.1177/0261927X18784621](https://doi.org/10.1177/0261927X18784621) (cited on pages 120, 123).
- Empsak, Frank (1993). 'Workers, Unions, and New Technology'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 2, pp. 13–26 (cited on pages 34, 36, 144, 158).
- Erete, Sheena Lewis (2015). 'Engaging Around Neighborhood Issues'. In: *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, pp. 1590–1601. doi: [10.1145/2675133.2675182](https://doi.org/10.1145/2675133.2675182) (cited on pages 1, 23, 84).
- Eriksson, Eva et al. (2019). 'Using Gameplay Design Patterns with Children in the Redesign of a Collaborative Co-located Game'. In: *Interaction Design & Children*, pp. 15–25. doi: [10.1145/3311927.3323155](https://doi.org/10.1145/3311927.3323155) (cited on page 97).
- Ertner, Marie, Anne Mie Kragelund, and Lone Malmberg (2010). 'Five Enunciations of Empowerment in Participatory Design'. In: *Proceedings of the 11th Biennial Participatory Conference*. ACM, pp. 191–194. doi: [10.1145/1900441.1900475](https://doi.org/10.1145/1900441.1900475) (cited on page 217).
- Fang, Mei Lan et al. (2016). 'Place-making with older persons: Establishing sense-of-place through participatory community mapping workshops'. In: *Social Science and Medicine* 168, pp. 223–229. doi: [10.1016/j.socscimed.2016.07.007](https://doi.org/10.1016/j.socscimed.2016.07.007) (cited on pages 5, 22, 27–30, 43, 53, 142, 218).
- Fastigi, Mary, Sara Meerow, and R. Miller Thaddeus (2020). 'Governing urban resilience: Organisational structures and coordination strategies in 20 North American city governments'. In: *Urban Studies*. doi: [10.1177/0042098020907277](https://doi.org/10.1177/0042098020907277) (cited on pages 182, 199).
- Ferreira, Vinicius, Junia Anacleto, and Andre Bueno (2017). 'Designing ICT for Thirdplaceness'. In: *Playable Cities: Gaming Media and Social Effects*. Ed. by Anton Nijholt. Singapore: Springer, pp. 211–233 (cited on page 167).

- Fischer, Joel E, Irma Lindt, Jaakko Stenros, et al. (2007). *Evaluation of crossmedia gaming experiences in epidemic menace*. na (cited on page 85).
- Fischer, Patrick Tobias and Eva Hornecker (2017). 'Creating Shared Encounters Through Fixed and Movable Interfaces'. In: *Playable Cities: Gaming Media and Social Effects*. Ed. by Anton Nijholt. Singapore: Springer Science+Business Media, pp. 163–185. doi: [10.1007/978-981-10-1962-3\\_8](https://doi.org/10.1007/978-981-10-1962-3_8) (cited on pages 23, 24).
- Fletcher-Watson, Sue et al. (Aug. 2018). 'Diversity computing'. In: *Interactions* 25.5, pp. 28–33. doi: [10.1145/3243461](https://doi.org/10.1145/3243461) (cited on page 226).
- Fonseca, Xavier, Stephan Lukosch, and Frances Brazier (2018a). 'Fostering Social Interaction in Playful Cities'. In: *Interactivity, Game Creation, Design, Learning, and Innovation*. Springer, pp. 286–295 (cited on pages 62, 63, 66, 67).
- (2018b). 'Social Cohesion Revisited: A New Definition and How to Characterize It'. In: *Innovation: The European Journal of Social Science Research*. doi: [10.1080/13511610.2018.1497480](https://doi.org/10.1080/13511610.2018.1497480) (cited on page 69).
- Fonseca, Xavier et al. (2017). 'Requirements and Game Ideas for Social Interaction in Mobile Outdoor Games'. In: *CHI PLAY'17 Extended Abstracts*, pp. 331–337. doi: [10.1145/3130859.3131304](https://doi.org/10.1145/3130859.3131304) (cited on pages 66, 68).
- Fonseca, Xavier et al. (2021). 'Designing for Meaningful Social Interaction in Digital Serious Games'. In: *Entertainment Computing* 36, pp. 1–23 (cited on pages 65, 67).
- Foth, M. (June 2017a). 'Lessons from urban guerrilla placemaking for smart city commons'. In: *Proceedings of Communities and Technologies 2017*. Association for Computing Machinery, pp. 32–35. doi: [10.1145/3083671.3083707](https://doi.org/10.1145/3083671.3083707) (cited on pages 7, 31, 36).
- Foth, Marcus (2017b). 'Some thoughts on digital placemaking'. In: *Media Architecture Compendium - Digital Placemaking*. Ed. by H.M. Hausler et al. Germany, pp. 203–205 (cited on pages 6, 7).
- Foth, Marcus and Jeff Axup (2006). 'Participatory Design and Action Research: Identical Twins or Synergetic Pair?' In: *Proceedings of the 8th Participatory Design Conference (PDC)*, pp. 93–96 (cited on page 9).
- Francis, Mark (1998). 'Negotiating between children and adult design values in open space projects'. In: *Design Studies* 9.2, pp. 67–75 (cited on pages 35, 92–94, 96, 97, 113, 114).
- Frauenberger, Christopher et al. (2015). 'In pursuit of rigour and accountability in participatory design'. In: *Journal of Human Computer Studies* 74, pp. 93–106. doi: [10.1016/j.ijhcs.2014.09.004](https://doi.org/10.1016/j.ijhcs.2014.09.004) (cited on page 208).
- Fredericks, Joel et al. (2015). 'Digital pop-up: Investigating bespoke community engagement in public spaces'. In: *OzCHI 2015: Proceedings of the Annual Meeting of the Australian Special Interest Group for Computer Human Interaction*, pp. 634–642. doi: [10.1145/2838739.2838759](https://doi.org/10.1145/2838739.2838759) (cited on pages 42, 46, 47, 166).
- Friedmann, John (2010). 'Place and Place-Making in Cities: A Global Perspective'. In: *Planning Theory & Practice* 11.2, pp. 149–165. doi: [10.1080/14649351003759573](https://doi.org/10.1080/14649351003759573) (cited on pages 5–7, 9, 31, 84).
- Fu, V. R. (1999). 'Stories of We the People: An Invitation to Join the Conversation on Diversity in a Democracy'. In: *Affirming diversity through democratic conversations*. Ed. by V. R. Fu and A.J. Stremmel. Upper Saddle River, N.J.: Prentice Hall, pp. 3–14 (cited on page 123).
- Fuertes, Al (2012). 'Storytelling and Its Transformative Impact in the Philippines'. In: *Conflict Resolution Quarterly* 29.3, pp. 333–348. doi: [10.1002/crq.21043](https://doi.org/10.1002/crq.21043) (cited on pages 120, 121, 123, 125).

- Galal Ahmed, Khaled (2019). 'Instinctive participation: community-initiated mechanisms for managing and maintaining urban poor settlements in Cairo, Egypt'. In: *Urban Research & Practice* 12.4, pp. 341–371. doi: [10.1080/17535069.2018.1451555](https://doi.org/10.1080/17535069.2018.1451555) (cited on page 182).
- Ganz, Marshall (2001). 'The Power of Story in Social Movements'. In: *Proceedings of the Annual Meeting of the American Sociological Association*. Anaheim, California: American Sociological Association, pp. 1–11 (cited on pages 120, 123, 139).
- (2009). 'Why Stories Matter'. In: *Sojourners*, pp. 16–21 (cited on pages 120–122, 137, 217).
  - (2010). 'Leading Change: Leadership, Organization, and Social Movements'. In: *Handbook of Leadership Theory and Practice: A Harvard Business School Centennial Colloquium*. Ed. by Nitin Nohria and Rakesh Khurana. Boston, Massachusetts: Harvard Business Press. Chap. 19, pp. 1–42 (cited on pages 120–123, 137, 138).
- Gaventa, John (2004). *Representation, Community Leadership and Participation: Citizen Involvement in Neighbourhood Renewal and Local Governance*. Tech. rep. July. Office of Deputy Prime Minister (cited on page 1).
- Gehl, Jan (2004). *Towards a Fine City for People: Public Spaces and Public Life*. London: Transport for London and Central Partnership (cited on pages 1, 7).
- Goldstein, Bruce Evan et al. (2015). 'Narrating Resilience: Transforming Urban Systems Through Collaborative Storytelling'. In: *Urban Studies* 52.7, pp. 1285–1303. doi: [10.1177/0042098013505653](https://doi.org/10.1177/0042098013505653) (cited on pages 121–123, 185, 198, 218).
- Golsteijn, Connie et al. (2016). 'Sens-Us: Designing Innovative Civic Technology for the Public Good'. In: *Proceedings of the 2016 ACM Conference on Designing Interactive Systems*. ACM, pp. 39–49. doi: [10.1145/2901790.2901877](https://doi.org/10.1145/2901790.2901877) (cited on pages 44, 46, 47, 63, 166).
- Gonsalves, Kavita, Marcus Foth, and Glenda Amayo Caldwell (2021). 'Radical Placemaking: Utilizing Low-Tech AR/VR to engage in Communal Placemaking during a Pandemic'. In: *Interaction Design and Architecture(s) Journal (IxD&A)* 48, pp. 143–164 (cited on pages 4, 5, 7).
- Gooch, Daniel et al. (2018). 'Amplifying Quiet Voices: Challenges and Opportunities for Participatory Design at an Urban Scale'. In: *ACM Transactions on Computer-Human Interaction* 25.1, pp. 2–34. doi: [10.1145/3139398](https://doi.org/10.1145/3139398) (cited on pages 36, 84).
- Goodson, Ivor F (2013). *Developing Narrative Theory: Life histories and personal representation*. Routledge, p. 160 (cited on pages 120, 121).
- Graneheim, U H and B Lundman (2004). 'Qualitative Content Analysis in Nursing Research: Concepts, Procedures and Measures to Achieve Trustworthiness'. In: *Nurse Education Today* 24, pp. 105–112. doi: [10.1016/j.nedt.2003.10.001](https://doi.org/10.1016/j.nedt.2003.10.001) (cited on pages 14, 147, 208).
- Greenbaum, Joan and Kim Halskov Masden (1993). 'Small Changes: Starting a Participatory Design Process by Giving Participations a Voice'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 14, pp. 289–298 (cited on page 53).
- Grønbaek, Kaj et al. (1993). 'Achieving Cooperative System Design: Shifting From a Product to a Process Focus'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 5, pp. 79–97 (cited on pages 52, 217).
- Grube, Laura and Virgil Henry Storr (2014). 'The capacity for self-governance and post-disaster resiliency'. In: *The Review of Austrian Economics* 27, pp. 301–324. doi: [10.1007/s11138-013-0210-3](https://doi.org/10.1007/s11138-013-0210-3) (cited on pages 184, 186, 199).
- Grudin, Jonathan (1993). 'Obstacles to Participatory Design in Large Product Development Organizations'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and

- Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 6, pp. 99–119 (cited on pages 144, 158).
- Gumm, Dorina C, Monique Janneck, and Matthias Finck (2006). 'Distributed Participatory Design-A Case Study'. In: *Proceedings of the DPD Workshop at NordiCHI*, p. 5 (cited on pages 142, 143, 159).
- Halegoua, Germaine and Erika Polson (2021). 'Exploring 'digital placemaking''. In: *Convergence: The International Journal of Research into New Media Technologies* 27.3, pp. 573–578. doi: [10.1177/13548565211014828](https://doi.org/10.1177/13548565211014828) (cited on page 5).
- Halskov, Kim and Nicolai Brodersen Hansen (2015). 'The diversity of participatory design research practice at PDC 2002-2012'. In: *International Journal of Human Computer Studies* 74, pp. 81–92. doi: [10.1016/j.ijhcs.2014.09.003](https://doi.org/10.1016/j.ijhcs.2014.09.003) (cited on pages 34, 221).
- Hampton, Keith and Barry Wellman (2003). 'Neighboring in Netville: How the Internet Supports Community and Social Capital in a Wired Suburb'. In: *City & Community* 2.4, pp. 277–311. doi: [10.1046/j.1535-6841.2003.00057.x](https://doi.org/10.1046/j.1535-6841.2003.00057.x) (cited on pages 1, 23, 25, 35).
- Han, Kyungsik et al. (2016). 'Understanding Local Community Attachment, Engagement and Social Support Networks Mediated by Mobile Technology'. In: *Interacting with Computers* 28.3, pp. 220–237. doi: [10.1093/iwc/iwu040](https://doi.org/10.1093/iwc/iwu040) (cited on pages 25–30, 43, 46, 48).
- Hansen, Nicolai Brodersen et al. (2019). 'How Participatory Design Works: Mechanisms and Effects'. In: *OZCHI'19: Proceedings of the 31st Australian Conference on Human-Computer-Interaction*, pp. 30–41. doi: [10.1145/3369457.3369460](https://doi.org/10.1145/3369457.3369460) (cited on pages 32, 34, 40, 41, 48, 216).
- Hanzl, Malgorzata (2007). 'Information technology as a tool for public participation in urban planning: a review of experiments and potentials'. In: *Design Studies* 28.3, pp. 289–307. doi: [10.1016/j.destud.2007.02.003](https://doi.org/10.1016/j.destud.2007.02.003) (cited on pages 142, 143, 157, 159).
- Harding, Mike et al. (2015). 'HCI, Civic Engagement & Trust'. In: *Proceedings of Conference on Human Factors in Computing Systems*, pp. 2833–2842. doi: [10.1145/2702123.2702255](https://doi.org/10.1145/2702123.2702255) (cited on pages 31, 39, 42, 45, 47, 48, 166, 167).
- Hardy, K. and L.K. Comfort (2014). 'Dynamic decision processes in complex, high-risk operations: The Yarnell Hill Fire, June 30, 2013'. In: *Safety Science* 71, pp. 39–47 (cited on page 33).
- Harrison, Steve and Deborah Tatar (2008). 'Places: People, events, loci - The relation of semantic frames in the construction of place'. In: *Computer Supported Cooperative Work* 17.2-3, pp. 97–133. doi: [10.1007/s10606-007-9073-0](https://doi.org/10.1007/s10606-007-9073-0) (cited on pages 2, 3, 5, 7, 21, 22, 223).
- Hespanhol, Luke et al. (2015). 'Vote As You Go: Blending Interfaces For Community Engagement Into The Urban Space'. In: *Proceedings of the 7th International Conference on Communities and Technologies - C&T '15*, pp. 29–38. doi: [10.1145/2768545.2768553](https://doi.org/10.1145/2768545.2768553) (cited on pages 24, 46, 47, 166).
- Hess, Jan and Volkmar Pipek (2012). 'Community-Driven Development: Approaching Participatory Design in the Online World'. In: *Design Issues* 28.3, pp. 62–76 (cited on pages 51, 53, 142, 144, 158, 159, 216).
- Hills, Alice (2002). 'Revisiting Institutional Resilience as a Tool in Crisis Management'. In: *Journal of Contingencies and Crisis Management* 8.2, pp. 109–118. doi: [10.1111/1468-5973.00130](https://doi.org/10.1111/1468-5973.00130) (cited on pages 185, 198).
- Hitron, Tom et al. (2017). 'Scratch Nodes: Coding Outdoor Play Experiences to enhance Social-Physical Interaction'. In: *Interaction Design & Children*, pp. 601–607. doi: [10.1145/3078072.3084331](https://doi.org/10.1145/3078072.3084331) (cited on pages 94, 95, 98).
- Hodson, Hal (2012). *Google's Ingress game is a gold mine for augmented reality* (cited on page 85).
- Holtzblatt, Karen and Sandra Jones (1993). 'Contextual Inquiry: A Participatory Technique for System Design'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and

- Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 9, pp. 177–210 (cited on pages 51, 53, 144, 159).
- Hosio, Simo et al. (2012). 'From School Food to Skate Parks in a Few Clicks: Using Public Displays to Bootstrap Civic Engagement of the Young'. In: *Pervasive 2012*. Vol. 7319, pp. 425–442 (cited on pages 42, 45, 47, 48).
- Hossenlopp, Rosemary et al. (2007). *Unearthing business requirements: elicitation tools and techniques*. Berrett-Koehler Publishers (cited on page 64).
- Hou, Jeffrey and Michael Rios (Sept. 2003). 'Community-Driven Place Making'. In: *Journal of Architectural Education* 57.1, pp. 19–27. doi: [10.1162/104648803322336557](https://doi.org/10.1162/104648803322336557) (cited on pages 26, 28–30, 44, 47, 48).
- Huizenga, Jantina et al. (2009). 'Mobile game-based learning in secondary education: engagement, motivation and learning in a mobile city game'. In: *Journal of Computer Assisted Learning* 25.4, pp. 332–344 (cited on page 64).
- Hussain, Sofia (2010). 'Empowering marginalised children in developing countries through participatory design processes'. In: *CoDesign* 6.2, pp. 99–117. doi: [10.1080/15710882.2010.499467](https://doi.org/10.1080/15710882.2010.499467) (cited on pages 95, 97, 98, 113).
- Huybrechts, Liesbeth, Henric Benesch, and Jon Geib (2017). 'Institutioning: Participatory Design, Co-Design and the Public Ralm'. In: *CoDesign* 13.3, pp. 148–159. doi: [10.1080/15710882.2017.1355006](https://doi.org/10.1080/15710882.2017.1355006) (cited on pages 32, 224, 228).
- Iivari, Netta and Marianne Kinnula (2018). 'Empowering Children through Design and Making: Towards Protagonist Role Adoption'. In: *PDC'18: Proceedings of the 15th Participatory Design Conference - Volume 1*. Vol. 1, pp. 1–10. doi: [10.1145/3210586.3210600](https://doi.org/10.1145/3210586.3210600) (cited on pages 95–98, 111–113).
- Innocent, Troy (2016). 'Play and placemaking in urban art environments'. In: *Media Architecture Biennale 2016*, pp. 1–4. doi: [10.1145/2946803.2946805](https://doi.org/10.1145/2946803.2946805) (cited on pages 22, 218).
- (2018). 'Play about place: Placemaking in location-based game design'. In: *Proceedings of Media Architecture Biennale 2018 conference (MAB'18)*, p. 7. doi: [10.1145/3284389.3284493](https://doi.org/10.1145/3284389.3284493) (cited on pages 5, 23, 24, 42, 46, 53).
- Irannejad Bisafar, Farnaz, Lina Itzel Martinez, and Andrea G. Parker (2018). 'Social Computing-driven Activism in Youth Empowerment Organizations: Challenges and Opportunities'. In: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, pp. 1–13. doi: [10.1145/3173574.3173757](https://doi.org/10.1145/3173574.3173757) (cited on page 25).
- Iversen, Ole Sejer, Rachel Charlotte Smith, and Christian Dindler (2017). 'Child as Protagonist: Expanding the Role of Children in Participatory Design'. In: *Proceedings of the 2017 Conference on Interaction Design and Children (IDC'17)*. New York: ACM, pp. 27–37. doi: [10.1145/3078072.3079725](https://doi.org/10.1145/3078072.3079725) (cited on pages 95, 96).
- Jacobs, Jane (1961). *The Death and Life of Great American Cities*. New York: Random House, p. 458 (cited on pages 1, 2, 5).
- Johnson, R. Burke and Anthony J. Onwuegbuzie (2004). 'Mixed Methods Research: A Research Paradigm Whose Time Has Come'. In: *Educational Researcher* 33.7, pp. 14–26. doi: [10.3102/0013189X033007014](https://doi.org/10.3102/0013189X033007014) (cited on page 9).
- Jones, Catherine Emma, Stathis Theodosis, and Ioanna Lykourantzou (Feb. 2019). 'The Enthusiast, the Interested, the Sceptic, and the Cynic: Understanding User Experience and Perceived Value in Location-Based Cultural Heritage Games Through Qualitative and Sentiment Analysis'. In: *Journal on Computing and Cultural Heritage* 12.1, pp. 1–26. doi: [10.1145/3297716](https://doi.org/10.1145/3297716) (cited on pages 22–24, 87, 218).

- Jones, Catherine Emma et al. (2017). 'Board Game Prototyping to Co-Design a Better Location-Based Digital Game Case Study: Creativity and Exploration'. In: *Abstract book of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '17*, pp. 1055–1064. doi: [10.1145/3027063.3053348](https://doi.org/10.1145/3027063.3053348) (cited on pages 62, 87, 89).
- Jong, Afaina de (2020). 'Multiplicity of Other'. In: *Values for Survival*. Het Nieuwe Instituut Rotterdam (cited on page 174).
- Juujärvi, Soile and Kaija Pessa (2013). 'Actor Roles in an Urban Living Lab: What Can We Learn from Suurpelto, Finland?' In: *Technology Innovation Management Review* 3.11, pp. 22–27. doi: [10.22215/timreview/742](https://doi.org/10.22215/timreview/742) (cited on pages 31, 33, 166).
- Kalandides, Ares (2018). 'Editorial: Participatory Placemaking'. In: *Journal of Place Management and Development* 11.2, pp. 150–151. doi: [10.1108/JPM-D-2018-0030](https://doi.org/10.1108/JPM-D-2018-0030) (cited on pages 2, 4, 7, 9, 31, 36, 219, 223).
- Kapucu, Naim and Abdul-Akeem Sadiq (2016). 'Disaster Policies and Governance: Promoting Community Resilience'. In: *Politics and Governance* 4.4, pp. 58–61. doi: [10.17645/pag.v4i4.829](https://doi.org/10.17645/pag.v4i4.829) (cited on pages 186, 199).
- Kasurinen, Jussi, Andrey Maglyas, and Kari Smolander (2014). 'Is requirements engineering useless in game development?' In: *International Working Conference on Requirements Engineering: Foundation for Software Quality*. Springer, pp. 1–16 (cited on page 64).
- Keck, Markus and Patrick Sakdapolrak (2013). 'What is social resilience? Lessons learned and ways forward'. In: *Erdkunde* 67.1, pp. 5–18. doi: [10.3112/erdkunde.2013.01.02](https://doi.org/10.3112/erdkunde.2013.01.02) (cited on pages 182, 184, 201).
- Kendall, Linus and Andy Dearden (2018). 'Disentangling Participatory ICT Design in Socio-economic Development'. In: *Proceedings of the 15th Participatory Design Conference: Full Papers - Volume 1*, pp. 1–12 (cited on pages 35, 84, 87).
- Kensing, Finn and Jeanette Blomberg (1998). 'Participatory Design: Issues and Concerns'. In: *Computer Supported Cooperative Work* 7, pp. 167–185 (cited on pages 51, 142).
- Ketokivi, Mikko and Thomas Choi (2014). 'Renaissance of case research as a scientific method'. In: *Journal of Operations Management* 32.5, pp. 232–240. doi: [10.1016/j.jom.2014.03.004](https://doi.org/10.1016/j.jom.2014.03.004) (cited on pages 14, 208).
- Kim, Y.-C. and S.J. Ball-Rokeach (2006). 'Civic Engagement From a Communication Infrastructure Perspective'. In: *Communication Theory* 16.2, pp. 173–197. doi: [10.1111/j.1468-2885.2006.00267.x](https://doi.org/10.1111/j.1468-2885.2006.00267.x) (cited on pages 85, 89).
- Kleinhans, Reinout, Maarten Van Ham, and Jennifer Evans-Cowley (2015). 'Using Social Media and Mobile Technologies to Foster Engagement and Self-Organization in Participatory Urban Planning and Neighbourhood Governance'. In: *Planning Practice and Research* 30.3, pp. 237–247. doi: [10.1080/02697459.2015.1051320](https://doi.org/10.1080/02697459.2015.1051320) (cited on pages 30, 92).
- Klinenberg, Eric (2018). *Palaces for the People: how social infrastructure can help fight inequality, polarization and the decline of civic life*. New York: Broadway Books (cited on page 183).
- Korn, Matthias and Amy Volda (2015). 'Creating Friction: Infrastructuring Civic Engagement in Everyday Life'. In: *Proceedings of The Fifth Decennial Aarhus Conference on Critical Alternatives*. Aarhus University Press, pp. 145–156. doi: [10.7146/aahcc.v1i1.21198](https://doi.org/10.7146/aahcc.v1i1.21198) (cited on pages 121, 125, 138).
- Koskinen, I. et al. (2011). *Design Research Through Practice: From the Lab, Field and Showroom*. Elsevier (cited on pages 9, 10, 146).
- Kretzman, Jody P. and John L. McKnight (1993). *Building Communities From the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets*. Evanston, IL: Center for Urban Affairs and Policy Research, Northwestern University. (cited on page 183).

