COCREATION IN HOUSING DESIGN

An exploration of the cocreative design process
and the practice of the cocreative architect

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‘The designer’s job is no longer to produce finished and unalterable solutions,
but to develop solutions from a continuous dialogue with those who will use his or her work.’

(Sanoff, 2000, p. 12)

ABSTRACT

This graduation thesis, written in the context of the master's programme Architecture at Delft University of Technology, explores the concept of co-creation, the co-creative housing design process and the architect's practice in this process.

Key to the co-creative development of housing is that (future) residents become co-creators of their dwellings, and thereby partners in the design process. This involvement of residents in the design process presents a new set of conditions that challenges the architect's practice. However, research to date suggests that relatively little is known about co-creative relationships and how architects and residents engage in co-creation.

The aim of this thesis, therefore, is to explore the concept of co-creation, the co-creative design process and the architect's practice in co-creative design processes, in order to support architects who are or want to be involved in such processes, by centering on the following research question:

What is the role of the architect in the cocreative design of housing with a group of residents?

Through the research, a theoretical perspective is developed to get a grip on the co-creative process in the context of housing. Co-creation is suggested to be understood as a social network characterised by complex sets of boundaries, representing the inevitable discrepancies and imbalances within collaborative processes in which divergent actors are involved. These boundaries are considered to be the units of change within the co-creative process. Through interaction among the participants, boundaries are continuously reproduced.

In the context of housing design, these changes at boundaries form the very process by which a design is generated. The (continuous) explication of boundaries and the (continuous) reflection on their valuable and problematic aspects enables actors of the co-creative process to learn about and learn from each other, towards a commonly agreed design scheme. It is concluded that the architect can play a significant role in this learning process, which is defined as social learning. As a trained designer, the architect can facilitate the exploration of boundaries and stimulate effective interaction at boundaries.

In doing this, the architect needs to apply a mix of roles, carefully reacting on the course of the process. These roles inevitable include conflicts and tension; they incorporate opposite characteristics. However, the cocreative architect needs to find the right balance at these tensions by a reflective attitude in the process.

In finding this balance, the architect does not need to forget the boundaries he introduces and produces himself. Because only when the architect acknowledges the full social realm of co-creation, including his own position as an actor in the network, he is able to productively work with its discrepancies and imbalances towards a commonly agreed design scheme.

PREFACE

No architect can talk about his or her designs without a reference to how these designs will be used by people. Architects contribute to the creation of environments in which people are dwelling, working and living. This close tension between Architecture's artefacts and the realm of daily life has increasingly fascinated me during the years. It led to the start of an integrated master's programme, combining the field of Architecture with the field of Science Communication.

This report presents the research that has been done in the context of the Explorelab graduation studio at the faculty of Architecture and the Built Environment, Delft University of Technology. The research builds on previous work done in the context of the Science Communication thesis, and explores the cocreative involvement of people in the design of their built environment. Knowledge from both the field of Architecture and the field of (Science) Communication is used to gain insights into the cocreative design process and the role of the architect is this process.

I am grateful to all who contributed to the research, either by supporting me personally or by sharing their experiences with regard to the cocreative practice. Special thanks go to Frans van der Werf and John Habraken, for discussing their inspiring views on the topic of residents' involvement with me.

Finally, I would like to thank John Heintz for his enthusiasm and essential feedback during the research process. I have enjoyed our discussions, which have been inspiring and motivating in my search for an in-depth understanding of cocreative housing design.

Hanneke Stenfert, Delft 2016

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1. INTRODUCTION

In the last decades, attention has become increasingly focused on encouraging the involvement of residents in the creation and regeneration processes of neighbourhoods, streets and buildings. (Blundell Jones, Petrescu, & Till, 2005) In this context, notions of cocreation have been growing. (Sanders & Stappers, 2008) This poses new questions for architects involved in cocreative design processes. How to shape such a collaborative process, in which the future users of the designs are actively involved? And what role to take, when the designer's job has to be shared with co-creators?

This introducing chapter elaborates on the background of research on cocreation in architecture and analyses its main challenges. These challenges form the basis for the formulation and explanation of the research objectives and questions. Subsequently, a general overview of the research methodology is given, after which the relevance of the research is pointed out. The chapter ends with a roadmap explaining the structure of the research report.

1.1. THE CONCEPT OF COCREATION

Notions of cocreation have been growing. (Sanders & Stappers, 2008) The term initially emerged in the field of business and marketing studies. The publication of the book *The Future of Competition: Co-creating Unique Value with Customers* (2004b) written by Prahalad and Ramaswamy broadly introduced cocreation as an alternative to the dominant system of company-centric value creation in business. In the new approach, consumers and firms 'are intimately involved in jointly creating value that is unique to the individual consumer and sustainable to the firm' (Prahalad & Ramaswamy, 2004a, p. x). After this introduction in business and marketing, the concept of cocreation has quickly diffused, making its appearance in (literature of) other disciplines such as healthcare, public governance and the field of design (Sanders & Stappers, 2008), including the context of this research: architectural design.

In the field of (architectural) design, Sanders and Stappers (2008, p. 6) define cocreation as an 'act of collective creativity, i.e. creativity that is shared by two or more people'. Steen, Manschot and De Koning (2011, p. 53) use a similar definition by referring to cocreation as 'creative cooperation'. Although some writers refer to cocreation as the collaboration of designers, most do refer to collaboration between designers and users of designs, who are not trained in the act of designing. (Kleinsman & Valkenburg, 2008; Sanders & Stappers, 2008; Steen et al., 2011) The interpretation of this 'collective creativity' is rather divergent and the concept of cocreation is used to refer to a wide range of applications. (Sanders & Stappers, 2008) This research focuses on cocreation in the design process, also referred to as co-design (Sanders & Stappers, 2008), in the context of housing.

In the housing domain, design projects form the link between emergent housing needs and the actual built environment. A conception of a new building needs to be generated and developed into a detailed plan with specifications and conditions, ready to be built. (Van Doorn, 2004) Central to the cocreative development of housing is that (groups of) future residents become co-creators of their dwellings, and thereby 'partners in the design project' (Kleinsman & Valkenburg, 2008, p. 369). In

addition to the actors traditionally involved in housing design -such as architects, engineers, people from housing associations, local authorities or commercial developers (Tunstall, 2000)-, residents are involved in the design stage of the project's process as well.

1.2. BACKGROUND

Although notions of cocreation have been growing recently, the involvement of residents in the design process is not a new phenomenon. Over the past decades, designers have been moving closer to the users of their designs and residents increasingly have started participating in the design of their living environment. (Blundell Jones, 2005; Jeng, 1995; Sanoff, 1988) In this practice, known as the practice of *participatory design*, residents participate in the design process and direct interaction takes place between residents, designers and other actors in the design process. (Sanders & Stappers, 2008; Sanoff, 1988)

1.2.1. A gap between the world as built and the world as desired

During the late 1960s, voices arose agitating against the principles of mass housing, which had been the norm in the western world since industrialisation. Mass housing increasingly provided standardised houses for the people, a development highly accelerated by the introduction of welfare state programmes in various European countries after the Second World War. (Broome, 2005; Towers, 1995)

This building *for* the people led to the removal of residents from the processes of architectural production. (Broome, 2005; Hatch, 1984) Residents were now referred to as 'users', which held connotations of people unknown; abstractions without a concrete identity. (Forty, 2000) Bureaucracy and all kinds of specialist procedures compelled experts to intervene between residents and their houses; governments and other institutions determined and defined how the built environment ought to be and how a good dwelling should be. (Blundell Jones, 2005; Van der Werf, 1993)

But was it right that people were consigned to massive housing estates characterized by monotony, consisting of identical units? Could they not be given involvement in shaping their own environment? The expert ideas about 'good' dwellings were not shared by everyone; the building experts' values, ideas and preferences were not always in line with those of the people. The users –whether individuals, families, social groups, organizations or the general public– may well assume that the values they care about will be appropriately reflected in the buildings and environments they inhabit. But they were not always be sufficiently explicit or inherently well matched by the values that building experts seek to express in their designs. (Groat, 2000; Van der Werf, 1993) The idea grew that the removal of residents from the process of architectural production had led to a sense of alienation of residents from their environment, which they often experienced as unsatisfactory; a gap opened between the world as built and the world as needed and desired. (Blundell Jones et al., 2005; Broome, 2005; Hatch, 1984)

BOX 1. THE ARCHITECTURE OF THE PARTICIPATORY MOVEMENT

Within the participatory design movement, different schools of thought emerged. The participation of users was proposed in many ways, with various levels of involvement. Cooperation in various forms became a key element in the architecture that began to emerge in the early 1970s; there was a broad range of initiatives, from small-scale self-build projects to new systems of designing and building. (Towers, 1995)

Based on the writings of the Dutch John Habraken, for example, a layered system of design responsibilities was proposed, separating the structure and services –supports– and the enclosures forming the dwellings –infill. A deliberate separation of those parts of the solution which must be determined by the architect from those which must be determined by the residents was advocated. (Lawson, 2005) Responsibilities between architects and residents were consciously allocated. People could rent or buy space within a support and create the infill of their choice. The result would be satisfied customers and an urban environment enriched by the variety produced by individual self-expression. (Towers, 1995)

A similar method of separating the overall building framework from the infill was used by the Belgian architect Lucien Kroll, one of the pioneers of the participatory design movement. He became well-known for the Maison Medical student accommodation at the university of Louvain (1976), developed in collaboration with students. (Blundell Jones, 2005) (see figure 2.2)

In this participatory design movement, pluralism became a key theme. The idea of universal order, which had been prevalent in modern architecture, was replaced by a preference for quality derived from popular culture and vernacular architecture. (Jeng, 1995)

Figure 1 Maison Medical, Louvain (1976) retrieved from: http://alchetron.com/Lucien-Kroll

1.2.2. Participation to bridge the gap

Architecture students sought a different way of practicing their profession in order to build a different world; neither repressive nor alienating, but satisfying to its inhabitants. The participation of residents in the design of their homes was considered to be essential for this, preventing problems from occurring after the design has been developed and implemented. (Jeng, 1995) The involvement of users in the design of the built environment was regarded as a way to bridge the gap between the world as built and the world as needed and desired; the participatory design movement was born. (Hatch, 1984)

By the late 1970s professionals in the domain of the built environment had assembled under umbrellas of notions such as 'social architecture' and 'community architecture' and basic principles of the participatory development of the built environment had emerged. Chief among them was the belief that residents should play a key role in the development of the environments in which they were to live. (see box 1) More citizen control was demanded in order to establish a more democratic transformation of the built environment and to reduce the alienation of residents. (Blundell Jones et al., 2005; Hatch, 1984; Jeng, 1995; Towers, 1995)

1.2.3. Participation and the architect

The introduction of residents to the processes of design, however, confronted the architect with new conditions, and questions regarding responsibilities, different priorities, conflicting views, divergent voices and other issues of collaboration. (Towers, 1995) Some architects managed to deal with these issues quite well; a well known example of the participatory design movement is the Maison Medical student accommodation at the University of Louvain, designed by Lucien Kroll in collaboration with students, as shown in box 1 (see figure 2). The creative cooperation between residents, architects and other building professionals, however, was often not easy at all. Many inspiring community projects were realized by people who went into those collectives with high ideals and high expectations, but many were soon disillusioned as well. As Towers (1995, p. 89) explains: 'Hours were spent debating the development of the collective ideal. [...] When disputes arose, […] there was no way of resolving them. A lot of people left collectives, their ideals tarnished and their expectations dashed.' The architects' enthusiasm often paled as well. It demanded too much; architects seemed not well equipped to deal with the complex processes of participation in design. (Gutman, 1988)

1.3. RESEARCH PROBLEM

Since forms of participatory design such as cocreation have increasingly become important again in the architectural practice of today, the architect's lack of proper equipment to deal with the complex social processes of cocreation becomes increasingly urgent again as well. As it did decades ago, the creative collaboration with residents in the design process presents a new set of conditions that challenges the designer's practice. (Kleinsman & Valkenburg, 2008) These conditions seem to urge architects to rethink their profession and to redefine their practice. What can or need to be the relationship between the architect and the residents involved? How to shape a design process in

which the future residents of the designs are actively involved? And what exactly is the architect's role when residents –in contrast to more traditional processes– are interactively involved?