- Kuijjer, Lenneke, Annelise De Jong, and Daan Van Eijk (2013). 'Practices as a Unit of Design: An Exploration of Theoretical Guidelines in a Study on Bathing'. In: *ACM Transactions on Computer-Human Interaction* 20.4, pp. 1–22. doi: [10.1145/2493382](https://doi.org/10.1145/2493382) (cited on pages 84, 87).
- Kumar, Vishesh and Mike Tissenbaum (2019). 'City Settlers – Participatory Games to Build Sustainable Cities'. In: *Interaction Design & Children*, pp. 660–663. doi: [10.1145/3311927.3325343](https://doi.org/10.1145/3311927.3325343) (cited on page 97).
- Kusnandar, Kusnandar, O Van Kooten, and Frances Brazier (2019). 'Empowering through reflection participatory design of change in agricultural chains in Indonesia by local stakeholders'. In: *Cogent Food & Agriculture* 5.1. doi: [10.1080/23311932.2019.1608685](https://doi.org/10.1080/23311932.2019.1608685) (cited on pages 122, 124).
- Lagerström, Susanne et al. (2014). 'Meta-Designing Interactive Outdoor Games for Children: A Case Study.' In: *Interaction Design & Children*, pp. 325–328. doi: [10.1145/2593968.2610483](https://doi.org/10.1145/2593968.2610483) (cited on page 95).
- Lamarra, Julie, Apoorva Chauhan, and Breanne Litts (2019). 'Designing for Impact: Shifting Children's Perspectives of Civic and Social Issues Through Making Mobile Games'. In: *Interaction Design & Children*, pp. 274–279. doi: [10.1145/3311927.3323338](https://doi.org/10.1145/3311927.3323338) (cited on pages 24, 92, 97).
- Lancel, Karen, Hermen Maat, and Frances Brazier (2019). 'EEG KISS: Shared Multi-modal, Multi Brain Computer Interface Experience, in Public Space'. In: *Brain Art*. Ed. by Anton Nijholt. Springer International Publishing. Chap. 7, pp. 207–228. doi: [10.1007/978-3-030-14323-7](https://doi.org/10.1007/978-3-030-14323-7) (cited on page 124).
- Le Dantec, Christopher A. and Sarah Fox (2015). 'Strangers at the Gate: Gaining Access, Building Rapport, and Co-Constructing Community-Based Research'. In: *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*. ACM, pp. 1348–1358. doi: [10.1145/2675133.2675147](https://doi.org/10.1145/2675133.2675147) (cited on pages 36, 70, 84, 87, 112).
- Lefebvre, H. (1991). *The Production of Space*. Oxford: Blackwell (cited on page 5).
- Leminen, Seppo (2013). 'Coordination and Participation in Living Lab Networks'. In: *Technology Innovation Management Review* 3.11, pp. 5–14 (cited on page 31).
- Leminen, Seppo, Mika Westerlund, and Anna-Greta Nyström (2012). 'Living Labs as open-innovation networks'. In: *Technology Innovation Management Re* 2.9, pp. 6–11 (cited on pages 30, 31, 166).
- Lentini, Laura and Françoise Decortis (2010). 'Space and places: when interacting with and in physical space becomes a meaningful experience'. In: *Personal and Ubiquitous Computing* 14, pp. 407–415. doi: [10.1007/s00779-009-0267-y](https://doi.org/10.1007/s00779-009-0267-y) (cited on pages 2, 4, 5, 22, 23, 26, 27, 29, 42, 53, 92–94, 110, 111, 113, 218).
- Lepofsky, Jonathan and James C Fraser (2003). 'Building Community Citizens: Claiming the Right to Place-making in the City'. In: *Urban Studies* 40.1, pp. 127–142. doi: [10.1080/0042098032000035563](https://doi.org/10.1080/0042098032000035563) (cited on pages 2, 125).
- Leung, Lawrence (2015). 'Nature of Qualitative Research versus Quantitative Research Validity, reliability, and generalizability in qualitative research'. In: *Journal of Family Medicine and Primary Care* 4.3, pp. 324–327. doi: [10.4103/2249-4863.161306](https://doi.org/10.4103/2249-4863.161306) (cited on pages 14, 126, 208).
- Li, Y., A. Pickles, and M. Savage (2005). 'Social Capital and Social Trust in Britain'. In: *European Sociological Review* 21.2, pp. 109–123. doi: [10.1093/esr/jci007](https://doi.org/10.1093/esr/jci007) (cited on page 89).
- Linnell, Mikael (2014). 'Citizen response in crisis: Individual and collective efforts to enhance community resilience'. In: *Human Technology* 10.2, pp. 68–94. doi: [10.17011/ht/urn.201411203311](https://doi.org/10.17011/ht/urn.201411203311) (cited on pages 182–184, 196, 200).
- Loebbecke, Claudia and Philip Powell (2009). 'Furthering Distributed Participative Design Unlocking the walled gardens'. In: *Scandinavian Journal of Information Systems* 21.1, pp. 77–106 (cited on pages 142, 144).

- Lukosch, Stephan, Michael Klebl, and Tanja Buttler (2011). 'Utilizing Verbally Told Stories for Informal Knowledge Management'. In: *Group Decision and Negotiation* 20.5, pp. 615–642. doi: [10.1007/s10726-011-9237-7](https://doi.org/10.1007/s10726-011-9237-7) (cited on page 121).
- Lynch, Kevin (1960). *The image of the city*. Cambridge: The MIT Press, p. 194 (cited on pages 1, 7).
- Lyndon, D. (1983). *PLACES: a Forum of Environmental Design*. Volumes 1-. Berkeley: University of California (cited on page 2).
- Ma, Yudan et al. (2019). 'A Review of Design Interventions for Promoting Adolescents' Physical Activity'. In: *Interaction Design & Children*, pp. 161–172. doi: [10.1145/3311927.3323130](https://doi.org/10.1145/3311927.3323130) (cited on pages 93–95, 98, 104).
- Madden, Kathy (2011). 'Placemaking in urban design'. In: *Companion to Urban Design*. Ed. by Tridib Banerjee and Anastasia Loukaitou-Sideris. 1st Editio. London: Routledge. Chap. 50, pp. 1–9. doi: [10.4324/9780203844434](https://doi.org/10.4324/9780203844434) (cited on page 4).
- Magerkurth, Carsten et al. (July 2005). 'Pervasive games: bringing computer entertainment back to the real world'. In: *Computers in Entertainment* 3, p. 4. doi: [10.1145/1077246.1077257](https://doi.org/10.1145/1077246.1077257) (cited on page 64).
- Magis, Kristen (2010). 'Community Resilience: An Indicator of Social Sustainability'. In: *Society & Natural Resources* 23.5, pp. 401–416. doi: [10.1080/08941920903305674](https://doi.org/10.1080/08941920903305674) (cited on pages 182, 186, 197, 198).
- Mansuri, Ghazala and Vijayendra Rao (2004). 'Community-Based and-Driven Development: A Critical Review'. In: *The Worldbank Observer* 19.1, pp. 1–39. doi: [10.1093/wbro/lkh012](https://doi.org/10.1093/wbro/lkh012) (cited on pages 2, 35).
- Manturuk, K., M. Lindblad, and R. Quercia (2012). 'Homeownership and Civic Engagement in Low-Income Urban Neighborhoods: A Longitudinal Analysis'. In: *Urban Affairs Review* 48.5, pp. 731–760. doi: [10.1177/1078087412441772](https://doi.org/10.1177/1078087412441772) (cited on page 89).
- Manuel, Jennifer et al. (2017). 'Participatory Media: Creating Spaces for Storytelling in Neighbourhood Planning'. In: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. ACM, pp. 1688–1701 (cited on pages 25–29, 43, 47, 48, 52, 122, 123, 217, 218).
- Martí, Pablo, Leticia Serrano-Estrada, and Almudena Nolasco-Cirugeda (2017). 'Using locative social media and urban cartographies to identify and locate successful urban plazas'. In: *Cities* 64, pp. 66–78. doi: [10.1016/j.cities.2017.02.007](https://doi.org/10.1016/j.cities.2017.02.007) (cited on page 5).
- Masden, Christina et al. (2014). 'Tensions in Scaling-up Community Social Media: A Multi-Neighborhood Study of Nextdoor'. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pp. 3239–3248. doi: [10.1145/2556288.2557319](https://doi.org/10.1145/2556288.2557319) (cited on page 142).
- Matarrita-Cascante, David et al. (2017). 'Conceptualizing community resilience: Revisiting conceptual distinctions'. In: *Community Development* 48.1, pp. 105–123. doi: [10.1080/15575330.2016.1248458](https://doi.org/10.1080/15575330.2016.1248458) (cited on page 182).
- Mathie, Alison and Gord Cunningham (2003). 'From clients to citizens: Asset-based community development as a strategy for community-driven development'. In: *Development in Practice* 13.5, pp. 474–486 (cited on pages 183, 185, 196, 198).
- Matias, J. Nathan and Andres Monroy-Hernandez (2004). 'NewsPad: Designing for Collaborative Storytelling in Neighborhoods'. In: *Proceedings of Conference on Human Factors in Computing Systems (CHI 2004) - Extended Abstracts*, pp. 1–6 (cited on page 25).
- McCarthy, John and Peter Wright (2015). *Taking [A]Part: The Politics and Aesthetics of Participation in Experience-Centered Design*. Cambridge MA: MIT Press, p. 208 (cited on pages 35, 52–54, 121, 123, 217).
- McGrath, Brian and M A Brennan (2011). 'Community Development Tradition, cultures and communities: exploring the potentials of music and the arts for community development in

- Appalachia'. In: *Community Development* 42.3, pp. 340–358. doi: [10.1080/15575330.2010.519040](https://doi.org/10.1080/15575330.2010.519040) (cited on page 120).
- McMillan, David W. and David M. Chavis (1986). 'Sense of Community: A Definition and Theory'. In: *Special Issue of Journal of Community Psychology: Psychological Sense of Community, I: Theory and Concepts* 14.1, pp. 6–23. doi: [10.1002/1520-6629\(198601\)14:1<6::AID-JCOP2290140103>3.0.CO;2-I](https://doi.org/10.1002/1520-6629(198601)14:1<6::AID-JCOP2290140103>3.0.CO;2-I) (cited on pages 2, 35, 85).
- Meerow, Sara, Joshua P. Newell, and Melissa Stults (2016). 'Defining urban resilience: A review'. In: *Landscape and Urban Planning* 147, pp. 38–49. doi: [10.1016/j.landurbplan.2015.11.011](https://doi.org/10.1016/j.landurbplan.2015.11.011) (cited on page 1).
- Mehmood, Abid (2016). 'Of resilient places: planning for urban resilience'. In: *European Planning Studies* 24.2, pp. 407–419. doi: [10.1080/09654313.2015.1082980](https://doi.org/10.1080/09654313.2015.1082980) (cited on page 182).
- Mercken, Christina (2002). 'Neighbourhood-Reminiscence: Integrating Generations and Cultures in the Netherlands'. In: *Journal of Intergenerational Relationships* 1.1, pp. 81–94. doi: [10.1300/J194v01n01\\_08](https://doi.org/10.1300/J194v01n01_08) (cited on page 123).
- Meretoja, H. (2017). *The ethics of storytelling: Narrative hermeneutics, history, and the possible*. New York: Oxford University Press, p. 366 (cited on pages 121–123).
- Miller, David S, John G Smith, and Michael J Muller (1992). 'TelePICTIVE: Computer-Supported Collaborative GUI Design for Designers with Diverse Expertise'. In: *UIST'92*. Monterey, California: ACM, pp. 151–160 (cited on pages 51, 142–144, 157–159).
- Moody, L.E. and M. Laurent (1984). 'Promoting health through the use of storytelling'. In: *Health Education* 15, pp. 8–12 (cited on page 120).
- Mulder, Ingrid (2012). 'Living Labbing the Rotterdam Way: Co-Creation as an Enabler for Urban Innovation Co-Creation as an Enabler for Urban Innovation'. In: *Technology Innovation Management Review* 2.9, pp. 39–43. doi: [10.22215/timreview/607](https://doi.org/10.22215/timreview/607) (cited on pages 31, 33).
- (2014). 'Sociable smart cities: Rethinking our future through co-creative partnerships'. In: *2nd International Conference on Distributed, Ambient and Pervasive Interactions*. Ed. by Norbert Streitz and Panos Markopoulos. Springer, pp. 566–574. doi: [10.1007/978-3-319-07788-8\\_52](https://doi.org/10.1007/978-3-319-07788-8_52) (cited on page 33).
- Muller, Michael (1993). 'PICTIVE: Democratizing the Dynamics of the Design Session'. In: *Participatory Design: Principles and Practices*. Ed. by Douglas Schuler and Aki Namioka. New Jersey: Lawrence Erlbaum Associates Publishes. Chap. 10, pp. 211–237 (cited on pages 51, 53).
- Nah, Seungahn et al. (2016). 'A communicative approach to community development: the effect of neighborhood storytelling network on civic participation'. In: *Community Development* 47.1, pp. 11–28. doi: [10.1080/15575330.2015.1094497](https://doi.org/10.1080/15575330.2015.1094497) (cited on pages 120, 121).
- Nam, Taewoo and Theresa A. Pardo (2011). 'Conceptualizing Smart City with Dimensions of Technology, People, and Institutions'. In: *The Proceedings of the 12th Annual International Conference on Digital Government Research*, pp. 282–291. doi: [10.1145/2037556.2037602](https://doi.org/10.1145/2037556.2037602) (cited on page 166).
- Nelson, Sarah and Norma Baldwin (2002). 'Comprehensive Neighbourhood Mapping: Developing a Powerful Tool for Child Protection'. In: *Child Abuse Review* 11.4, pp. 214–229. doi: [10.1002/car.741](https://doi.org/10.1002/car.741) (cited on page 92).
- Nespeca, Vittorio et al. (2020). 'Towards coordinated self-organization: An actor-centered framework for the design of disaster management information systems'. In: *International Journal of Disaster Risk Reduction* 51, p. 101887. doi: [10.1016/j.ijdr.2020.101887](https://doi.org/10.1016/j.ijdr.2020.101887) (cited on pages 182, 184, 185, 189, 198, 201).
- Nevejan, Caroline (2007). 'Presence and the design of trust'. PhD thesis. University of Amsterdam (cited on page 166).