Although various techniques and methods have been developed to design with residents or users, there still seems to be a lack of understanding about the cocreative process to answer these questions. An important criticism of architectural literature is the tendency to neglect the very dynamics and complexities that characterise the practice of creative collaboration with residents in architecture. Research to date suggests that still relatively little is known about cocreative relationships and how architects and residents engage in cocreation. (Payne, Storbacka, & Frow, 2008; Siva & London, 2012) As Till (Till, 2005, p. 25) explains: 'The supporters of participation are generally fervent –it is all good. That goodness is often contrasted to the evils of non-participative architecture, forming a simplistic dialectic: inclusive or exclusive, democratic or authoritarian, bottom up or top down. But this is too easy, leaving as it does the original terms unscathed and the new terms unanalyzed.' Yet it is known that these relationships and interactions affect the design outcomes. There is a need to explicitly gain insights into the interaction between architects and residents and the architect's practice in cocreative design processes. (Ivory, 2004; Kleinsman & Valkenburg, 2008; Sonnenwald, 1996)

1.4. RESEARCH AIM & QUESTIONS

The aim of this research, therefore, is to explore the creative cooperation between groups of residents and architects, in order to support architects who are or want to be involved in such processes by gaining insights into the role of architects in the cocreative design of housing.

In order to achieve this aim, the following research questions function as a central thread through this report:

1. **What is cocreation?**
2. **What are the characteristics of the cocreative housing design process?**
3. **What are opportunities and threats in the cooperation between groups of residents, architects and other building professionals in the cocreative housing design process?**

These sub questions are supporting the search for an answer to the main research question:

What is the role of the architect in the cocreative design of housing with a group of residents?

1.5. GENERAL METHODOLOGICAL APPROACH

The search for an answer to this main research question can be characterised by an exploratory approach. With the lack of a fully developed body of knowledge concerning the collaboration processes of cocreation in housing design, the explorative approach enables to get a grip on the complex issue of cocreation in this specific context. It allows studying the concept of cocreation in a

flexible and open-minded fashion, in order to explore the process and to develop a basis of understanding with regard to cocreation and the architect's role in cocreation.

The structure of exploratory research can be described as a set of guidelines suggesting what to look for and where to look for. (Stebbins, 2001) These guidelines are contained in a theoretical perspective. In this research, a theoretical perspective is developed by a review of literature. The results of the literature review are presented in chapter 2 and 3. These chapters can be understood as a lens to look at cocreation, framing the research and answering research question 1 and 2.

Subsequently, insights into the cocreative practice with its opportunities and threats are gained by a multiple-case study, answering research question 3. Additionally, the multiple-case study is used to explore the role of the architect in cocreation, supplemented with an interview study with five architects with cocreative experience. Finally, experiences from three cocreative workshops in which the author functioned as the architect are used to enrich the understanding of the architect's practice in cocreation.

In the multiple-case study, the interview study and the workshops, a qualitative strategy is used, fitting the exploratory aim of this research and the complex, dynamic nature of the phenomenon under study. Together, the literature review, the multiple-case study and the workshops enable to formulate an answer to the main question of this research, addressing the role of the architect in a cocreative design process with a group of residents.

1.6. RELEVANCE

Within the discipline of Architecture, the significance of the inclusion of social aspects to supplement the field's traditional physical focus has increasingly been recognised. But despite this recognition, the body of knowledge regarding architectural design as a social act seems to be relatively limited. This research, therefore, aims to develop an understanding of cocreative design in order to provide insights into the social dynamics that underlie these participatory, collaborative processes. These insights contribute to the theoretical understanding of cocreation in the field of Architecture by proposing elements for an alternative model of the concept of cocreation. Additionally, these insights can be used to support architects who are confronted with the complex but fascinating nature of the cocreative practice.

1.7. ROAD MAP

After an introduction of the research and the concept of cocreation in this first chapter, the second chapter explores the past and present of cocreation in Architecture. It analyses the development of views on cocreative design, with their strengths and weaknesses, by a review of literature. In order to be able to explore the complex, collaborative processes of cocreation nowadays, an alternative conceptualisation of cocreation is presented in chapter three, using (theoretical) insights from within and beyond the field of Architecture.

These theoretical explorations can be seen as a lens to look at cocreation in practice. Three cocreative housing projects have been studied based on the insights from literature, guided by the research questions. The results of this multiple-case study are presented in chapter 4. Chapter 5 elaborated on the cocreative workshops, organised by the researcher with a group of future residents. Experiences from practice can be found in these two chapters.

Finally, chapter 7 presents the conclusions of the research, answering the research questions and defining the role of the architect in cocreative design processes. Recommendations for architects in cocreation can be found here.

The report concludes with a discussion, presented in chapter 8. This chapter reflects on the research and the research outcomes. Recommendations for future research can be found in this chapter as well.

2. EXPLORING THE CONCEPT OF COCREATION

Over the past decades, designers have been moving closer to the users of their designs and residents increasingly started participating in the design of their living environment. (Jeng, 1995) The current advance of cocreation has its roots in this participatory design movement. In order to understand the cocreative design process, the relationship between residents and architects in cocreative design processes and the architect's practice in these processes nowadays, this chapter theoretically explores the (development of the) concept of cocreation.

2.1. MODELS OF PARTICIPATION

The participatory design movement started during the late 1960s, as was introduced in the previous chapter, when voices arose agitating against the principles of mass housing. Mass housing had been the norm since industrialisation, but was increasingly perceived as unsatisfactory. The practice of participatory design was regarded as a way to bridge the gap between the world as built and the world as needed and desired. (Hatch, 1984)

2.1.1. Participation as a ladder of control

This gap was part of a broader issue in society between institutions and citizens, which was increasingly addressed from 1968 on. A period of demonstration and social action started; against the powerful authorities, demanding increased influence of the public. (Hatch, 1984; Qu & Hasselaar, 2011; Van der Woude, 2012)

In the context of this paradigm of conflict and protest in order to empower the public, a first model of participation was developed. In her famous article 'A Ladder of Citizen Participation' Arnstein (1969) hierarchically introduces eight levels of citizens' influence (see figure 2). As a provocation, she equates citizen participation with citizen control and states that participation needs the redistribution of power that enables the 'have-nots' to be included in political and economic processes. Arnstein tries to highlight the critical difference between 'going through the empty ritual of participation and having the real power needed to affect the outcome of the process' (1969, p. 216) with the help of a ladder pattern. The eight rungs of the ladder correspond to increasing extents of citizens' power in determining the end product. The two lowest levels of manipulation and therapy describe 'nonparticipation', used as a substitute for real participation. Their aim is not to enable people to participate, but to enable the actors with power to educate or even 'cure' the citizens. Rungs three and four correspond to informing and consulting, allowing citizens to hear

8	citizen control	degrees of citizen power
7	delegated power	
6	partnership	
5	placation	degrees of tokenism
4	consultation	
3	informing	
2	therapy	non-participation
1	manipulation	

Figure 2 Arnstein (1969), ladder of control

and to give their view. However, whether to do something with these opinions is in the hands of the power holders. Arnstein, therefore, describes these rungs as 'tokenism', as symbolic effort. Rung five, placation, refers to the possibility to give advice as a participant. Arnstein defines this rung as tokenism as well. Citizens still lack the power to insure that their opinions or advices will actually affect the results. Further up the ladder, the rungs six, seven, and eight represent levels with an increasing degree of genuine citizen power. Partnership –rung six– enables citizens to negotiate with power holders and with the rungs of delegated power –seven– and citizen control –eight– the previous have-nots even obtain the majority of 'decision-making seats'. (Arnstein, 1969)

Arnstein's ladder, which essentially depicts participation as a power struggle between citizens trying to move up the ladder and institutions limiting citizens' abilities to claim control or power for themselves (Collins & Ison, 2006), became a well-known metaphor to criticize, design, implement and evaluate participatory processes, also in the built environment. Professionals were perceived as the advocates of the users (Jeng, 1995), and more citizen control was demanded in order to establish a more democratic transformation of the built environment and to reduce the alienation of residents. (Blundell Jones et al., 2005; Hatch, 1984; Jeng, 1995; Towers, 1995)

2.1.2. The ladder's limitations

Arnstein's ladder made a significant contribution to opening up the discussion on participation; even these days the conception of participation as an issue of control is framing the participation discussion in various fields. However, the metaphor of the ladder itself has increasingly become focus of debate in various fields as a tool to define and understand participation today. (Collins & Ison, 2006)

Tritter and McCallum (2006), researchers of participation in health care, criticize that participation is assumed to be a hierarchical phenomenon with citizen control held up as the ultimate goal of participation. This assumption is not always in line with participants' own reasons for engaging in processes of design, decision-making or whatsoever, they state. (Tritter & McCallum, 2006) The implicit ultimate goal of citizen control automatically implies a degree of failure when this control is not fully achieved. It condemns 'lower' levels of shared control, such as partnership, even though the participants might be contented with these levels of participation. (Hayward, Simpson, & Wood, 2004)

In the field of urban planning, Towers (1995) makes a similar statement. He highlights the undesired consequences of the condemnation of shared control levels: the ideal of full citizen control excludes any project carried out by or for a local authority, a housing association or any large organization. Because in such projects the policies and objectives of the organization would, inevitably, lead to compromises in citizen control. However, the scope of citizen-controlled projects is constrained primarily by the availability of resources: lack of land or space, lack of available skills in building, lack of money. In almost every case, citizens are in some way

dependent on institutions and/or experts. Excluding these institutions, organisations and experts limits citizens' opportunities. (Towers, 1995)

Full citizen control, in this way, seems neither always possible nor desirable. If practical results are to be achieved, effective partnership seems to be the best that could be or has to be attained. (Reich, Konda, Monarch, Levy, & Subrahmanian, 1996; Towers, 1995) It is recognised that participatory ideals have to confront the policies and standards of experts and institutions. Inevitably, this resists the extension of participation in terms of citizen control. Such resistance can never be completely overcome. (Reich et al., 1996)

A second problem with the ladder metaphor concerns its single focus on the issue of power. According to the ladder, meaningful participation only seems to occur in relation to the power of governmental organisations or other authorities, ignoring other aspects that might be influencing. (Collins & Ison, 2006; Innes & Booher, 2004) According to Collins and Ison (2006), stakeholders do not only define their roles and responsibilities in relation to their sense of power, but they are based on the construction of their interests in the specific situation, within a specific context. These interests might differ among stakeholders or might evolve during the project. The ladder model of participation does not capture the dynamic and evolutionary nature of the process, and the more complex set of relationships that emerge during participatory processes. (Collins & Ison, 2006)

The initial participatory design movement of social action and empowerment offered no proper way of dealing with the complex set of relationships, including more than the issue of power. The underlying epistemology of participation as presented by Arnstein's ladder seemed not sufficient to understand and realise participation in practice. (Collins & Ison, 2006; Jeng, 1995; Towers, 1995; Tritter & McCallum, 2006) It did offer neither a constructive model of participation in collaboration with institutions and experts nor a grip on the complexity of the participatory practice.