- (2009). ‘Witnessed Presence and the YUTPA framework’. In: *PsychNology Journal* 7.1, pp. 59–76 (cited on pages 168, 170, 173).
- Nevejan, Caroline and Frances Brazier (2011). ‘Witnessed Presence in Merging Realities in Healthcare Environments’. English. In: *Advanced Computational Intelligence Paradigms in Healthcare* 5. Ed. by Sheryl Brahmam and LakhmiC. Jain. Vol. 326. Studies in Computational Intelligence. Springer Berlin Heidelberg, pp. 201–227. doi: [10.1007/978-3-642-16095-0\\_11](https://doi.org/10.1007/978-3-642-16095-0_11) (cited on page 168).
- Nevejan, Caroline and Frances M.T. Brazier (2012). ‘Granularity in reciprocity’. In: *AI and Society* 27.1, pp. 129–147. doi: [10.1007/s00146-011-0332-8](https://doi.org/10.1007/s00146-011-0332-8) (cited on page 168).
- (2015). ‘Design for the Value of Presence’. In: *Handbook of Ethics, Values, and Technological Design*. Ed. by J van den Hoven, P.E. Vermaas, and I. van de Poel. Dordrecht: Springer, pp. 403–430. doi: [10.1007/978-94-007-6970-0](https://doi.org/10.1007/978-94-007-6970-0) (cited on page 168).
- Nevejan, Caroline, P Sefkatly, and Scott Cunningham (2018). *City Rhythm, logbook of an exploration*. Delft University of Technology (cited on pages 166, 180).
- Newman, Greg et al. (2012). ‘The future of Citizen science: Emerging technologies and shifting paradigms’. In: *Frontiers in Ecology and the Environment* 10.6, pp. 298–304. doi: [10.1890/110236](https://doi.org/10.1890/110236) (cited on pages 30, 33).
- Nicotera, N. (2008). ‘Building Skills for Civic Engagement: Children as Agents of Neighborhood Change’. In: *Journal of Community Practice* 16.2, pp. 221–242. doi: [10.1080/10705420801998045](https://doi.org/10.1080/10705420801998045) (cited on page 85).
- Nijholt, Anton (2017a). ‘How To Make Cities More Fun’. In: *The Wall Street Journal (Eastern Edition)* (cited on page 63).
- (2017b). ‘Playable Cities: A Short Survey (Keynote Paper)’. In: *2017 6th International Conference on Informatics, Electronics and Vision & 2017 7th International Symposium in Computational Medical and Health Technology (ICIEV-ISCMHT)* (cited on page 64).
- (2017c). *Playable Cities: The City as a Digital Playground*. Singapore: Springer Science+Business Media (cited on pages 22, 33, 62, 89, 166, 167, 218).
- (2020). *Making Smart Cities More Playable*. Springer (cited on pages 166, 167).
- Nussbaum, Martha (2007). *You can't really change the heart without telling a story*. URL: [https://www.goodreads.com/author/quotes/20757.Martha\\_C\\_Nussbaum](https://www.goodreads.com/author/quotes/20757.Martha_C_Nussbaum) (cited on pages 120, 139).
- Nyström, Anna-Greta et al. (2014). ‘Actor roles and role patterns influencing innovation in living labs’. In: *Industrial Marketing Management* 43.3, pp. 483–495. doi: [10.1016/j.indmarman.2013.12.016](https://doi.org/10.1016/j.indmarman.2013.12.016) (cited on page 30).
- Obendorf, Hartmut, Monique Janneck, and Matthias Finck (2009). ‘Inter-Contextual Distributed Participatory Design: Communicating design philosophy and enriching user experience’. In: *Scandinavian Journal of Information Systems* 21.1, pp. 51–76 (cited on pages 52, 142–144, 156, 159, 216).
- Öberg, Karin Danielsson, Dorina Gumm, and Amir M Naghsh (2009). ‘Distributed PD: Challenges and opportunities’. In: *Scandinavian Journal of Information Systems* 21.1, pp. 23–26 (cited on pages 142, 143).
- Obst, Patricia, Lucy Zinkiewicz, and Sandy G. Smith (2002). ‘Sense of Community in Science Fiction Fandom, Part 1: Understanding Sense of Community in an International Community of Interest’. In: *Journal of Community Psychology* 30.1, pp. 87–103. doi: [10.1675/1524-4695\(2008\)31](https://doi.org/10.1675/1524-4695(2008)31) (cited on pages 2, 35).
- Oldenburg, Ramon and Dennis Brissett (1982). ‘The third place’. In: *Qualitative Sociology* 5.4, pp. 265–284. doi: [10.1007/BF00986754](https://doi.org/10.1007/BF00986754) (cited on pages 1, 2, 4).

- Osborne, Roger, Sarah Peters, and Rosie O'Shannessey (2018). 'From the Inside: An Interview With the 'Storyelling.' Group'. In: *Digital Participation through Social Living Labs*, pp. 263–275. doi: [10.1016/B978-0-08-102059-3.00014-9](https://doi.org/10.1016/B978-0-08-102059-3.00014-9) (cited on page 122).
- Paay, Jeni and Jesper Kjeldskov (2005). 'Understanding Situated Social Interactions in Public Places'. In: *Human-Computer Interaction-INTERACT 2005*. IEEE Computer Society Press, pp. 496–496. doi: [10.1007/11555261\\_41](https://doi.org/10.1007/11555261_41) (cited on pages 62, 64).
- (2008). 'Understanding Situated Social Interactions: A Case Study of Public Places in the City'. In: *Computer Supported Cooperative Work (CSCW) 17.2-3*, pp. 275–290. doi: [10.1007/s10606-007-9072-1](https://doi.org/10.1007/s10606-007-9072-1) (cited on page 3).
- Pang, Carolyn et al. (2019). 'City Explorer: The Design and Evaluation of a Location-Based Community Information System'. In: *Proceedings of Conference on Human Factors in Computing Systems (CHI 2019)*. Glasgow: ACM, pp. 1–15. doi: [10.1145/3290605.3300571](https://doi.org/10.1145/3290605.3300571) (cited on pages 22–24, 87).
- Papangelis, Konstantinos et al. (2017). 'Conquering the City: Understanding Perceptions of Mobility and Human Territoriality in Location-based Mobile Games'. In: *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 1.3. doi: [10.1145/3130955](https://doi.org/10.1145/3130955) (cited on pages 23, 24, 62, 64, 84, 85).
- Parraagudelo, Leonardo et al. (2018). 'Creativity and Design to Articulate Difference in the Conflicted City: Collective Intelligence in Bogota's Grassroots Organisations'. In: *AI & Society* 33.1, pp. 147–158. doi: [10.1007/s00146-017-0716-5](https://doi.org/10.1007/s00146-017-0716-5) (cited on pages 43, 46–48, 179).
- Patel, U., M.J. D'Cruz, and C. Houham (1997). 'Collaborative Design for Virtual Team Collaboration: a Case Study of Jostling on the Web'. In: *Designing Interactive Systems (DIS'97)*. Amsterdam: ACM, pp. 289–300 (cited on pages 142, 143, 157–159).
- Patubo, Brendon G. (2010). 'Environmental Impacts of Human Activity Associated With Geocaching'. thesis. California Polytechnic State University, San Luis Obispo (cited on page 64).
- Paulos, Eric and Elizabeth Goodman (2004). 'The Familiar Stranger: Anxiety, Comfort, and Play in Public Places'. In: *Proceedings of Conference on Human Factors in Computing Systems (CHI 2004)*. Vienna: ACM Press, pp. 223–230 (cited on page 62).
- Peacock, Sean, Robert Anderson, and Clara Crivellaro (2018). 'Streets for People: Engaging Children in Placemaking Through a Socio-technical Process'. In: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. doi: [10.1145/3173574.3173901](https://doi.org/10.1145/3173574.3173901) (cited on pages 6, 27, 28, 36, 44, 48, 52, 92, 97, 98, 103, 113).
- Peitz, Johan, Hannamari Saarenpää, and Staffan Björk (2007). 'Insectopia: exploring pervasive games through technology already pervasively available'. In: *Proceedings of the international conference on Advances in computer entertainment technology*. ACM, pp. 107–114 (cited on page 85).
- Percy-Smith, Barry (2010). 'Councils, consultations and community: rethinking the spaces for children and young people's participation'. In: *Children's Geographies* 8.2, pp. 107–122. doi: [10.1080/14733281003691368](https://doi.org/10.1080/14733281003691368) (cited on pages 92, 113).
- Pickering, Jonny, Keith Kintrea, and Jon Bannister (2012). 'Invisible Walls and Visible Youth: Territoriality among Young People in British Cities'. In: *Urban Studies* 49.5, pp. 945–960. doi: [10.1177/0042098011411939](https://doi.org/10.1177/0042098011411939) (cited on page 179).
- Pierce, Jon L., Tatiana Kostova, and Kurt T. Dirks (2001). 'Toward a Theory of Psychological Ownership in Organizations'. In: *The Academy of Management Review* 26.2, pp. 298–310 (cited on page 92).
- Pink, Sarah (2008). 'An urban tour: The sensory sociality of ethnographic place-making'. In: *Ethnography* 9.2, pp. 175–196. doi: [10.1177/1466138108089467](https://doi.org/10.1177/1466138108089467) (cited on pages 30, 42, 47, 84).