2.1.3. From conflict to consensus

As a response to the often frustrating practice of increased citizen control, from the 1980s on the focus in participatory approaches shifted from a model of democracy and empowerment to a more pragmatic model. Participatory practitioners 'withdrew from the battlefield of social-political confrontation to a more pragmatic practice of participation' (Jeng, 1995, p. 69). Problems, needs and motives were less formulated in terms of power conflicts, but redefined with a focus on getting things done.

This development towards a more pragmatic approach marked a distinctive difference from the participatory approaches as advocated since the 1960s. In the early tradition, conflict was seen as an essential ingredient for social change, where the engagement of institutions and experts was a response to the public's reaction against top-down decision-making. The new participatory turn was different; it embraced and promoted public involvement, hinging on a central notion of consensus. (Richardson & Connelly, 2005)

Consensus, understood as a freely reached agreement between parties, became a desirable normative principle. At the heart of this new participatory approach laid the beliefs that conflicts between interests are resolvable and mutual agreement on outcomes may be reached. Through an open, participative and non-coercive process, citizens and professionals search for an ideal outcome. (Connelly & Richardson, 2004).

2.1.4. The ignorance of differences between participants

The consensus ideal released participation from the demanding yardstick of full citizen control. Cooperative processes with shared control became the new standard. However, the focus on consensus introduced new problems too. In contrast to the ladder model, the consensus ideal aimed to remove the effects of power and other initial differences between participants from participatory practices. These differences were seen as negative and oppressive. But practice revealed that it is not possible to remove the effects of differences from the participatory table. By excluding the differences in power, values, interests, knowledge and perspectives, problems may be suppressed. The effective development of the built environment cannot always be achieved through consensus. (Kvan, 2000; Richardson & Connelly, 2005)

2.2. PARTICIPATORY DESIGN TODAY

Today, debates on cocreation in architecture are often still being framed as conflicts between two paradigms: the polar positions of planning as either top-down and expert-led or inclusive and bottom-up, (implicitly) driven by the ideal of consensus or full citizen control. It is increasingly recognised that this dialectic definition of participation might be limiting the understanding of participatory design in theory and practice, also in the field of Architecture. (Connelly & Richardson, 2004). What fuels effective collaboration between residents and building professionals is far more the desire to satisfy real interests and to meet needs than the desire to achieve either full citizen control or ideological consensus. (Forester, 2006; Kvan, 2000) Participatory design today – cocreation- refers to a process that is neither completely bottom-up nor entirely top-down; neither completely controlled by professionals nor in the power of residents. It can be understood as an integration of these two approaches. (Blundell Jones et al., 2005; Innes & Booher, 2004; Till, 2005)

Differences between participants cannot be ignored in these integrated processes. Cocreative processes inescapably operate in the face of power (Forester, 1999); have to deal with differences in world views, values, interests and perspectives (Kvan, 2000); and confront participants with differences in knowledge and skills (Sonnenwald, 1996).

The dominant models of participation seem to obstruct to effectively ‘unpack the black boxes’ of participatory design today in order to create a more integrated conceptualisation that includes these inevitable differences between participations and the complex relationships in the participatory process (Collins & Ison, 2006). Instead of ignorance, cocreation requires the acceptance of the legitimacy of multiple, perhaps incompatible perspectives, motives, values and views. (Reich et al., 1996)

2.3. CONCLUSION

Neither the ideal of full citizen control nor of consensual collaboration between citizens and experts seems appropriate to understand the current notions of participation in the built environment. But what are the options then? This is a difficult area. If architecture wants to adopt cocreation, it needs to engage critically with participation as a means of working with discrepancies and imbalances between participants, but conceptualisations of cocreation that properly include these discrepancies and imbalances seem not to be available in architecture yet.

Therefore, it is necessary to rethink participation –and thereby cocreation- in ways that embrace differences in power, values, knowledge and perspectives as inescapable, essential and productive. This needs to be grounded in a clear understanding that participation does not necessarily have to lead to full citizen control or ideal consensus. There is no idealised cooperation. What is needed is a form of participation that is realistic enough to acknowledge the imbalances in power, interests, knowledge and values, but at the same time works with these imbalances in a way that transforms the expectations and futures of the residents, towards reduced alienation regarding their living environment.

3. TOWARDS AN ALTERNATIVE MODEL OF COCREATION IN HOUSING DESIGN

Conceptualisations of cocreation that properly include the discrepancies and imbalances between its participants seem not to be fully developed in Architecture yet. However, literature on participation –also beyond the field of Architecture- suggests elements for an alternative conceptualisation. This chapter explores these elements, enabling to create a basis of understanding for the cocreative practice of today.

3.1. THE CONCEPT OF BOUNDARIES

Discrepancies and imbalances are inevitable part of cocreative housing design processes, in which experts and non-experts, designers and non-designers cooperate. In organisational studies, such differences are often described by the concept of boundaries.

3.1.1. Boundaries: basic elements of collaborative processes

Boundaries can be defined as 'non-visible borders that define the territories of actors in a project environment' (Bektas, 2013, p. 317). Boundaries can be symbolically as well as materially; they can be mentally as well as physically. (Hernes & Paulsen, 2003) Examples of boundaries that are described in literature are, for example, discipline boundaries (Kerosuo, 2006), authority boundaries, task boundaries, political boundaries and identity boundaries (Hirschhorn & Gilmore, 1992).

Such boundaries can be seen as the basic elements of organising activities, people, processes, resources and intentions within groups. When participants start engaging in a relationship, bringing divergent motives, values and knowledge, boundaries emerge and discrepancies related to aspects such as power, values and interests come into existence. (Hernes & Paulsen, 2003) Relationships in participatory projects can be described by the characteristics of the boundaries between the participants. The nature of these boundaries shapes the participatory process. (Kerosuo, 2006)

3.1.2. Boundaries as enablers and/or barriers

Literature on boundaries explains that boundaries can either be effective or destructive; they can imply both a positive and negative impact on relationships. On the one hand, boundaries are often considered as harmful. (Kerosuo, 2006) Indeed, boundaries can cause serious problems. Differences may cause someone to challenge or contest another's contribution, which can lead to conflict and a negative impact on the quality of the collaborative process and its outcomes (Jeng, 1995; Prahalad & Ramaswamy, 2004a; Sonnenwald, 1996) Boundaries, in this way, can be a source of division, misunderstanding and frustration. (Akkerman & Bakker, 2011; Wenger, 1998) On the other hand, however, boundaries are considered to be important locations of useful development, representing space for change. (Kerosuo, 2006) Boundaries can function as sources of new opportunities, where perspectives meet and new possibilities arise.

(Wenger, 1998) Boundaries are considered both an enabling and constraining element of processes. (Kerosuo, 2006; Kurtzberg & Amabile, 2001)

3.1.3. Boundaries between participants in cocreative housing design

In the cocreative development of housing, residents, architects and other building professionals come together. Professional participants come to the situation with their pre-existing patterns of work activities, specialised work languages, certain expectations and perceptions of quality and success, and different organisational constraints and priorities. (Sonnenwald, 1996) Residents usually do not have specialised work languages and patterns of work activities relevant to the development of housing, but they do bring their own expertise, communications, expectations, constraints, priorities and perceptions of quality and success as well. These expectations, priorities and perceptions are likely to differ from the professionals' views. Both professionals and residents bring their own perception of reality, of what is good and what is true.

As a result, professionals and laypeople are frequently at odds in the way they experience, interpret and evaluate built environments; they like different things, they use the environment differently, they want different things out of buildings. Residents bring other concerns to the table, have different priorities and value both the building and the building process differently. (Groat, 2000)

In the case of architects, research studies show indeed that designers are educated to experience environments differently. First-year architecture students' assessments of buildings are rather similar to those of non-architects, but substantially different by the time they are ready to graduate. (Groat, 2000) By then, they are architects placed within the 'architectural habitus' that comprises unique dispositions, knowledge and skills (Siva & London, 2011; Webster, 2011), developed over ages by the emancipation of the architect's profession (Habraken, 2005). Within the habitus, specific values are shared. Additionally there are specific codes of dress, speech, and behaviour that mark its members off from the rest. These values are often cultivated in order to establish a degree of autonomy from other members of society. (Heintz, 2004; Siva & London, 2011) Becoming an architect, in this way, inevitably includes a sense of isolation from the integrated field of form and people. (Habraken, 2005) By professionalising architecture, a wall has been built between architectural designers and the users of the designs. (Holliday, 1984)

3.1.4. Architects versus residents

Models of the architect's profession are built on notions of this wall. One dominant view on the architect's profession is the 'architect-as-artist'. (Groat, 2000) The architect-as-artist model tends to emphasise inspirational form making and a persuasive orientation to residents' needs; it represents a rather isolationist mode of practice. (Cuff, 1992; Groat, 2000; Gutman, 1988) The architect-as-artist model is often contrasted with the model of the 'architect-as-technician', in which the technical competence of the architect is being emphasized. The architect tends

towards a more reactive, serving and facilitating mode regarding client's needs. (Cuff, 1992; Groat, 2000; Gutman, 1988)

The mismatch between the habiti of architects and residents can lead to confusion, stress and frustration. (Cuff, 1992; Siva & London, 2012) In a previous research in the context of the Science Communication master's programme, the author of this report explored such mismatches by studying a cocreative initiative in the city of Utrecht, the Netherlands. Conflicts and miscommunication between the architect and residents developed caused by differences in interests, discrepancies in power and control, differences in organisational structure, differences in knowledge, skills and abilities, imbalances in the ability of innovative, creative thinking and differences in language. (Stenfert, 2016)

For the architect-as-artist, cocreation threatens existing structures of control by requiring that control to be shared with residents. Architects often fear that this will undermine their expertise, their authority (Towers, 1995) and their sense of professional autonomy (Ivory, 2004). The denial of architecture's social realm, with its discrepancies and imbalances between actors, is one of the mechanisms by which the perceived threat of cocreation is often suppressed. Architects tend to be closed about their process and non-transparent about their values and motives towards residents. (Till, 2005)

In contrast, the serving, facilitating architect often fully embraces residents' involvement, sometimes even by urging the residents to design; claiming that residents should design for themselves. Architecture, and especially housing, they say, should not be designed for or on behalf of residents, but by the residents. Also today, the development of many participatory methods is based on this idea. (Jeng, 1995)

This has a strong implication that residents not only know what they want, but also can design what they want (Jeng, 1995); it assumes the residents' ability to think creatively, e.g. to generate alternatives, think outside the box, suspend judgment (Perry-Smith & Shalley, 2003). Although also today some researchers do assume creativity as a general human ability, this assumption is rather questionable. Sanders and Stappers (2008), for example, state that cocreation requires the belief that all people are creative. But although it is acknowledged that design indeed is part of fundamental human activity and that a certain level of design can be approached by common sense (Lawson & Dorst, 2009), Jeng (1995) argues that it is dangerous to say that all human beings have the nature of design. The difficulty in design is not in reaching the first levels of apparent competence; it is in attaining the higher levels. 'And that is where the design profession sits. Most expert designers certainly employ many more sophisticated cognitive skills.' (Lawson & Dorst, 2009, p. 46) Human beings learn how to design. (Jeng, 1995)

In this approach, furthermore, issues of expert knowledge are ignored as well. It involves technical expertise and experience necessary to be able to come up with feasible solutions to a problem. (Perry-Smith & Shalley, 2003) The architect is not able to contribute to the process with

his domain-related knowledge and creative skills; neither is the knowledge of the residents used to state the obvious and the commonplace in order to enrich the design. (Towers, 1995)

Both approaches leave the differences between the participants untouched; either by suppressing them or ignoring them. Although these differences –boundaries- can be a source of misunderstanding and frustration, they are places for unusual learning and new opportunities as well. Without the architect's inclusion of the design's social realm, the discrepancies and imbalances between the participants of the cocreative process cannot be adequately addressed.

3.1.5. Boundaries as interfaces of necessary change

More recent studies on participation, therefore, suggest considering participants not as antagonists with fixed standpoints, but as stakeholders who recognise that they have a stake in something common and that their goals are mutually interdependent. (Richardson & Connelly, 2005) It is proposed to look at participation with a dynamic view in which citizens, designers, governments and other actors continuously interact, acting independently but influencing one another as well. This is suggested both in the field of design in general (Kijkuit & Van Den Ende, 2007; Perry-Smith & Shalley, 2003) and in the field of the built environment (Innes & Booher, 2004; van Schaick, 2005).

Each participant brings his or her own set of expectations, perceptions and interests that defines his or her 'territory' in relation to the other participants (Bektas, 2013), but perceptions about the project's process and output as well (Christensen, 2009). When participants approach a project with widely divergent definitions of what to do as well as divergent approaches on how to engage in the project, it is not likely that they are coming to results without a certain change in position. (Kurtzberg & Amabile, 2001) In order to make progress, it is necessary to assume the possibility of participants' movement in positions and perspectives. The participants need to change their initial ideas about the input, the process and the output of the project. In the interaction with others, their initial ideas need to be challenged and reshaped. (Kijkuit & Van Den Ende, 2007)

The boundaries between participants, therefore, must not be seen as impermeable lines between participants; they need to be regarded as 'social interfaces' were discrepancies in power, values, perceptions, ideas and interests are negotiated and mediated (Long & Villarreal in: Kerosuo, 2006) Through this interaction, boundaries are repeatedly reproduced. Actors within the project create and recreate boundaries in interaction with each other, simultaneously being affected by these boundaries. (Sanne Akkerman & Bakker, 2011; Kerosuo, 2006) The boundaries are spaces for change; change that is necessary and useful to collaboratively come to results.

3.2. BOUNDARY DYNAMICS IN COCREATIVE HOUSING DESIGN

It is the question, though, how this process of reproducing and reshaping boundaries can be realised in the context of a design project, in a design process. Studying the characteristics of design processes suggests the relevance of social learning at boundaries.

3.2.1. The nature of the design process

Designing is often defined as a process of problem solving; problems which are in Architecture solved by a three-dimensional design as a scheme of future action. (Braha & Maimon, 1997; Lawson, 2005; Schön, 1983) However, these problems are usually ill-defined, highly complex and interpretable in multiple ways. (Kim & Wilemon, 2002; Koen et al., 2002; Schön, 1983; Van Doorn, 2004; Zhang & Doll, 2001)

3.2.1.1. Solving complex wicked problems

Design projects, also in the context of housing, are beset by complexity. The urban system, with the existing urban plan, green structures, infrastructures, and the technological complexity of potential design solutions pose conditions for and constraints on the design. Developing a housing project typically requires hundreds of design decisions and detailed choices to be made. These decisions are often interdependent, each affecting the multiple variables relevant to the development. Additionally, cocreative housing projects typically involve divergent stakeholders. They are all striving to achieve their ambitions and protect their interests. Designers need to translate these interests into a coherent design. (Mayer, van Bueren, Bots, van der Voort, & Seijdel, 2005)

In this complexity, design problems cannot be comprehensively stated. Definite descriptions are not known to or cannot be clearly defined at the start of the process. (Peng, 1994) The design problems can be defined as 'wicked' problems (Christensen, 2009).

Only studying such problems does not lead to progress, since it is not possible to comprehend wicked problems by mere analysis. Many components of wicked problems cannot be expected to emerge until some attempts have been made at generating solutions. (Christensen, 2009) 'The generation of possible solutions and their gradual improvement is the only way forward' (Lawson & Dorst, 2009, p. 28). They must be constructed from the materials of problematic situations which are puzzling, troubling, and uncertain. A certain kind of work must be done to sense of the uncertain situation that initially makes no sense. (Schön, 1983) In order to do so, interpretation of the ill-defined design problem is needed. This can be done differently; what may seem important to one may not seem so to others. The design problem can be interpreted in multiple ways. (Lawson, 2005; Roozenburg & Eekels, 1995; Van Doorn, 2004)

As a consequence of the required interpretation, there can never be an exhaustive list of all the possible solutions to such problems. There are endless solutions to the same design problem. Additionally, there are no optimal solutions to design problems. Objectives may

be conflictive with each other. Rarely can requirements be optimized without suffering some losses elsewhere. There rather is a range of acceptable solutions. (Lawson, 2005; Van Doorn, 2004) These solutions are often holistic responses to the design problem; they integrate multiple (perceptions of) problems (Lawson, 2005). Therefore, Tjallingii (1996) describes the act of design as the creation of 'promising combinations'.

3.2.1.2. An iterative process of framing and reframing

The complex, wicked nature of design problems and solutions means that design processes in general -and cocreative design processes in particular- are characterised by a high level of uncertainty. Participants' objectives and priorities are likely to change during the design process as the implications of design solutions begin to emerge. Because of this close relationship, it is stated that design problems should be seen as in dynamic tension with design solutions. (Lawson, 2005)

A frequently used model of the architectural design process that captures this close tension, describes designing as an iterative sequence of analysis, synthesis and evaluation. (Braha & Maimon, 1997; Lawson, 2005) Analysis involves the exploration of relationships, looking for patterns in the information available, and the classification of objectives. It is the ordering and structuring of the design problem. On the other hand, synthesis is characterized by an attempt to move forward and create a response to the problem. It is the generation of solutions. Evaluation, or appraisal, involves the critical evaluation of the suggested solutions against the objectives identified in the analysis phase. These three elements are interrelated, with feedback loops between them. The evaluation of a proposed design may raise new design ideas or reveal new needs; in an iterative and creative process, design problem and solution emerge together. (Kijkuit & Van Den Ende, 2007; Lawson, 2005; Van Doorn, 2004)

In this way, design can be regarded as 'the art of seeing the design situation in multiple ways' (Lawson & Dorst, 2009, p. 26). It is a process in which designers 'name the things to which [they] will attend and frame the context in which [they] will attend to them' (Schön, 1983, p. 40). It is rather through the process of framing the problematic situation that designers may organise and clarify both the ends to be achieved and the possible means of achieving them. (Schön, 1983) Inquiry begins with an effort to solve a problem as initially set. The inquirer remains open to the discovery of phenomena, incongruent with the initial problem setting, on the basis of which he reframes the problem. Inquiry, thus, turns into a frame experiment. The inquirer is willing to step into the problematic situation, to impose a frame on it, to follow the implications of the discipline thus established, and yet remain open to the situation's back-talk. Reflecting on the surprising consequences of his efforts to shape the situation in conformity with his initially chosen frame, the inquirer frames new questions and new ends in view.' (Schön, 1983, p. 268)

> This framing ability is considered to be crucial in creative design. Design is not a 'creative leap from problem to solution', but more the iterative building of a 'bridge' between the problem space and the solution space. Creative design, therefore, involves a period of exploration in which problem and solution spaces are evolving and unstable until (temporarily) fixed by an emergent bridge which identifies a 'problem-solution pair'. (Dorst & Cross, 2001)

3.2.2. Learning by design

The process of iteratively (re)framing problem-solution pairs is considered a learning process. During the process, knowledge about the nature of the design problem and the best routes to take towards a design solution is gradually gathered. This is done by trying out different ways of looking at the problem, and experimenting with various solution directions, until a satisfactory result has been achieved. Design can be described as a process of going through many of these learning cycles towards a design solution. (Lawson & Dorst, 2009)

It can be argued that the iterative exploration of problem and solution space can facilitate learning in a collaborative design process as well. Various authors in the field of participation suggest using the concept of learning in relation to cocreation. Richardson and Connelly (2005), for example, highlight that the movement of positions or perspectives in participatory processes relies on the potential for learning, through the acquisition and sharing of knowledge, through the overcoming of misunderstanding and the creation of new ideas. Also Mayer et al. (2005) state that the design process 'should be seen as a learning process in which various actors must engage, in a collaborative design process' (p. x). Payne, Storbacka and Frow (2008) make a similar statement by saying that the cooperation between participants should be seen as an 'interactive process of learning together'.

3.2.3. Cocreation as a process of social learning

The focus on learning together, suggests a social definition of learning. Such a social definition is based on the assumption that competence is socially defined and that people experience knowing in their own ways, as an interplay between social competence and personal experience. (Wenger, 2000) This social definition of competence assumes learning as a social process; competence is gained within a social context; related to other and in relationship with others. Collins and Ison (2006) suggest using this concept of *social learning* to understand cocreation. They suggest a re-conceptualisation of participation as a process of social learning.

The concept of social learning can be defined as the process of establishing a change in understanding that is situated in wider social units, which happens through social interaction. (Reed et al., 2010) Learning, in this definition, goes beyond the individual, referring to a process of change within a social network. This change occurs through social interaction between the actors in the network. (Reed et al., 2010)

The change of understanding can be at a surface level, for instance via the recall of new information, or at deeper levels, referring to a change in attitudes or world views. (Reed et al., 2010) This highlights that the concept of understanding is not only used to refer to cognitive aspects, but is influenced by affective aspects as well. When this report refers to a change of understanding, this inclusive definition of understanding is used; it addresses understanding as 'knowing' by head, but also by heart.

In cocreation in housing design, such learning –or change- needs to take place at the boundaries between participants. The divergent understandings –perspectives, views, ideas, knowledge- need to change among all actors and in interaction with all actors, if concrete results are to be achieved.

3.3. COCREATION AS SOCIAL LEARNING AT BOUNDARIES

The process of cocreation can be understood as a process of social learning between the cocreative partners. This learning occurs at boundaries, these are the places where learning can take place and has to take place.