- Pinkster, Fenne M (2007). 'Localised Social Networks, Socialisation and Social Mobility in a Low-income Neighbourhood in the Netherlands'. In: *Urban Studies* 44.13, pp. 2587–2603. doi: [10.1080/00420980701558384](https://doi.org/10.1080/00420980701558384) (cited on page 120).
- Placemaking Europe (2021). *Placemaking Europe*. URL: <https://placemaking-europe.eu/placemaking-europe/> (visited on 03/15/2021) (cited on page 1).
- Portugali, Juval (2011). *Complexity, Cognition and the City*. Berlin: Springer, p. 409 (cited on page 183).
- Procyk, Jason and Carman Neustaedter (2014). 'GEMS: The Design and Evaluation of a Location-Based Storytelling Game'. In: *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing - CSCW '14*. New York, New York, USA: ACM Press, pp. 1156–1166. doi: [10.1145/2531602.2531701](https://doi.org/10.1145/2531602.2531701) (cited on page 64).
- Pstross, Mikulas, Craig A Talmage, and Richard C Knopf (2014). 'Community Development A story about storytelling: enhancement of community participation through catalytic storytelling'. In: *Community Development* 45.5, pp. 525–538. doi: [10.1080/15575330.2014.955514](https://doi.org/10.1080/15575330.2014.955514) (cited on page 122).
- Puerari, Emma et al. (2018). 'Co-creation dynamics in Urban Living Labs'. In: *Sustainability* 10.6, pp. 1–18. doi: [10.3390/su10061893](https://doi.org/10.3390/su10061893) (cited on page 31).
- Pyae, Aung, Mika Luimula, and Jouni Smed (2017). 'Investigating Players' Engagement, Immersion, and Experiences in Playing Pokémon Go'. In: *Proceedings of the 2017 ACM SIGCHI Conference on Creativity and Cognition*. ACM, pp. 247–251 (cited on page 85).
- Rappaport, Julian (1995). 'Empowerment meets narrative: Listening to stories and creating settings'. In: *American Journal of Community Psychology* 23.5, pp. 795–807. doi: [10.1007/BF02506992](https://doi.org/10.1007/BF02506992) (cited on pages 121–123, 125).
- Rappaport, N. (1996). 'Community'. In: *Encyclopedia of Social and Cultural Anthropology* (cited on page 35).
- Razack, Sherene (1993). 'Story-telling for Social Change'. In: *Gender and Education* 5.1, pp. 55–70. doi: [10.1080/0954025930050104](https://doi.org/10.1080/0954025930050104) (cited on pages 121–123, 138).
- Read, Janet et al. (2002). 'An Investigation of Participatory Design with Children-Informant, Balanced and Facilitated Design'. In: *Interaction Design & Children*. Eindhoven, pp. 53–64 (cited on pages 95, 96, 98, 102).
- Ringas, Dimitrios and Eleni Christopoulou (2013). 'Collective City Memory: Field Experience on the Effect of Urban Computing on Community'. In: *Proceedings of Communities and Technologies 2013*. Munich: ACM, pp. 1–9 (cited on pages 27–29, 43, 45, 46).
- Rizzo, Francesca, Alessandro Deserti, and Onur Cobanli (2016). 'Service Design in Public Sector: Boosting innovation through design'. In: *Fifth Service Design and Innovation conference*, pp. 448–457 (cited on page 92).
- Robertson, Toni and Jesper Simonsen (2012). 'Challenges and Opportunities in Contemporary Participatory Design'. In: *Design Issues* 28.3, pp. 3–9 (cited on pages 34, 50–52, 84, 215, 216).
- (2013). 'Participatory Design: An introduction'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 1, pp. 1–17 (cited on pages 34, 53, 218).
- Robertson, Toni and Ina Wagner (2013). 'Ethics: Engagement, representation and politics-in-action'. In: *Routledge International Handbook of Participatory Design*. Ed. by Jesper Simonsen and Toni Robertson. New York: Routledge. Chap. 4, pp. 64–85 (cited on pages 36, 51, 52, 54, 216, 217, 219).
- Roche, Jeremy (1999). 'Children: Rights, Participation and Citizenship'. In: *Childhood* 6.4, pp. 475–493 (cited on page 92).

- Ross, Helen and Fikret Berkes (2014). 'Research Approaches for Understanding, Enhancing, and Monitoring Community Resilience'. In: *Society & Natural Resources* 27.8, pp. 787–804. doi: [10.1080/08941920.2014.905668](https://doi.org/10.1080/08941920.2014.905668) (cited on page 185).
- Rotterdam, Gemeente (2017). *Rotterdam Resilience Strategy: Ready for the 21st century*. Tech. rep. Rotterdam, p. 127 (cited on page 186).
- (2020). *Wijkprofiel 2014-2016-2018-2020*. URL: <https://wijkprofiel.rotterdam.nl/nl/2020/rotterdam/delfshaven> (visited on 02/17/2021) (cited on page 186).
- Rubin, Herbert J. and Irene S. Rubin (2005). *Qualitative Interviewing*. Second. California: SAGE Publications, p. 291 (cited on pages 127, 128).
- Russell, C. (2020). *Rekindling Democracy: A Professional's Guide to Working in Citizen Space*. Eugene, OR: Wipf and Stock Publishers (cited on page 183).
- Saker, Michael and Leighton Evans (2016). 'Everyday life and locative play: an exploration of Foursquare and playful engagements with space and place'. In: *Media, Culture & Society* 38.8, pp. 1169–1183. doi: [10.1177/0163443716643149](https://doi.org/10.1177/0163443716643149) (cited on pages 22, 23, 218).
- Salen, Katie, Katie Salen Tekinbaş, and Eric Zimmerman (2004). *Rules of play: Game design fundamentals*. MIT press (cited on page 88).
- Salim, Flora and Usman Haque (2015). 'Urban Computing in the Wild: A Survey on Large Scale Participation and Citizen Engagement With Ubiquitous Computing, Cyber Physical Systems, and Internet of Things'. In: *Journal of Human Computer Studies* 81.9, pp. 31–48. doi: [10.1016/j.jjhcs.2015.03.003](https://doi.org/10.1016/j.jjhcs.2015.03.003) (cited on page 10).
- Samariya, Ankita, Jerry Alan Fails, and Derek Hansen (2019). 'Investigating the Social and Temporal Aspects of Children's Physical Activity Games'. In: *Interaction Design & Children*. ACM, pp. 616–622. doi: [10.1145/3311927.3325312](https://doi.org/10.1145/3311927.3325312) (cited on pages 94, 95, 98).
- Sanders, Elizabeth B N and Pieter Jan Stappers (2012). *Convivial Toolbox: Generative Research for the Front End of Design*. Second. Amsterdam: BIS Publishes, p. 310 (cited on pages 9, 32, 65, 86, 87).
- Sawhney, Nitin and Anh-Ton Tran (2020). 'Ecologies of Contestation in Participatory Design'. In: *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 1 (PDC '20: Vol. 1)*. ACM, pp. 172–181. doi: [10.1145/3385010.3385028](https://doi.org/10.1145/3385010.3385028) (cited on page 177).
- Schanche, Felicia et al. (2002). 'Utilizing Traditional Storytelling to Promote Wellness in American Indian Communities'. In: *Journal of Transcultural Nursing* 13.1, pp. 6–11. doi: [10.1177/104365960201300102](https://doi.org/10.1177/104365960201300102) (cited on pages 120–123).
- Schneider, Hanna et al. (2018). 'Empowerment in HCI - A Survey and Framework'. In: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18*, Paper 244. doi: [10.1145/3173574.3173818](https://doi.org/10.1145/3173574.3173818) (cited on pages 33, 48, 51, 217).
- Schön, Donald A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books (cited on pages 122, 219).
- Schouten, Ben et al. (2017). 'Games as Strong Concepts for City-Making'. In: *Playable Cities: Gaming Media and Social Effects*. Ed. by Anton Nijholt. Singapore: Springer, pp. 23–45. doi: [10.1007/978-981-10-1962-3\\_2](https://doi.org/10.1007/978-981-10-1962-3_2) (cited on page 166).
- Schroeter, Ronald (2012). 'Engaging New Digital Locals with Interactive Urban Screens to Collaboratively Improve the City'. In: *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work (CSCW '12)*, pp. 227–236. doi: [10.1145/2145204.2145239](https://doi.org/10.1145/2145204.2145239) (cited on pages 24, 44–46, 166).
- Schuler, Douglas and Aki Namioka, eds. (1993). *Participatory Design: Principles and Practices*. New Jersey: Lawrence Erlbaum Associates Publishes, p. 319 (cited on pages 31, 224).

- Scolere, Leah M et al. (2016). 'Building Mood, Building Community: Usage Patterns of an Interactive Art Installation'. In: *Proceedings of the 19th International Conference on Supporting Group Work*, pp. 201–212. doi: [10.1145/2957276.2957291](https://doi.org/10.1145/2957276.2957291) (cited on pages 63, 64).
- Scott, Kathryn and Tess Liew (2012). 'Social Networking as a Development Tool: A Critical Reflection'. In: *Urban Studies* 49.12, pp. 2752–2767. doi: [10.1177/0042098011435279](https://doi.org/10.1177/0042098011435279) (cited on page 138).
- Seitinger, Susanne (2009). 'Designing for Spatial Competence'. In: *Interaction Design & Children*, pp. 123–130. doi: <https://doi.org/10.1145/1551788.1551810> (cited on pages 93, 94, 96).
- Silva, Cláudia, Valentina Nisi, and Joseph D Straubhaar (2017). 'Share yourself first: exploring strategies for the creation of locative content for and by low-literacy communities\*'. In: *Proceedings of Communities and Technologies 2017*. Vol. 17. Troyes: ACM, pp. 1–10. doi: [10.1145/3083671.308369](https://doi.org/10.1145/3083671.308369) (cited on page 25).
- Simonsen, Jesper and Morten Hertzum (2012). 'Sustained Participatory Design: Extending the Iterative Approach'. In: *Design Issues* 28.3, pp. 10–21 (cited on pages 215, 216).
- Simonsen, Jesper and Toni Robertson, eds. (2013a). *Routledge International Handbook of Participatory Design*. New York: Routledge, p. 296 (cited on pages 31, 32, 50, 51, 142).
- eds. (2013b). *Routledge International Handbook of Participatory Design*. New York: Routledge, p. 296 (cited on pages 215, 216).
- Sleeswijk Visser, Froukje et al. (2007). 'Contextmapping: experiences from practice'. In: *International Journal of CoCreation in Design and the Arts (CoDesign)* 1.2, pp. 119–149. doi: [10.1080/15710880500135987](https://doi.org/10.1080/15710880500135987) (cited on pages 32, 48).
- Slingerland, Geertje, Stephan Lukosch, and Frances Brazier (2019). 'Location-based Information Sharing for Neighbourhood Participation'. In: *Proceedings of Communities and Technologies 2019 (C&T 2019)*, pp. 1–4. doi: <https://doi.org/10.18420/ct2019-088> (cited on pages 69, 85, 178).
- (2020). 'Engaging Children to Co-create Outdoor Play Activities for Place-making'. In: *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 1 (PDC '20: Vol. 1)*. Manizales, Colombia: ACM, pp. 44–54. doi: <https://doi.org/10.1145/3385010.3385017> (cited on pages 45, 67, 84, 159).
- Slingerland, Geertje, Ingrid Mulder, and Tomasz Jaskiewicz (2019). 'Join the Park! Exploring Opportunities to Lower the Participation Divide in Park Communities'. In: *Proceedings of the 9th International Conference on Communities Technologies - Transforming Communities*. ACM, pp. 131–135. doi: [3328320.3328382](https://doi.org/10.1145/3328320.3328382) (cited on page 226).
- Slingerland, Geertje et al. (2019). 'Exploring Requirements for Joint Information Sharing in Neighbourhoods: Local Playgrounds in The Hague'. In: *Interactivity, Game Creation, Design, Learning and Innovation - 7th EAI International Conference, ArtsIT 2018, and 3rd EAI International Conference, DLI 2018, ICTCC2018, Proceedings*. Ed. by A.L. Brooks, E. Brooks, and C. Sylla. Springer, pp. 306–315 (cited on pages 68, 167).
- Slingerland, Geertje et al. (2020a). 'Exploring design guidelines for fostering citizen engagement through information sharing: Local playgrounds in The Hague'. In: *EAI Endorsed Transactions on Serious Games*, pp. 1–19. doi: [10.4108/eai.13-7-2018.162636](https://doi.org/10.4108/eai.13-7-2018.162636) (cited on pages 63, 68, 84, 142, 167, 182).
- Slingerland, Geertje et al. (2020b). 'Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities'. In: *Frontiers in Computer Science* 2.December, pp. 1–16. doi: [10.3389/fcomp.2020.600654](https://doi.org/10.3389/fcomp.2020.600654) (cited on pages 87, 186, 189, 190, 194).
- Smith, Rachel Charlotte and Ole Sejer Iversen (2018). 'Participatory design for sustainable social change'. In: *Design Studies* 59.C, pp. 9–36. doi: [10.1016/j.destud.2018.05.005](https://doi.org/10.1016/j.destud.2018.05.005) (cited on pages 32, 216).