3.3.1. 'Design logic'

In order to get a better grip on this process of social learning, the concept of 'design logic', as developed by Jeng (1995) can be used. The concept refers to the 'logic' of design reasoning, the generation of design solutions and the justification of design statements in design processes (1995, p. 18)

Jeng's model of design reasoning is rooted in theories of argumentation, on how conclusions or claims are reached through logical reasoning. Within the domain of argumentation, two types of claims are distinguished: descriptive claims and normative claims. A descriptive claim is a statement that describes something; it expresses an understanding of how something is or could be, without any evaluation of it relative to a certain standard, ideal or alternative. An example of such a descriptive statement is: The new dwellings are three stories high. In contrast, when a normative claim is made, it contains an evaluation; an assessment relative to a, often implicit, standard or ideal. It is about what is good and bad, what should be and what should not be. An example of such a normative statement is: The new dwellings should be three stories high. (Schiffman, 2016) A design can be considered as a coherent set of normative claims on how the built environment should be; design drawings and corresponding texts represent how the situation on a certain site ought to be.

Such a coherent set of normative claims is considered to be constituted by thinking and reasoning. Although it is recognized that such design thinking processes are often obscure, models have been developed to described these thinking processes. Jeng specifically refers to a representation of reasoning in architectural thinking developed by Tzonis et al. (Tzonis, Berwick, & Freeman, 1978). The system Tzonis et al. developed is considered a universal organization of

architectural thinking common to any design discourse, in which a 'kernel' of architectural thinking is proposed. (Jeng, 1995)

In this kernel of architectural thinking, both what can be seen as the design problem and the design solution are considered to be normative statements, which are hierarchically related. (Jeng, 1995) A first normative layer contains a person's (perception of his/her) values, needs and goals: abstract perspectives on how life and the living environment ought to be. Such values or needs might be privacy, comfort sustainability and safety. In the design process, these abstract 'norms' –which can be seen as goals, needs– are translated into lower level norms, representing concrete design 'directives'. An abstract need such as privacy, then, can be translated into a design directive like: there should be a fence around the yard.

The translation from abstract to concrete normative statements is generally supported with reasons; in the model of Tzonis et al. described as 'facts'. These facts function as mediators for the generation or justification of design directives, they form the reason for making a certain claim.

The facts used to generate and justify design statements need to be understood as closely related to how people interpret the world rather than how the world really is. When a set of values and goals is held by one person, the inference from a goal to a design directive is based on that particular individual's knowledge, experiences and beliefs. The process of applying the beliefs, motivations and interests of the actors to the task of formulating a design directive is called 'subjective understanding'. (Jeng, 1995, p. 121) The facts used to make a design statement do not necessarily represent the truth; however, they are usually true to the people who use the facts.

3.3.2. The change of 'logics' through cocreative design dialogues

Although the kernel of architectural thinking has been developed to describe the reasoning of an individual actor, Jeng has used the model to understand the process of group-reasoning in participatory design. Based on the conception of a design as a coherent set of norms for future implementation, Jeng describes participatory design as a group activity leading to a collective set of norms. In the process of the creation of this set of norms, however, various ways of reasoning or 'design logics' are coming together and divergent subjective understandings are involved. (Jeng, 1995) Additionally, actors can infer different directives which are based on the same value or need, or they apply different goals to the same design solution. They have their own reasons for these interferences, and they can provide 'facts' based on their own understanding or interpretations. (Jeng, 1995, p. 131)

The iterative process of reframing problem-solution pairs and the exploration of possible solutions in design processes can be seen as an act of generating alternatives on the level of directives, repeatedly creating concrete (temporary) statements about how the future built environment ought to be. By reflecting on these options, learning about each other's higher

level norms, representing needs, goals and values, can take place, creating an understanding of each other's position and interest in the project. Furthermore, participants can learn from each other's 'facts', constituted by experience, knowledge, skills; the collective reflection on and discussion about proposed design solutions enables learning loops from the concrete level of design directives to the often more implicit levels of values, needs and goals, experiences, knowledge and so on.

Reflection on the design solutions enables to discuss the different needs participants have and the values, goals, beliefs, knowledge and skills they bring to the process. By discussing these aspects, participants learn *about* each other's position in the process. Additionally, participants learn *from* each other's values, knowledge and experiences, influencing their perspectives on the design solutions. In this way, participants' 'facts', beliefs and maybe even values might be altered, supplemented or reformulated in order to be able to create, analyse and evaluate proposed design solutions properly.

3.3.3. The challenge to draw, cross and maintain the right boundaries

In order to realise a useful social learning process, therefore, it is important to discover boundaries that matter in relation to the phenomena that are under study in the project. (Hernes & Paulsen, 2003) Subsequently, it is needed to reflect on whether and/or how these boundaries can be valuable or problematic in the process. (Akkerman, 2011) The task, then, is to draw, cross or maintain appropriate boundaries between the participants (Kerosuo, 2006), so that the participants understand the situation and each other's positions well enough to collaborate effectively towards results.

3.4. THE COCREATIVE ARCHITECT

As a participant in the cocreative design process, trained in the act of designing, it can be argued that the facilitation and stimulation of social learning at boundaries is an important task of the cocreative architect.

3.4.1. The task to contribute to social learning at boundaries

In the facilitation of this learning process, Jeng (1995) argues not to rush into decision-making too soon. Of course, the exploration of problem and solution space cannot go on forever. In order to realise an actual building, solutions need to be set at a certain moment, in order to be able develop the design into a detailed final plan, ready to be built. But simply sharing decision-making based on discussion about choice among presupposed solutions leaves the participants' boundaries largely untouched. Although often democratically executed –and in this way ticking the right boxes for participation-, collaborative decision-making –control- only does not seem to be enough.

BOX 2. TOOLS FOR COCREATIVE DESIGN

Drawings produced by residents are often too close to the end of the design process, which makes further negotiation and exploration difficult. Jeng (1995), therefore, suggests conceiving the drawings as a result of co-creative workshops not as design solutions to be implemented, but as tools for communication during the co-creative design process. (Jeng, 1995, p. 76)

Van Dorst (2005) highlights the function of design tools as tools for communication in the design process as well. In a design process with multiple actors, such as co-creation, these tools support communication about design solutions as well as the (structure of the) design process.

An interesting example of such a tool is the 'pattern language', developed by Chr. Alexander (1977) and originally intended to give ordinary people a way to improve their built environment. Each pattern describes (an elements of) a design solution to a certain (element of a) problem. These patterns were considered to be universal solutions to universal problems.

The Dutch architect Frans van der Werf, however, developed the concept of a pattern language into a design tool that supports the development of a common understanding among specific participants of a collaborative design process within a specific context. Through the development of patterns, a representation of this common understanding is created at the same time, representing a –non-universal, but project-specific– framework for the design. Such a pattern can include a principle for the configuration of multiple dwellings around a communal garden, a scheme for circulation within a building, a guideline regarding the shape of the roofs within a housing projects. (Van der Werf, 1993)

Figure 3 Example of patterns for Wilgendonk in Papendrecht, the Netherlands (Van der Werf, 1993)

Jeng (1995) proposes, therefore, to draw the focus of interaction between participants into the stage where the exchanging, defining and generating of design concepts are major tasks. This leads participants to think about the grounds and reasons for their claims, what they mean by their needs, and the relationships between their goals and proposed actions. Without the exploration of the relationships between abstract goals, needs and values on the one hand and concrete proposed design actions on the other hand, there is no proper way of resolving conflicts in participatory design processes, Jeng states. 'In participatory design, conflicts can be resolved through the participants' learning other parties' beliefs and redefining their means to ends.' (Jeng, 1995, p. 144)

The architect needs to learn how to relish such a conversation among many voices, driven by design methods. (Groat, 2000) In order to do so, it is essential that the architect is willing to explain and discuss his ideas and motives. (Van der Werf, 1993) Towers states that effective participation starts with the recognition that people with no experience of building design need to understand something of the process and the product. It can be difficult for anyone to understand building designs. There is a wide gulf to be bridged and this requires building designers to develop new skills in communication: to learn to express their ideas, the options available, and the possible solutions to particular problems in a clear and simple manner. It is argued that the design process needs to be demystified, so that users have some appreciation of the choices that are available. (Towers, 1995)

The architect needs to demystify the design process. However, moving towards cocreative collaboration, it is not the only solution to make the architect's knowledge more accountable by making it more transparent. With more transparency, the 'gate to the black box is opened, but the black box itself remains untouched'. (Till, 2005)

Additionally, the architect needs to enhance the residents' domain specific knowledge and the residents' creative skills in order to enable not only the residents' understanding the design process, but also the involvement in the design process. The use of adequate design methods and tools is important here. (see box 2)

3.4.2. The challenge to draw, cross and maintain appropriate boundaries

Demystifying the design process and enhancing the residents to be involved in this process is essential in order to establish a dialogue on values, perspectives, ideas, knowledge and other possible boundaries. This dialogue or discussion is considered to be key in the cocreative process, so that the participants understand the situation and each other's positions well enough to collaborate effectively towards results.

However, the need for this dialogue and for social learning does not mean that all differences need to be bridged. The architect does not have to ignore or remove expertise or obliterate creativity. (Sanoff, 2000) It rather means the redeployment of it in another mode. (Till, 2005) Till suggests that architectural knowledge should be developed from within the context of the given

situation, which calls for a new type of knowing, a knowing from within the context, a developmental knowledge that adjusts to and grows out of the social-cultural surroundings in which it is situated. What is called for is the ability to move between the world of the expert and user, with one set of knowledge and experience informing the other. The architect should be an expert-citizen as well as citizen-expert. (Till, 2005) This resembles the process of 'reflection-in-action' as described by Schön (1983) considered to be essential for practitioners to deal well with situations of uncertainty, uniqueness and value conflict.

3.5. CONCLUSION

Cocreation can be understood as a process of working with differences in values, interests, skills, knowledge, perspectives. Multiple backgrounds, beliefs and interests are involved, with divergent ideas about the actions that need to be taken. In order to make progress in the face of these discrepancies and imbalances, changes of understanding among the collaborating participants are required. These changes can occur at boundaries, the social interfaces or units of change within a group process, where discrepancies and imbalances between participants can be negotiated and mediated.

Boundaries are considered both an enabling and constraining element of cocreative processes. The recognition of this dual nature of boundaries enables to understand the crux of participation: its potential coincides with its difficulty. This tension manifests itself at the points of interaction between the project participants: these points provide opportunities for effective collaboration between them, as well as opportunities for those processes to break down.

It is important, therefore, to get a grip on the dynamics at boundaries; to discover the boundaries that matter and to explore their valuable and problematic aspects; to be able to effectively deal with the restraining possibilities at boundaries and to successfully activate their enabling possibilities; to realise the needed changes of understanding so that participants move towards a commonly supported process result.

The process of changing understandings among the participants in cocreative housing design is suggested to be understood as a process of social learning. By exploring, developing and discussing design problems and solutions collectively, participants can learn about each other, for example about each other's needs, values, motives and goals. Furthermore, it can facilitate learning from each other; in the design process participants can learn from each other's knowledge, expertises, skills and ideas. The collective exploration of values, motives, interests, goals, knowledge and skills is considered to be key in the cocreative process, so that the participants understand the situation and each other's positions well enough to collaborate effectively towards results.

This process of social learning at boundaries does have to lead to the bridging of all boundaries. Cocreation is not about crossing all boundaries; it is about using the boundaries as enablers for the design process. In order to do so, it is needed to reflect on whether and/or how boundaries can be

valuable or problematic in the process. The task, then, is to draw, cross or maintain appropriate boundaries between the participants, so that the participants understand the situation and each other's positions well enough to collaborate effectively towards a final design.

The main challenge for the cocreative architect, therefore, is to learn to recognise boundaries, to reflect on these boundaries and to find a role in which it is possible to effectively deal with the boundaries, either by crossing, drawing or maintaining them.

4. MULTIPLE-CASE STUDY: THREE COCREATIVE PROJECTS

In order to explore the cocreative design process in practice and the architect's roles in this practice, three Dutch cocreative housing projects have been studied, in addition to the literature review. The theoretical perspective as described in the chapter 3 has been used to design this multiple-case study. This fourth chapter elaborates on the methodology concerning the multiple-case study. The last sections present the results and conclusions of the in-depth study of the multiple cases.

4.1. METHODS

This section aims to explain the use of a multiple-case study, which can be defined as a detailed and intensive analysis of more than one case. (Bryman, 2012)

4.1.1. The (multiple-) case study as a methodology

Case studies allow exploring a phenomenon intensively, in-depth, and with attention to details. Additionally, they enable to study the phenomenon in its context, which is especially useful to investigate a topic that is evidently influenced by its context and that needs to be understood within this context. (Bryman, 2012; Swanborn, 2010; Yin, 2009) In addition to Yin (2009) and Bryman (2012), Swanborn highlights the usefulness of the case study to explore, describe and explain social processes, which involve people with their own expectations, perceptions, opinions and mutual relationships.

The characteristics mentioned above, which fit the subject and aim of this research well, address both single-case and multiple-case studies. However, it is important to note that there are differences too. In some fields, the multiple-case study is even considered to be a different methodology from a single-case study. In this research, however, single- and multiple-case studies are regarded as variants within the same methodological framework, the case study method, in line with the work of Yin (2009), Stake (2006) and Swanborn (2010).

The two variants do have distinct advantages and disadvantages though. In multiple-case studies, the single case is of interest because it belongs to a certain collection of cases; the selected cases share a common characteristic or phenomenon, which the researcher aims to understand. The understanding of this phenomenon, or binding concept, is the most important goal, in contrast to understanding the case itself as the most important aim. In addition to the individual study of the cases, it is studied what is similar and different about the various cases in order to better understand the binding concept. The comparison contributes to a general understanding that fits more than just one case, even though cases will vary in their details. (Stake, 2006; Yin, 2009) This contribution is often considered to be more robust, because a multiple-case study can be considered analogous to conducting multiple experiments. '[U]pon uncovering a significant finding from a single experiment, an ensuing and pressing priority would be to replicate this finding by conducting a second, third, or even more experiments.' (Yin, 2009, p. 54) The logic underlying the use of multiple cases is the same. Therefore,

conclusions arising from more cases are assumed to be more powerful than those coming from a single case. (Bryman, 2012; Eisenhardt, 1989; Yin, 2009)

Its contribution towards relatively robust general understandings concerning a specific binding concept –cocreation- makes the multiple-case study an appropriate methodology for the pursuit of this research.

4.1.2. The selection of cases

A number of three cases has been selected for the purpose of this research. This number of cases might be considered as somewhat small –Stake (2006), for instance, recommends a number of four to ten cases–, but seems rather appropriate with regard to the time available for this graduation project.

The cases have been chosen for theoretical –in contrast to statistical– reasons, fitting both the exploratory nature and the general aim of this research. The goal of theoretical sampling, or purposive sampling, is to choose cases which are likely to provide insights in the specific phenomenon under study, such as the process of cocreation in the development of housing in this research. (Eisenhardt, 1989) Bryman refers to this type of cases as 'exemplifying cases', cases that are selected because they exemplify 'a broader category of which it is a member' (2012, p. 70). The cases indeed have been chosen not because of their extreme of unusual character, but because they provide a suitable context to study the process of cocreation and to answer the main research question.

In order to purposively select the exemplifying cases, various housing projects were listed based on specific criteria. All cases had to meet those criteria, in order to exemplify the research's phenomenon of interest and to allow a comparison of the cases. The following criteria were used:

- The housing project has to be relevant to the binding concept of the research, which is the process of cocreation. The housing project must have been developed by a cocreative process; residents must have been involved in the design of their dwellings.
- The project has to comprise one building block and/or include communal building elements, so that collective decisions had to be taken during the design process;
- The project has to include at least five households and a maximum of twenty households;
- The project has to be located in the Netherlands;
- The project must have been completed between 2012 and 2014;
- The project's architect should not be resident of the project as well.

The search for housing projects, guided by the criteria, resulted in a list of seven potential cases. Three of them were finally selected for the purpose of this research, mainly because of practical reasons related to the approachability of the intended research participants. One case has not been chosen because one of its intended participants appeared to be not willing to participate in the research. Another case had to be removed because one of its participants did not respond at all. Two participants of other cases responded relatively late, at that time interview appointments with other case participants had already been scheduled.

Finally, the cocreative housing projects De Stam in Tilburg, Marepark in Leiden and Sint Martenshof in Arnhem were selected for the purpose of this research.

Figure 4 De Stam at Tilburg, Marepark at Leiden, and Sint Martenshof at Arnhem were selected for the multipe-case study

4.1.3. Multiple-case study objectives

The three cocreative housing design projects were studied in order to get a better grip on the cocreative design process and the architect's practice in these cocreative design processes. The case studies served to collect data from real-life housing projects that enabled constructing an answer to the research questions addressing the cocreative design process and the architect's practice in cocreative design processes with residents. Goals of the multiple-case study were:

- Increasing the understanding of cocreative design processes;
- Exploring boundary interactions among the participants including its enabling and constraining aspects;
- And exploring the role of the architect with regard to these interactions.

4.2. MULTIPLE-CASE STUDY DESIGN

Within every selected case, data was collected by interviews with a resident, the architect and another professional involved in the process. The interview data was analysed afterwards by cycles of coding.

4.2.1. Data collection

Within the multiple-case study methodology, semi-structured interviews were used as the main method to collect data. A sample of three interviewees was selected from every case. This triad of participants included a resident of the housing project, the architect of the project and a professional involved in the management of the design project.

Online information about the housing projects provided the (company) names of the project's architect and the professional project managers. In case of the De Stam project, contact information of the (chair of the) residents was online available as well. In case of the Sint Martens project, a resident participant was approached via another resident, an architect in the researcher's professional network. Contact information of a resident of the Marepark project in Leiden was given by the process manager of the project, which had been interviewed early in the research process.

In the semi-structured interviews, the researcher used a list of topics to be covered. In contrast to structured interviews, in semi-structured interviews respondents have a relatively great deal of leeway in how to reply. This allows keeping more of an open mind about the contours of what needs to be known, so that concepts can emerge out of the data. (Bryman, 2012) All the topics from the list were covered from respondent to respondent and from case to case. Additionally, similar wording was used in all the interviews.

The composition of the list of topics, usually referred to as an interview guide, was directed by the research questions and the theoretical perspective, which framed how to look at the process of cocreation in the context of housing, bringing forward a focus on differences between participants, problems experienced in the collaboration with other participants, the course of the design process and the role of the architect in the process. The interviews were designed to encourage a conversation and to allow participants to give their view on the process of cocreation. The interview guide can be found in the appendices.

All interviews took place between November 2015 and January 2016. The researcher met the interviewees at their workplace or, in case of residents, at their home. The interviews all lasted one to one and a half hour.

4.2.2. Data analysis

The nine interviews were audio-recorded and transcribed, to make the data available on paper for analysis. The data has been transcribed literally, although several rules were used in favour of legibility. A list of the rules used for transcription can be found in the appendices.

The transcripts were analysed by various cycles of coding. In the process of coding, the data is broken down into parts and the parts are then given labels. (Bryman, 2012) This analysis is a cyclical process, wherein data is coded and iteratively recoded again and again. (Saldana, 2013) In the first cycles of coding, data per case has been analysed in an open way. The generated codes are descriptive and detailed, in order to keep the richness and the nuances of the data in this stage. The goal of this first cycle of coding was to remain open to all possible aspects and topics indicated by the data. This initial coding was intended as a starting point to provide the research with analytic leads for further analysis.

Through advanced cycles of coding, subsequently, a more coherent synthesis of the data was developed. Merging configurations and explanations were identified, pulling together the codes

into provisional themes or constructs. The goal of these advanced coding cycles was to develop a sense of conceptual organisation from the array of codes from the first cycles. The extensive variety of first codes was reviewed, reorganised and reconfigured in order to develop broader categories and concepts, in order to get a grip on the individual cases.

It is important to note that the process of coding firstly has been applied to the data of every single case individually. As Bryman (2012) highlights, the need for comparisons in a multiple-case study tends to the development of an explicit focus, whereas it might be more advantageous to start with a more open-ended approach. Therefore, in line with the research's exploratory approach, the three cases were studied and analyzsd individually, before any cross-case conclusions were made.

After the analysis of the cases' own situational issues and the interpretations of patterns within each case, a cross-case analysis was made, to make assertions about the binding concept of the research, the process of cocreation and the role of the architect in this process.

4.3. RESULTS

This section presents the results of the three case studies, described in-depth on the basis of the three interviews with a project's resident, the architect and another professional involved in the design process. After the results of the individual cases are presented, the cases are compared to each other in order to gain insights into the main issues in cocreative processes and the architect's role in these processes. As mentioned previously, each case was studied individually, before a comparison between the cases was made.

4.3.1. De Stam, Tilburg

The De Stam project is located in Tilburg, a city with approximately 200,000 inhabitants in the South of the Netherlands. The residential building includes 5 rental family houses at the ground floor and 13 rental apartments, ranging from 70 to 130 square meters. The dwellings are contained in two volumes, which form a U-shape configuration surrounding a communal garden. In addition to the garden, De Stam residents share spaces at the ground floor, which they rent collectively. These spaces, with a cumulative surface area as large as one dwelling, are used for various activities such as residents' meetings, workshops and birthday parties.

The idea to develop this cohousing project arose almost twenty years ago. A group of residents, who were familiar with the cohousing concept, dreamed of a housing project around a big communal garden.

The resident group intended to develop social housing, appropriate to their financial situation. A crucial step of the first stages of the process, therefore, was to find a housing association that was willing to invest in the group's ideals. The initiators started enthusiastic and full of

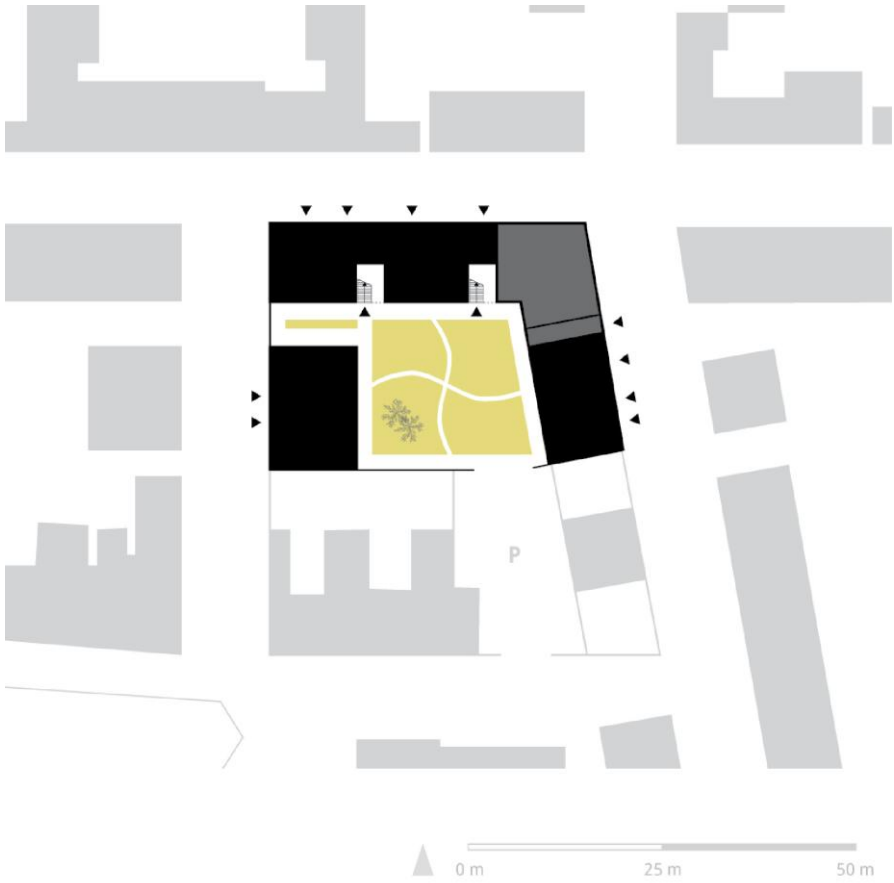


Figure 5 Plan and picture of De Stam, Tilburg

ambitions, but it soon appeared to be rather difficult to realise these ambitions. Housing associations were not very keen on the development of such a cohousing project.