- Sotamaa, Olli (2002). 'All The World's A Botfighter Stage: Notes on Location-based Multi-User Gaming.' In: *CGDC Conf.* Citeseer (cited on page 85).
- Soukup, Charles (2006). 'Computer-mediated communication as a virtual third place: Building Oldenburg's great good places on the world wide web'. In: *New Media and Society* 8.3, pp. 421–440. doi: [10.1177/1461444806061953](https://doi.org/10.1177/1461444806061953) (cited on pages 2, 3).
- Soute, Iris, Maurits Kaptein, and Panos Markopoulos (2009). 'Evaluating Outdoor Play for Children: Virtual vs. Tangible Game Objects in Pervasive Games'. In: *Interaction Design & Children*, pp. 250–253. doi: <https://doi.org/10.1145/1551788.1551844> (cited on pages 94, 111).
- Soute, Iris et al. (Feb. 2013). 'Evaluating player experience for children's outdoor pervasive games'. In: *Entertainment Computing* 4, pp. 25–38. doi: [10.1016/j.entcom.2012.09.003](https://doi.org/10.1016/j.entcom.2012.09.003) (cited on pages 64, 94, 113).
- Spialek, Matthew L. and J. Brian Houston (2019). 'The influence of citizen disaster communication on perceptions of neighborhood belonging and community resilience'. In: *Journal of Applied Communication Research* 47.1, pp. 1–23. doi: [10.1080/00909882.2018.1544718](https://doi.org/10.1080/00909882.2018.1544718) (cited on pages 184, 185).
- Stals, Shenando, Michael Smyth, and Oli Mival (2017). 'Exploring People's Emotional Bond with Places in the City: A Pilot Study'. In: *DIS'17 Companion: Proceedings of the 2017 ACM Conference Companion Publication on Designing Interactive Systems*. Edinburgh: ACM, pp. 207–212. doi: [10.1145/3064857.3079147](https://doi.org/10.1145/3064857.3079147) (cited on page 22).
- Stappers, Pieter Jan (2007). 'Doing Design as a Part of Doing Research'. In: *Design Research Now*. Ed. by Ralf Michel. Birkhäuser Basel, pp. 81–91. doi: <https://doi.org/10.1007/978-3-7643-8472-2> (cited on page 10).
- Stappers, Pieter Jan and Elisa Giaccardi (2011). 'Research through design'. In: *The Encyclopedia of Human-Computer Interaction*. Ed. by George Thomas Kurian and I N Chief. 2nd. Chap. Chapter 43 (cited on pages 10, 11, 146).
- Stappers, Pieter Jan and Elizabeth B-N Sanders (2003). 'Generative tools for context mapping: tuning the tools'. In: *Design and Emotion: The Experience of Everyday Things*. Ed. by Deana McDonagh et al. London: Taylor and Francis, pp. 77–81 (cited on page 32).
- Stark, Alastair and Monique Taylor (2014). 'Citizen participation, community resilience and crisis-management policy'. In: *Australian Journal of Political Science* 49.2, pp. 300–315. doi: [10.1080/10361146.2014.899966](https://doi.org/10.1080/10361146.2014.899966) (cited on pages 185, 199).
- Stokes, Benjamin (2020). *Locally played: Real-World Games for Stronger Places and Communities*. First. Cambridge MA: MIT Press, p. 269 (cited on pages 6, 166, 167).
- Strauss, A. and J. Corbin (2015). *Basics of Qualitative Research.: Techniques and Procedures for Developing Grounded theory*. 4th. Thousand Oaks, CA, USA: SAGE Publications (cited on page 187).
- Strydom, Wessel and Karen Puren (2013). 'A participatory approach to public space design as informative for place-making'. In: *Challenges of Modern Technology* 4.4, pp. 33–40 (cited on pages 28, 44, 53).
- Strydom, Wessel, Karen Puren, and Ernst Drewes (2018). 'Exploring theoretical trends in place-making: towards new perspectives in spatial planning'. In: *Journal of Place Management and Development* 11.2, pp. 165–180. doi: [10.1108/JPM-D-11-2017-0113](https://doi.org/10.1108/JPM-D-11-2017-0113) (cited on pages 2–4, 6, 7, 21–23, 30, 31, 36, 217, 223).
- Stuckey, Heather L. (2013). 'Three types of interviews: Qualitative research methods in social health'. In: *Journal of Social Health and Diabetes* 1.2, pp. 56–59. doi: [10.4103/2321-0656.115294](https://doi.org/10.4103/2321-0656.115294) (cited on page 187).

- Suurenbroek, Frank, I Nio, and Martijn De Waal (2019). 'Responsive public spaces: exploring the use of interactive technology in the design of public spaces'. In: (cited on page 180).
- Tan, Ekim and J. Portugali (2012). 'The Responsive City Design Game'. In: *Complexity Theories of Cities Have Come of Age*. Ed. by J. Portugali et al. Berlin: Springer, pp. 369–390. doi: [10.1007/978-3-642-24544-2\\_20](https://doi.org/10.1007/978-3-642-24544-2_20) (cited on pages 31, 166).
- Taylor, Nick et al. (2018). 'Strategies for Engaging Communities in Creating Physical Civic Technologies'. In: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. ACM, pp. 1–12. doi: [10.1145/3173574.3174081](https://doi.org/10.1145/3173574.3174081) (cited on page 24).
- The Rockefeller Foundation and Arup (2014). *City Resilience Framework*. Tech. rep. The Rockefeller Foundation, Arup (cited on pages 182, 183).
- Thomas, Derek (2016). *Placemaking: An Urban Design Methodology*. 1st editio. New York: Routledge, p. 174 (cited on pages 4, 6).
- Tinati, Ramine et al. (2015). 'Designing for Citizen Data Analysis: A Cross-Sectional Case Study of a Multi-Domain Citizen Science Platform'. In: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*, pp. 4069–4078. doi: [10.1145/2702123.2702420](https://doi.org/10.1145/2702123.2702420) (cited on page 33).
- Titlestad, Ola Hodne, Knut Staring, and Jørn Braa (2009). 'Scandinavian Journal of Information Systems Distributed Development to Enable User Participation: Multilevel design in the HISP network'. In: *Scandinavian Journal of Information Systems* 21.1, pp. 1–24 (cited on pages 142, 144, 158).
- Tondello, Gustavo F. and Lennart E. Nacke (2019). 'Player characteristics and video game preferences'. In: *CHI PLAY 2019 - Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, pp. 365–378. doi: [10.1145/3311350.3347185](https://doi.org/10.1145/3311350.3347185) (cited on page 88).
- Tondello, Gustavo F. et al. (2019). "'I don't fit into a Single Type": A Trait Model and Scale of Game Playing Preferences'. In: *INTERACT 2019. Lecture Notes in Computer Science*. Vol. 11747. Springer International Publishing, pp. 375–395. doi: [10.1007/978-3-030-29384-0](https://doi.org/10.1007/978-3-030-29384-0) (cited on page 88).
- Torabi, Elnaz, Aysin Dedekorkut-Howes, and Michael Howes (2021). 'A framework for using the concept of urban resilience in responding to climate-related disasters'. In: *Urban Research & Practice*. doi: [10.1080/17535069.2020.1846771](https://doi.org/10.1080/17535069.2020.1846771) (cited on page 182).
- Tuan, Y.F. (1997). *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press (cited on page 3).
- Valente, Luis, Bruno Feijó, and Julio Cesar Sampaio do Prado Leite (2017). 'Mapping quality requirements for pervasive mobile games'. In: *Requirements Engineering* 22.1, pp. 137–165 (cited on page 64).
- Valkanova, Nina et al. (2014). 'MyPosition: Sparking Civic Discourse by a Public Interactive Poll Visualization'. In: *CSCW'14: Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing*, pp. 1323–1332 (cited on pages 42, 46, 48).
- van der Kaaij, Meindert (2018). In *de Rotterdamse Tarwewijk groeit de kloof tussen rijk en arm*. URL: <https://www.trouw.nl/nieuws/in-de-rotterdamse-tarwewijk-groeit-de-kloof-tussen-rijk-en-arm%7B-%7Db8576db1d/> (visited on 09/02/2019) (cited on page 99).
- van Doorn, Fenne, Mathieu Gielen, and Pieter Jan Stappers (2014). 'Children as Co-Researchers: More than Just a Role-Play'. In: *Proceedings of the 2014 Conference on Interaction Design and Children (IDC'14)*, pp. 237–240. doi: [10.1145/2593968.2610461](https://doi.org/10.1145/2593968.2610461) (cited on pages 95, 96, 111).
- van Rijn, Helma and Pieter Jan Stappers (2008). 'Expressions of ownership: motivating users in a co-design process'. In: *Tenth Anniversary Conference on Participatory Design 2008*. ACM, pp. 178–181 (cited on pages 23, 87).

- Vartiainen, Tero and Tuure Tuunanen (2016). 'Value co-creation and co-destruction in an is artifact: Contradictions of geocaching'. In: *2016 49th Hawaii International Conference on System Sciences (HICSS)*. IEEE, pp. 1266–1275 (cited on page 64).
- Veenkamp, Judith, Frank Kresin, and Max Kortlander (2012). 'Smart Citizens in Amsterdam: An Alternative to the Smart City'. In: *The Routledge Companion to Smart Cities*. Ed. by Katherine S. Willis and Alessandro Aurigi. Abingdon: Routledge. Chap. 11, pp. 144–156 (cited on page 33).
- Visser, Eelco (2021). *Altijd nieuw gedoe!* Pumbo.nl B.V., p. 132 (cited on page 183).
- Vlachokyriakos, Vasilis et al. (2014). 'PosterVote: Expanding the Action Repertoire for Local Political Activism'. In: *DIS'14: Proceedings of the 2014 conference on Designing Interactive Systems*. Vancouver: ACM, pp. 795–804 (cited on pages 43, 45–47).
- Voida, Amy, Zheng Yao, and Matthias Korn (2015). '(Infra)structures of Volunteering'. In: *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*. ACM, pp. 1704–1716 (cited on page 30).
- Voida, Amy et al. (2012). 'Bridging Between Organizations and the Public: Volunteer Coordinators' Uneasy Relationship with Social Computing'. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, pp. 1967–1976. doi: [10.1145/2207676.2208341](https://doi.org/10.1145/2207676.2208341) (cited on page 1).
- Vos, Marita and Helen T. Sullivan (2014). 'Community resilience in crises: Technology and social media enablers'. In: *Human Technology* 10.2, pp. 61–67. doi: [10.17011/ht/urn.201411203310](https://doi.org/10.17011/ht/urn.201411203310) (cited on pages 182, 184, 185, 200).
- Wallace, Jayne et al. (2013). 'Making Design Probes Work'. In: *Proceedings of Conference on Human Factors in Computing Systems*. Paris: ACM, pp. 3441–3450 (cited on page 159).
- Walsh, Froma (2007). 'Traumatic Loss and Major Disasters: Strengthening Family and Community Resilience'. In: *Family Process* 46.2, pp. 207–227. doi: [10.1111/j.1545-5300.2007.00205.x](https://doi.org/10.1111/j.1545-5300.2007.00205.x) (cited on pages 185, 197, 201).
- Walsh, Greg (2011). 'Distributed Participatory Design'. In: *CHI EA '11: CHI '11 Extended Abstracts on Human Factors in Computing Systems*. Vancouver, pp. 1061–1064 (cited on pages 142, 143, 159).
- Weiss, Robert S. (1994). *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: The Free Press, p. 246 (cited on page 127).
- Wellman, Barry (2005). 'Community: From Neighborhood to Network'. In: *Communications of the ACM* 48.10, pp. 53–55. doi: [10.1145/1089107.1089137](https://doi.org/10.1145/1089107.1089137) (cited on page 35).
- Wellman, Barry and Scot Wortley (1990). 'Different Strokes from Different Folks: Community Ties and Social Support'. In: *American Journal of Sociology* 96.3, pp. 558–588. doi: [10.1086/229572](https://doi.org/10.1086/229572) (cited on pages 35, 120, 195).
- Wester, Fred (1996). 'The analysis of qualitative interviews'. In: *The Deliberate Dialogue*. Ed. by Ilja Maso and Fred Wester. Brussels: VUB University Press, pp. 63–86 (cited on page 127).
- Whyte, William H. (1980). *The Social Life of Small Urban Spaces*. 7th. New York: Project for Public Spaces (cited on pages 1, 2).
- Williams, Trenton A. et al. (2017). 'Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Streams'. In: *The Academy of Management Annals* 11.2, pp. 733–769. doi: [10.5465/annals.2015.0134](https://doi.org/10.5465/annals.2015.0134) (cited on pages 198, 201).
- Willis, K. S., C. Hoelscher, and G. Wilbertz (2007). 'Understanding mobile spatial interaction in urban environments'. In: *IET Conference Publications*. Ulm, pp. 61–68. doi: [10.1049/cp:20070348](https://doi.org/10.1049/cp:20070348) (cited on page 22).
- Willis, Katharine S. et al. (2008a). 'Shared Encounters'. In: *Shared Encounters*. Ed. by Katharine S. Willis et al. London: Springer. Chap. 1, pp. 1–15 (cited on page 65).