It took the initiators years to find an investor with an appropriate piece of land who was willing to finance the cohousing project. In the search for financial resources and a building plot, much of the residents' enthusiasm paled. The group got smaller and smaller till only four initiators were left.

But after more than twelve years, an opportunity arose: a local housing association approached the initiators and suggested to realise the group's ideas in Groeseind, a neighbourhood in the Northern part of Tilburg that was planned to be redeveloped by the association. At a building plot at the corners of the Sint Janstraat, the Sint Lucasstraat and the Korte Houtstraat, The De Stam initiators were allowed to create their desired living environment. The association took the role of client and investor of the De Stam project.

Divergent ideas on the degrees of voice

With the inclusion of De Stam the housing association intended to experiment with the involvement of residents in the development of housing. The representative of the association who was involved in the process explained:

'Our intention is that all people who live in our houses are able to make it their home. [...] We do not live there, but they do. Who are we to decide how they should live? Leave it to them. That is our philosophy.'[1]

But what does 'leave it to them' mean? It almost immediately appeared that the exact role of the residents in the development process was not clear; the resident group and the association had different ideas regarding the residents' involvement. The residents expected to have a voice in the selection of the architect, for example, but the group had to work with an architect selected –and trusted- by the housing association. The residents met the project's architect several times during the preliminary design stage to explore wishes, needs and opportunities. But the options for the design were more limited than the residents hoped for. Many design guidelines had already been developed for the new neighbourhood, limiting the design choices for the residents of De Stam. One of the residents explained:

'The entire neighbourhood had already been developed. Plans had already been made, while it was presented to us that we, so to speak, could have a voice in the choice of the colour of bricks. But we did not have a choice. [...] They told us that we had a major voice, but that was not true.'[2]

[1] 'Onze bedoeling is dat alle mensen die bij ons wonen, dat ze van hun huis een thuis kunnen maken. [...] [W]ij hoeven daar straks niet te wonen. Zij wel. Dus laat het alsjeblieft aan hen zelf over, want wie zijn wij om te bepalen hoe zij moeten wonen. Dat is onze filosofie.'

Next to the design constraints from the urban redevelopment plan, the housing association introduced specific conditions for the dwellings as well. The representative explained:

'On beforehand, we told them what was possible and what was not possible. "Keep in mind that these are our preconditions." [...] For example, preconditions regarding budget. And there were preconditions regarding the dwellings itself. Little things, such as tiles. We only want to work with Mosa tiles, for example, because then we are sure that it is possible to reorder the same tiles for at least twenty years. And we only want to use Bruynzeel kitchens in the dwellings. Based on our maintenance policy; that is just how we want it to be.'[3]

At the start of the design process, various things had already been decided, in contrast to the residents' expectations.

Limited alignment of expectations, values and motives

However, these divergent expectations were not properly discussed during the process. This mode seemed to be exemplary for the entire process of development and design. One resident said:

'The housing association did not explain what they did and why they did so. We were never told about these things. [...] In the collective meetings, attended by everyone, they presented how the design would be. But every time it was different than we thought we had agreed it would be.'[4]

Differences in motives, goals and interests between the housing association and the residents were not properly discussed. The representative of the housing association did not attend the design meetings organised by the architect. The housing association assumed that it would be better to not be involved in these meetings, to increase the space and voice for the residents within the process. The results of the design meetings were communicated to the representative by design drawings. But during the communal meetings, results appeared to be interpreted differently, which resulted in miscommunication and frustration during the process among actually all actors involved. Discussions tended to focus around particular, concrete issues, such

[2] 'De hele wijk was al ontwikkeld. Er waren dus al plannen voor. Terwijl ons werd voorgeschoteld dat we bij wijze van spreken zelfs de kleur stenen mochten kiezen. Maar die keuze hadden we dus gewoon niet. [...] Er werd ons voorgehouden dat wij heel veel inspraak hadden. Maar dat bleek uiteindelijk, achteraf gezien, helemaal niet zo te zijn.'

[3] '[We hebben] wel van te voren gezegd: "Dit kan wel, dit kan niet. […] Houd er rekening mee dat dit onze randvoorwaarden zijn." [...] Bijvoorbeeld het budget. Er is een budget meegegeven. We hebben ook standaardeisen aan onze woningen. Kleine dingen, zoals dat wij per se Mosa tegels willen hebben, omdat we dan zeker weten dat we die nog twintig jaar na kunnen bestellen. En we willen per se Bruynzeel keukens hebben. Dat is gewoon zo, in ons onderhoudsbeleid. Dat is gewoon zo. Zo zijn er nog wel meer randvoorwaarden.'

[4] 'Vanuit de woningbouwvereniging werd niet gecommuniceerd wat ze deden en waarom ze iets deden. Dat kregen wij nooit te horen. [...] Dan hadden we een gezamenlijk overleg, waar iedereen bij was, en dan werd er verteld hoe het zou worden. En dat was dan vaak weer anders dan wij allemaal dachten. Elke keer kwam er weer iets anders boven water.'

as brick colour and kitchen tiles. Issues and emotions feeding the conflicts about these – ostensibly minor- issues were not adequately addressed.

Conflictive negotiation over deliberation

Negative attitudes and emotions played a significant role in the interaction between the participants during process, influencing all actors in the process. The representative mentioned:

'[S]ome people were critical all the time. We had to speak to our supervisors various times during the process, because we did not know what to do anymore. So much criticism; it makes you feel unhappy. It sometimes resulted in a lower willingness to be committed to the project.'[5]

Disappointment and frustration between the residents and the housing association were rather prominent in the process. This led to dominance of conflictive negotiation over deliberation in the process, as a quote of one of the residents illustrates:

'I told them: "I want a studio apartment." I wanted the ceilings of my apartment to be higher than the standard ceiling height in housing projects. But no way they were willing to agree with that. So I said: "Then I pull the plug and quit the project." This way I enforced them to agree with my demands. As a result, three studio apartments with a higher ceiling are included in the project.'[6]

Both residents and the housing association felt thwarted by each other; the residents and the representative both expressed notions of 'us versus them'.

Artificial unification of architect and residents

The dominance of conflictive negotiation mainly addressed the relationship between the association and the residents. Interestingly, the project's architect is not placed within the us-versus-them dichotomy, although he was selected by the housing association. The residents mainly blame the housing association for the issues in the design process, which leaves the architect's functioning untouched. They are quite contented with the contribution of the architect to the process. They mention the positive effects of the collaborative design meetings for the coherence within the resident group. The residents appreciated the collaborative design process, which strengthened their way of living together and the communal aspects of cohousing. However, the physical translation of these ideas is experienced as somewhat

[5] '[S]ommige mensen blijven kritisch. Dat maakte dat wij ook hier intern wel een paar keer bij onze directie hebben gezeten van: we weten het niet meer zo goed. Omdat er ELKE keer weer een lading kritiek over ons werd uitgestort. Daar word je gewoon echt niet vrolijk van. Dan is de bereidheid om eraan mee te werken soms wat lager.'

[6] 'Ik zei: "Ik wil een atelierwoning." Die wilde ik hoger hebben dan de normaal gangbare hoogte. Nou, daar was geen sprake van. Men gaf aan dat daar niets van terecht zou komen. Toen heb ik gezegd: "Dan trek ik de stekker eruit en stop ik ermee." Dat heb ik zo op de spits gedreven. En uiteindelijk zijn er nu drie atelierwoningen en die zijn een stukje hoger.'

disappointing by the residents. Interestingly, they do not blame the architect for this disappointing design:

'The architect was very willing to think about our ideas, [but] he got too little possibilities as well I think.'[7]

Missing design dialogue

Although the residents did not highlight any conflicts with the architect, the conflictive relationship between the residents and the association still seemed to impede the design process to a large extent. The architect stated:

'In my view it is not right to state from the beginning: "There is very little money available, so keep in mind that possibilities are limited". I understand that expectations regarding budget need to be managed, but I prefer a different approach. I prefer: "Tell me all you want; try to express your desires as much as possible and I will explore what we can do with these wishes." Of course budget is an important aspect of this exploration, but financial conditions can be met in different ways. By smartly integrating wishes in the design, the realisation of these wishes can be less expensive as initially separately estimated. When you start the design process with emphasising the financial limitations of the project and its consequences for the design, you exclude exploring smart combination of wishes. That is a pity.'[8]

The architect argued that the exploration and invention of smart combinations is an essential element of the architect's value in the process, but that he was not able to do his job as a designer well in the context of the De Stam project. The conflictive attitude made the participants unwilling to change or compromise, to think about alternative solutions and win-win opportunities. The conflictive atmosphere in this way indeed seemed to obstruct the realisation of an explorative design dialogue, impeding to find promising combinations and creative design solutions in the development of the De Stam housing project.

4.3.2. Marepark, Leiden

The Marepark project started with a building plot, available near the city centre of Leiden, a medium sized city in the West of the Netherlands. The Northern part of the historic city centre, which previously housed an abattoir and a water supply company, was being redeveloped into a residential area. In this area, various forms of (collective) private commissioning were stimulated by the local authorities. A commercial developer, with a focus on the participatory

[7] 'Bij ons was de architect erg meedenkend, [maar] ik denk dat hij ook te weinig mogelijkheden kreeg.'

[8] 'Ik vind het persoonlijk niet goed om vanaf het begin te stellen: "Jongens, we hebben maar heel weinig geld, dus hou er rekening mee dat er bijna niks kan". Ik snap wel dat dat handig is in het kader van het managen van verwachtingen, maar aan de andere kant roept het ook de schrik op. Ik doe het toch liever anders. Mijn benadering is meer: "Gooi al je wensen maar op tafel. Probeer zoveel mogelijk te verzinnen wat je wilt en dan ga ik wel kijken wat ik ermee kan doen." En natuurlijk moet daar uiteindelijk een bepaald kostenbewustzijn in komen. Maar dat kan op allerlei manieren. Dat kan ook door uiteindelijk, als jij bepaalde woonwensen hebt, door die handig in het ontwerp op te nemen. Waardoor ze helemaal niet zo veel hoeven te kosten als je aanvankelijk zou denken. En als je vanaf het begin af aan roept: "Dat kan niet, want dat is te duur", dan ga je er dus niet eens over nadenken. Terwijl ik denk dat dat zonde is.'

development of apartment buildings, spotted a vacant plot, bought it and started the formation of a future resident collective to develop two building volumes, with a total of 17 apartments.