- Willis, Katharine S. et al. (2008b). 'Sharing Knowledge About Places as Community Building'. In: *Shared Encounters*. Ed. by Katharine S. Willis et al. London: Springer. Chap. 15, pp. 290–208 (cited on page 65).
- Willis, Katharine, Gianni Corino, and Karen Martin (2012). 'Developing a Neighbourhood Locative Media Toolkit'. In: *Media Architecture Biennale 2012*. Aarhus, Denmark: ACM, pp. 75–78 (cited on pages 22–25, 43, 51).
- Wilson, Alexander, Mark Tewdwr-Jones, and Rob Comber (2017). 'Urban planning, public participation and digital technology: App development as a method of generating citizen involvement in local planning processes'. In: *Environment and Planning B: Urban Analytics and City Science* 46.2, pp. 286–302. doi: [10.1177/2399808317712515](https://doi.org/10.1177/2399808317712515) (cited on page 33).
- Wilson, Geoff A. (2013). 'Community resilience, policy corridors and the policy challenge'. In: *Land Use Policy* 31, pp. 298–310. doi: [10.1016/j.landusepol.2012.07.011](https://doi.org/10.1016/j.landusepol.2012.07.011) (cited on pages 185, 199).
- Wolff, Annika et al. (2007). 'Re-using digital narrative content in interactive games'. In: *Int. J. Human-Computer Studies* 65, pp. 244–272. doi: [10.1016/j.ijhcs.2006.10.003](https://doi.org/10.1016/j.ijhcs.2006.10.003) (cited on page 87).
- Wolff, Annika et al. (2014). 'Mobile technology to support coherent story telling across freely explored outdoor artworks'. In: *Advances in Computer Entertainment*. Madeira, pp. 1–8 (cited on page 25).
- Wood, Gavin et al. (2019). 'Designing for Digital Playing Out'. In: *CHI '19 Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, pp. 1–15. doi: [10.1145/3290605.3300909](https://doi.org/10.1145/3290605.3300909) (cited on pages 2, 4, 22–24, 35, 92–94, 96, 97, 103, 113).
- Wouters, Niels, Jonathan Huyghe, and Andrew Vande Moere (2014). 'StreetTalk: Participative design of situated public displays for urban neighborhood interaction'. In: *Proceedings of the NordiCHI 2014: The 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational*, pp. 747–756. doi: [10.1145/2639189.2641211](https://doi.org/10.1145/2639189.2641211) (cited on pages 24, 25, 43, 45, 47, 166).
- Yang, Chia-chen and Dong Liu (2017). 'Motives Matter: Motives for Playing Pokemon Go and Implications for Well-Being'. In: *Cyberpsychology, Behavior, and Social Networking* 20.1. doi: [10.1089/cyber.2016.0562](https://doi.org/10.1089/cyber.2016.0562) (cited on page 64).
- Yin, Robert K. (2003). *Case Study Research: Design and Methods*. California: SAGE Publications (cited on pages 104, 125).
- Zaff, J.F., K. Kawashima-Ginsberg, and E.S. Lin (2011). 'Advances in Civic Engagement Research: Issues of Civic Measures and Civic Context'. In: *Advances in Child Development and Behavior* 41, pp. 273–308. doi: [10.1016/B978-0-12-386492-5.00011-7](https://doi.org/10.1016/B978-0-12-386492-5.00011-7) (cited on page 89).
- Zimmerman, John and Jodi Forlizzi (2014). 'Research Through Design in HCI'. In: *Ways of Knowing in HCI*. Ed. by J.S. Olson and W.A. Kellogg. New York: Springer Science+Business Media, pp. 167–189. doi: [10.1007/978-1-4939-0378-8\\_8](https://doi.org/10.1007/978-1-4939-0378-8_8) (cited on pages 9–11, 146).
- Zimmerman, Marc A (1995). 'Psychological Empowerment: Issues and Illustrations'. In: *American Journal of Community Psychology* 23.5, pp. 581–599. doi: [10.1007/BF02506983](https://doi.org/10.1007/BF02506983) (cited on pages 48, 51, 216).



## Summary

Cities need strong and cohesive communities to face and deal with the challenges of today. However, many cities suffer from fragmented communities, lacking relationships and social interactions between residents. Therefore, overcoming this fragmentation is high on the agenda, and many cities have started to experiment with policies to increase social cohesion and establish strong communities. Place-making initiatives have gained momentum in recent years to establish stronger urban communities. Through place-making, people attach meaning to spaces: they become places. Place-making can be achieved through physical space, social connections, and institutional support.

While place-making initiatives have traditionally been designed and implemented from top-down, more and more scholars call for a participatory and bottom-up approach to realise its full potential in creating strong neighbourhood communities. In this context, the thesis explores how the knowledge from Participatory Design and place-making could confluence to move from spaces to places in a more inclusive and community-driven way. The main research question is: **How can Participatory Design facilitate place-making in urban settings across physical space, social connections, and institutional support?**

The research question is answered using research-through-design (RtD) as the primary research strategy. The first RtD iteration is the design of a framework for participatory place-making. Then, six RtD iterations follow in which place-making interventions are studied that focus on physical space (intervention 1 and 2), social connection (intervention 3 and 4), or institutional support (intervention 5 and 6). The last iteration synthesises the insights from all evaluation studies using the framework and identifies design guidelines for participatory place-making. The following methods are used throughout these iterations: literature review, qualitative intervention study, contextual inquiry, semi-structured interviews, (participatory) design workshops, and inductive analysis.

The literature review on place-making and participatory design indicated three knowledge gaps concerning the field's understanding of how and why place-making interventions work. While interventions for place-making are heavily researched, overarching design principles miss (gap 1), as well as identification of essential factors of place-making interventions (gap 2), or guidelines that support effective intervention design (gap 3). Regarding participation in place-making, the literature lacks knowledge on tailoring participation to specific contexts (gap 4) and ways of dealing with participation inequalities (gap 5).

The review of 33 case studies of place-making interventions in cities addresses these gaps. Interventions designed, implemented, and/or evaluated with city stakeholders are included. The review analysed involved actors, activities of the place-making process, the level of involvement of actors, and the effect of the place-making process on the participants. Insights of the review are condensed into five principles that underlie place-making interventions: **Emergent, Empowerment, Inclusive, Playful, and Reflective**. Four activities on how to organise participation of city stakeholders during the design and implementation of the intervention are also identified: **1) Connect with the local context, 2) Identify key partners and stakeholders, 3) Gather data and doing analysis, and 4) Reflect on effects with stakeholders**. These five principles and four

activities are combined in the Participatory Place-making framework to guide the design of participatory place-making interventions.

Six interventions for participatory place-making are studied to validate the framework. Interventions 1 and 2 (a location-based game and a co-creation method with children) use the physical space to establish place-making. The first intervention is the location-based game 'Secrets of the South', which encourages players from The Hague to go out and explore their neighbourhood. The second intervention is a co-creation workshop in which children from a primary school in Rotterdam are invited on a neighbourhood walk with researchers and develop ideas to improve the public space. For both interventions, it was clear that from the familiar context of the neighbourhood, children and adults became very enthusiastic about exploring their neighbourhood with the promise of discovering exciting new places. Through this discovery process, the physical spaces become more meaningful to citizens and hence foster place-making.

Interventions 3 and 4 (a community storytelling initiative and a distributed participatory design summer school) achieve place-making through social connection. Intervention 3 invites residents of The Hague to share personal stories to explore differences and similarities between them. In the fourth intervention, Northrock (Ireland) teenagers develop digital artworks to express their lived experiences. These two interventions contrast each other because Intervention 3 is executed in an entirely face-to-face manner, while the summer school was fully distributed and virtual. Nevertheless, both interventions supported the creation of social connections between participants through sharing personal experiences and life stories. Storytelling opens up perspectives of residents and hence stimulates connection. Places get a new meaning through these expanded social connections, and place-making is achieved.

Interventions 5 and 6 (a playable cities approach and an asset-based community development programme) rely on institutional support to enhance place-making. Intervention 5 comprises eight participatory activities in The Hague, grounded in the frame of the Playable City, to engage citizens in place-making processes. The sixth intervention is a resilience programme based on the principles of asset-based community development outlined in a neighbourhood in Rotterdam. The integral programme sees a connection to place as one of the contributors to social resilience. The review of these two interventions outlines the role of the local government and other institutions to support place-making. Participatory place-making requires flexible institutions; to change roles and take up other responsibilities than they are used to. Hence, for local governments and other formal partners to provide institutional support to place-making, they need to adapt to their role and responsibilities and prepare for diversity of partners in participatory place-making.

As a final step, seven researchers valued each intervention's five principles (emergent, empowering, inclusive, playful, reflective) and judged which principle was most present. The results of this evaluation study expose deeper insights into how the principles can be applied in interventions for participatory place-making. This meta-analysis provokes five guidelines to design for participatory place-making; they give hands-on suggestions on how to apply the theoretical knowledge and insights that this thesis has produced.

## Samenvatting

Steden hebben sterke en hechte gemeenschappen nodig om het hoofd te bieden aan de uitdagingen van vandaag. Veel steden lijden echter onder gefragmenteerde gemeenschappen: er is een gebrek aan relaties en sociale interacties tussen bewoners. Het overwinnen van deze fragmentatie staat daarom hoog op de agenda, en veel steden zijn begonnen te experimenteren met beleid om de sociale cohesie te vergroten en sterke gemeenschappen te stimuleren. Placemaking-initiatieven zijn de afgelopen jaren in een stroomversnelling geraakt om sterkere stedelijke gemeenschappen te creëren. Door placemaking geven mensen betekenis aan ruimtes: het worden 'places'. Placemaking kan worden bereikt met behulp van de fysieke ruimte, sociale verbindingen en instituties.

Placemaking-initiatieven worden traditioneel van bovenaf ontworpen en geïmplementeerd. Tegenwoordig pleiten steeds meer wetenschappers voor een participatieve en bottom-up benadering om het volledige potentieel van placemaking te realiseren bij het creëren van sterke buurtgemeenschappen. In deze context onderzoekt dit proefschrift hoe de kennis van Participatory Design en placemaking zou kunnen samenvloeien om op een inclusievere manier en gestuurd vanuit de gemeenschap steden te ontwikkelen naar 'places'. De hoofdvraag van het onderzoek is: **Hoe kan Participatory Design placemaking in stedelijke omgevingen faciliteren door middel van de fysieke ruimte, sociale verbindingen en institutionele ondersteuning?**

De onderzoeksvraag wordt beantwoord met behulp van research-through-design (RtD) als primaire onderzoeksstrategie. De eerste RtD-iteratie is het ontwerp van een raamwerk voor participatieve placemaking. Daarna volgen zes RtD-iteraties waarin placemaking-interventies worden bestudeerd die zich richten op fysieke ruimte (interventie 1 en 2), sociale verbinding (interventie 3 en 4) of institutionele ondersteuning (interventie 5 en 6). De laatste iteratie synthetiseert de inzichten van alle evaluatiestudies met behulp van het raamwerk en identificeert ontwerprichtlijnen voor participatieve placemaking. Tijdens de iteraties worden de volgende methoden gebruikt: literatuuronderzoek, kwalitatief interventieonderzoek, contextueel onderzoek, semi-gestructureerde interviews, (participatieve) ontwerpworkshops en inductieve analyse.

Het literatuuronderzoek over placemaking en Participatory Design wees op drie kennishiaten rondom hoe en waarom placemaking-interventies werken. Hoewel er veel onderzoek is gedaan naar interventies voor placemaking, missen overkoepelende ontwerpprincipes (kennishiaat 1), evenals identificatie van essentiële factoren van placemaking interventies (kennishiaat 2), of richtlijnen die effectief interventie-ontwerp ondersteunen (kennishiaat 3). Met betrekking tot participatie in placemaking ontbreekt het de literatuur aan kennis over het afstemmen van participatie op specifieke contexten (kennishiaat 4) en manieren om met ongelijkheden in deelname om te gaan (kennishiaat 5).

Deze kennishiaten worden aangepakt met een review van 33 casestudies van placemaking-interventies in steden: interventies die zijn ontworpen, geïmplementeerd en/of geëvalueerd met de betrokkenen. De review analyseerde de betrokken actoren, de activiteiten van het placemaking proces, de mate van betrokkenheid van actoren en het effect van het placemaking proces op de deelnemers. De inzichten uit de review zijn samengevat in vijf principes die ten grondslag liggen aan placemaking-interventies: **Emergent, Empowerment, Inclusive, Playful** en **Reflective**. Er zijn ook vier activiteiten geïdentificeerd voor het organiseren van participatie tijdens het ontwerp

en de uitvoering van de interventie: **1) Aansluiten bij de lokale context, 2) De belangrijkste partners en belanghebbenden identificeren, 3) Gegevens verzamelen en analyses uitvoeren, en 4) Reflecteren met stakeholders over de effecten.** Deze vijf principes en vier activiteiten worden gecombineerd in het Participatory Place-making framework om het ontwerp van participatieve place-making interventies te begeleiden.

Dit proefschrift bestudeert zes interventies voor participatieve placemaking om het raamwerk te valideren. Interventies 1 en 2 (een location-based game en een co-creatie methode met kinderen) gebruiken de fysieke ruimte om placemaking tot stand te brengen. De eerste interventie is het locatiespel 'Secrets of the South', dat spelers uit Den Haag aanzet om eropuit te gaan en hun buurt te verkennen. De tweede interventie is een co-creatie workshop waarin kinderen van een basisschool in Rotterdam worden uitgenodigd voor een buurtwandeling met onderzoekers en ideeën ontwikkelen om de openbare ruimte te verbeteren. Voor beide interventies was het duidelijk dat kinderen en volwassenen vanuit de vertrouwde context van de buurt erg enthousiast werden over het verkennen van hun buurt met de belofte om spannende nieuwe plekken te ontdekken. Door dit ontdekkingsproces krijgt de fysieke omgeving meer betekenis voor burgers en bevorderen ze placemaking.

Interventies 3 en 4 (een initiatief voor het vertellen van verhalen uit de gemeenschap en een digitale participatieve zomerschool voor ontwerpen) bereiken placemaking via sociale verbinding. Interventie 3 nodigt inwoners van Den Haag uit om persoonlijke verhalen te delen om de verschillen en overeenkomsten tussen hen te onderzoeken. In de vierde interventie ontwikkelen tieners uit Northrock (Ierland) digitale kunstwerken om hun geleefde ervaringen uit te drukken. Deze twee interventies contrasteren met elkaar omdat Interventie 3 volledig in persoon wordt uitgevoerd, terwijl de zomerschool volledig online en virtueel was. Niettemin ondersteunden beide interventies het creëren van sociale verbindingen tussen deelnemers door het delen van persoonlijke ervaringen en levensverhalen. Storytelling opent perspectieven van bewoners en stimuleert daarmee verbinding. Door deze uitgebreide sociale verbindingen krijgen plaatsen een nieuwe betekenis en wordt placemaking bereikt.

Interventies 5 en 6 (de speelbare stad en een asset-based community development programma) zijn afhankelijk van institutionele ondersteuning om placemaking te verbeteren. Interventie 5 omvat acht participatieve activiteiten in Den Haag, geworteld in het kader van de Speelbare Stad, om burgers te betrekken bij placemaking processen. De zesde interventie is een veerkrachtprogramma, gebaseerd op de principes van asset-based community development, toegepast in een wijk in Rotterdam. Dit programma ziet placemaking als een van de bijdragers aan sociale weerbaarheid. De analyse van deze twee interventies schetst de rol van de lokale overheid en andere instellingen om placemaking te ondersteunen. Participatieve placemaking vraagt om flexibele instellingen; om van rol te veranderen en andere verantwoordelijkheden op zich te nemen dan ze gewend zijn. Daarom moeten lokale overheden en andere formele partners zich aanpassen aan hun rol en verantwoordelijkheden en zich voorbereiden op de diversiteit van partners in participatieve place-making.

Als laatste stap hebben zeven onderzoekers de vijf principes van elke interventie (emergent, empowerment, inclusief, speels, reflectief) gewaardeerd en beoordeeld welk principe het meest aanwezig was. De resultaten van dit evaluatieonderzoek geven diepere inzichten in hoe de principes kunnen worden toegepast in interventies voor participatieve placemaking. Deze meta-analyse leidt tot vijf richtlijnen om te ontwerpen voor participatieve place-making; ze geven

praktische suggesties voor het toepassen van de theoretische kennis en inzichten die dit proefschrift levert.

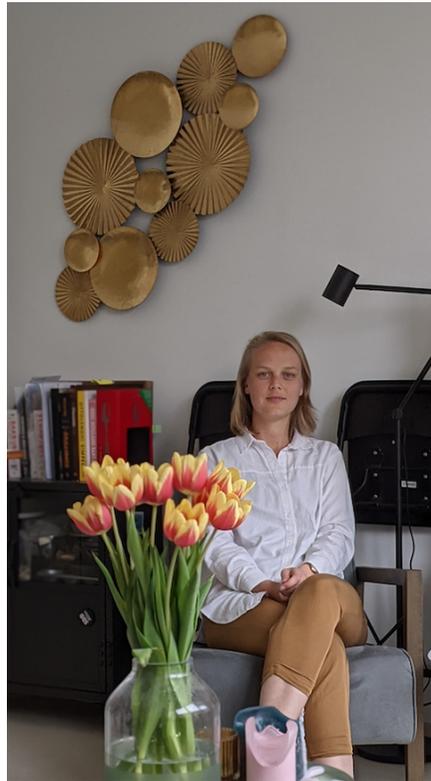
Met het raamwerk, zes interventies en ontwerprichtlijnen draagt dit proefschrift de inzichten bij om stedelijke actoren te faciliteren om gezamenlijk vorm te geven aan interventies voor placemaking. De bijdragen van dit proefschrift zijn zowel theoretisch als praktisch. De theoretische bijdrage betreft het Participatory Place-making framework, dat het begrip participatie in placemaking conceptualiseert en de state-of-the-art uitbreidt met vijf principes voor het vaststellen van participatie in placemaking. De ontwerprichtlijnen dragen bij aan het praktische perspectief doordat ze ontwerpers, bewoners en beleidsmakers faciliteren bij het ontwikkelen van succesvolle interventies voor participatieve placemaking. De zes interventies in dit proefschrift laten de praktische implicaties zien van de elementen van het Participatory Place-making framework. Deze bijdragen zijn relevant voor onderzoekers uit verschillende disciplines en lokale overheden, beleidsmakers, community builders en interactie ontwerpers.



## About the author

Geertje Slingerland is a designer and researcher with a background in interaction design. She was born in Dirksland, the Netherlands, on 22 October 1992 and started her academic journey in Delft in 2011 at Industrial Design Engineering. While completing the Design for Interaction MSc. programme at Delft University of Technology in 2017, she became fascinated by the role of design to improve city life. Her research interests include designing for behavioural and systemic change, and in particular concerns participatory design, citizen empowerment, bottom-up initiatives, and grassroots communities.

Geertje started her PhD at the faculty of Technology, Policy and Management in November 2017 and studied different approaches for place-making: connecting citizens with each other and with their living environment in urban settings. She studied and used playful and creative approaches to enable place-making for children, youngsters, and adults in neighbourhoods in Rotterdam and The Hague. In her research, Geertje works closely together with citizen communities and other local stakeholders, such as police officers and civil servants, to design and research interventions together with them. She is intrigued on how design can play a role in stimulating people to become active, take responsibility and engage with their environment. Besides working on her research, Geertje loves to cook and to bake gluten-free cakes.





# List of publications

## Scientific articles related to this thesis.

### PEER-REVIEWED PUBLICATIONS.

1. **Slingerland, G.**, Kooijman, J., Lukosch, S., Comes, T., and Brazier, F.M. (2021) The Power of Stories: A framework to orchestrate reflection in urban storytelling to form stronger communities. *Community Development*, 1-19.
2. **Slingerland, G.**, Lukosch, S., den Hengst, M., Nevejan, G., and Brazier, F.M. (2021) Together We Can Make It Work! Toward a Design Framework for Inclusive and Participatory City-Making of Playable Cities. *Frontiers in Computer Science*, 1–16.
3. **Slingerland, G.**, Fonseca, X., Lukosch, S., and Brazier, F.M. (2020) Location-based challenges for playful neighbourhood exploration. *Behaviour & Information Technology*, 1–19.
4. **Slingerland, G.**, Lukosch, S., and Brazier, F.M. (2020) Engaging Children to Co-create Outdoor Play Activities for Place-making. *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Vol 1 (PDC '20: Vol. 1)*, ACM, 44–54.
5. **Slingerland, G.**, Lukosch, S., Comes, T., and Brazier, F.M. (2020) Exploring design guidelines for fostering citizen engagement through information sharing: Local playgrounds in The Hague. *EAI Endorsed Transactions on Serious Games*, 1–19.
6. **Slingerland, G.**, Lukosch, S., Comes, T., and Brazier, F.M. (2019) Exploring Requirements for Joint Information Sharing in Neighbourhoods: Local Playgrounds in The Hague. *Interactivity, Game Creation, Design, Learning and Innovation - 7th EAI International Conference, ArtsIT 2018, and 3rd EAI International Conference, DLI 2018, ICTCC2018, Proceedings*, Springer, 306–315.

### UNDER-REVIEW.

1. **Slingerland, G.**, Murray, M., Lukosch, S., McCarthy, J., & Brazier, F. Participatory Design going digital: Challenges and opportunities for distributed place-making. *Under review*.
2. **Slingerland, G.**, Edua-Mensah, E., van Gils, M., Kleinhans, R., & Brazier, F. We're in this together: Capacities and relationships to enable community resilience. *Under review*.

## Other scientific articles.

### PEER-REVIEWED PUBLICATIONS.

1. Fonseca, X. **Slingerland, G.**, Lukosch, S., and Brazier, F.M. (2021) Designing for meaningful social interaction in digital serious games. *Entertainment Computing*, 36.
2. **Slingerland, G.**, Mulder, I., and Jaskiewicz, T. (2019) Join the Park! Exploring Opportunities to Lower the Participation Divide in Park Communities. *Proceedings of the 9th International Conference on Communities Technologies - Transforming Communities*, ACM, 131–135.
3. **Slingerland, G.**, Mulder, I., and Jaskiewicz, T. (2018) Empowering Community Volunteers Through Matchmaking Services. *Proceedings of the Service Design and Innovation conference*, Linköping University Electronic Press, 954–965. DOI: ecp18150080

### ONGOING WORK.

1. **Slingerland, G.**, Gonsalves, K. Hybrid Radical Place-making in the Pandemic: A tale of two design probes from Europe and Australia. *Under review*.
2. Klerks, G., **Slingerland, G.**, Hansen, N.B., and Schouten, B. When Reality Kicks In: Insights into Leveraging Local Context When Designing with Communities. *In preparation*.
3. **Slingerland, G.**, Nikolic, I., and Brazier, F.M. Unravelling urban impact: ABMs to assess urban policies for liveable and safe neighbourhoods. *In preparation*.
4. Herzog, R., Verma, T., Gonsalves, J., **Slingerland, G.**, Kleinhans, R., Brazier, F.M., Prang, H. What lies behind sustainable, inclusive and livable cities? New approaches to identify and conceptualize conflicting public values in urban space. *In preparation*.





Delft University of Technology

**Together we make places**

**Designing connections in urban space**

Slingerland, G.

**DOI**

[10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8](https://doi.org/10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8)

**Publication date**

2022

**Document Version**

Other version

**Citation (APA)**

Slingerland, G. (2022). *Together we make places: Designing connections in urban space*.  
<https://doi.org/10.4233/uuid:2ed1ed62-ce08-4bde-bafb-7235fd1f2dc8>

**Important note**

To cite this publication, please use the final published version (if applicable).  
Please check the document version above.

**Copyright**

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

**Takedown policy**

Please contact us and provide details if you believe this document breaches copyrights.  
We will remove access to the work immediately and investigate your claim.

*This work is downloaded from Delft University of Technology.  
For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.*



5 pt  
6 pt  
6 pt  
9 pt

Where is my phone?

Will social influencing through school, church and mosque help?

What about the idea to adopt an elderly person?