The two volumes are situated in the Marepark, a city park owned by the Leiden municipality. The 17 apartments all have different lay-outs and sizes. The smallest apartment has a surface area of 45 square meters, while the largest apartment is over 200 square meters. All apartments are accessible via a central entrance at the ground floor.

At the beginning of the project, the developer had created a global model based on the municipality's prerequisites and regulations, which determined the number of apartments and the outlines of the apartment buildings. Additionally, he had developed a business model, including a maximum price per square meter the residents had to pay. Within the building envelope, residents were more or less free to decide how many square meters they want to claim. This system had to facilitate the realisation of individual wishes within one apartment building. The developer elaborated:

'I strongly belief [...] that people primarily join such a project because of the freedom of choice within the individual apartments. [...] There are less interested in the collective aspects of the project and the risks related to the collective nature of the project. [...] Therefore, we launched this project as a co-development project with professional parties. The risk individuals had to carry were limited.'[9]

A group of future residents was gathered, with people who liked the building plot location and the idea of developing their own house near the city centre of Leiden. Residents joined the project on the basis of conditions formulated by the initiating developer.

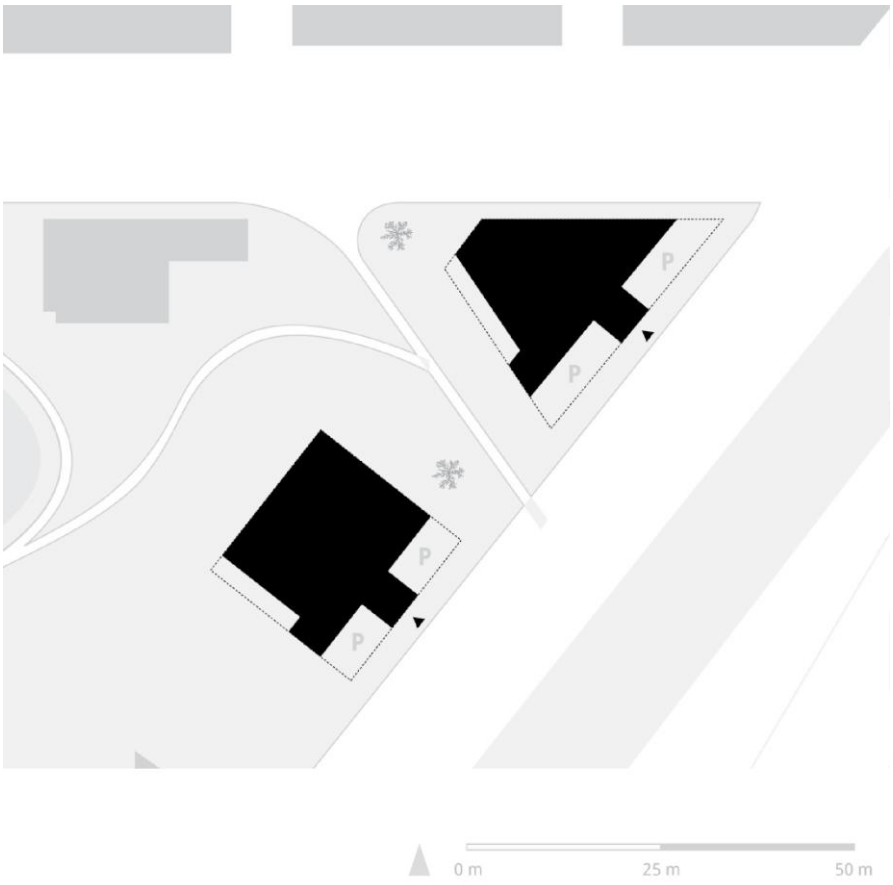
Expert and non-experts

With the physical and financial model in mind, three architects were invited by the initiator to present their ideas. The residents were asked to choose an architect from these three candidates.

For the presentations, the developer asked the architects not to focus on design solutions. However, in order to make a choice, the residents did like to see something as a sketch design. The residents wanted to see some first ideas, a concept, a preliminary image, in order to be able to choose an architect for the architect. The three architects were asked to make this concept. But still, it was hard for the residents to choose one of the architects. The interviewed residents explained:

[9] 'Mijn heilige overtuiging was […] [dat het mensen primair gaat] om de keuzevrijheid in het appartement. […] En niet in alle risico's die zo'n groep moet nemen in zo'n proces. [...] Hier hebben we het dus veel meer ingezet als een soort mede-ontwikkelingsproject. Je loopt maar een beperkt risico.'

'You have NO idea where and what to look for. [...] We were rather ignorant, to be honest. [...] You just got the feeling that he knows what he is talking about. [...] Trust is very important here.'[10]



[10] 'Je hebt GEEN IDEE waar je op moet letten. [...] Als we eerlijk zijn waren we natuurlijk onwetend. [...] [M]aar je krijgt het gevoel dat hij weet waarover hij het heeft. [...] Vertrouwen is heel belangrijk dan.'

Figure 6 Plan and picture of Marepark, Leiden

The architect succeeded in building this trust by focusing on design principles, rather than on design solutions in his presentation. The principles facilitated a discussion on values rather than on details; it stimulated the formulation of a common basis for the design with enough space for individual imagination.

A similar approach was applied with regard to other expertise needed in the design and building process. During the process, collective meetings were organised by the project's initiator, guided by various themes, such as finances, legal affairs but also energy systems, materials and climate installations. Various experts were invited to elaborate on specific topics and to give residents information about the choices to be made. This was perceived to be important by the resident respondents; they highlight the fact that residents are unfamiliar with the building process and the important elements within such a process. The meetings empowered the residents to be involved in discussions on relevant topics. It enabled them to make informed decisions and consider design proposals relatively well-informed.

Uncertainties

But despite the clear basic conditions and the availability of expert knowledge, the process was still experienced as highly uncertain –and therefore risky. An influencing factor in this uncertain course of the project was the continuous change of members of the resident group. All respondents mention that the changing composition of the residents' group highly influenced the development process. During the process, group members left the collective because of a divorce, because of financial issues, because they lost their job. The initiators and the architect were expecting a more continuous process, but the many changes in the group led to a messy course of the process. The architect mentioned:

'It is much more iterative than it was before. Traditionally you were given a program of requirements, a budget and you worked linearly towards the end result. It is much more like a dance now.'[11]

The variation in the group's composition resulted in increased uncertainty during the project, leading to even more variations within the group. It was hard for residents to deal with the uncertainty. Some residents did not attend collective meetings anymore, because they could not cope with the messy, chaotic and uncertain character of the meetings:

'It was uncertain; people generally did not have a good sense of direction. The design was constantlyadjusted during the project.'[12]

[11] 'Het is veel meer een iteratief proces dan het van oorspong was. Waarbij je een Programma van Eisen voor je kiezen kreeg, een budget, en stapsgewijs naar het eindresultaat toewerkt. Het is veel meer een soort dans bijna.'

[12] 'Het is ongewis. Mensen hadden over het algemeen geen goed idee van welke richting het uit zou gaan. Het ontwerp werd voortDUrend in het project bijgesteld.'

The uncertainties were caused by external factors, such as the economic crisis, but according to one of the residents, the uncertainty was fed by internal factors as well:

'But also a degree of clumsiness in the project developer's communications. [...] The communications were often inadequately aligned with the questions of the future residents. Some questions were ignored, inadequately answered or not consistently answered during the process.'[13]

The resident addressed the professional's difficulty with being transparent with regard to uncertain aspects. The initiators were not always willing to be open about the financial aspects of the project, in order to protect residents from being overwhelmed by complex information. However, this 'protection' resulted in a certain degree of distrust. What were they hiding? The residents wanted to have access to all information; they wanted to be introduced to the complex issues as well.

The lack of a framework for decision-making

The variations in the resident group revealed a lack of a framework for decision-making. When residents left the collective and new people were introduced, it was not clear how previous decisions needed to be handled. Many decision were reconsidered again, frustrating the residents who were involved from the beginning. A resident explained:

'The collective meetings were rather chaotic. [...] "Haven't we already made an agreement on this topic?" [...] But then the topic was discussed AGAIN. It was chaos.'[14]

The professionals indeed mentioned that they were not expecting the changes within the group of residents and did not had a clear vision in mind on how to deal with these changes and the consequences of these changes for the design and the residents.

Voice versus efficiency

At the same time, residents caused inevitable uncertainty themselves as well by their evolving wishes and demands. The developer mentioned:

'Until which point can you as a resident participate in designing? [...] Private commissioners do not want to go to that bottle-neck. They want to keep dreaming. The annoying part is that they start dreaming even more when it becomes more current. When residents are not allowed to think along anymore, because engineers have already started, they want even more.'[15]

[13] 'OOK soms de onhandigheid van de projectontwikkelaar vind ik. In de communicatie. Wat onhandig. [...] Het onvoldoende aansluiting kunnen vinden bij de potentiële kopers en de vragen die de potentiële kopers hadden. Er werd soms niet op gereageerd, of onvolledig op gereageerd, of dat het later weer werd teruggedraaid.'

[14] 'Het ging heel chaotisch, de avonden. [...] "Wacht eens even, er is toch dit afgesproken?" [...] En dan moest het de volgende keer NOG een keer besproken worden. Het was eigenlijk chaos.'

[15] 'Tot welk moment mag je als bewoner blijven mee ontwerpen? […] Particuliere opdrachtgevers willen nooit naar die bottle neck toe. Die willen altijd blijven dromen. Het vervelende is zelfs dat ze meer gaan dromen naarmate het actueler wordt. Als bewoners

This highlights the tension between exploring ideas and making progress by making decisions. During the explorations, knowledge about the situation and needs increases. However, the further the process, the harder it is to make changes. This tension between information and influence is part of every building project, but especially in case of building with laypeople. The residents need a few design cycles in order to be able to clearly state what they want, to be able to consider options and to make choices.

The use of a support structure to structure the design and the design process

In the Marepark project, a grid structure eventually was introduced to deal with the issues of varying group composition, evolving wishes and chaotic decision-making. The grid structure, developed by the architect, was important to manage the variations, both caused by changes in group members as by changes of the residents' wishes. The developer explained:

'The architect had subdivided the building in zones of 3.30 meter and that helped us a lot. [...] Because we had that grid structure, we could actually deal with alteration within/ A resident came and said: ''Jee, I had only 90 square meter but actually want 210.'' ''Well fine, we will just include some extra.'"[16]

The grid structured the design itself, with all the divergent individual wishes. But is also structured the process. It created clear levels of discussion by making a distinction between the collective and the individual, and it smoothened decision-making by assigning specific responsibilities and voice to the levels. The architect explained:

'I don't believe in complete freedom of a collective of private commissioners. You have to steer that. You have to have a concept. [...] Because otherwise you cannot take decisions. There has to be a bodice within you define freedom. Freedom in restraint. That, at least, is my belief. Otherwise it remains vague.'[17]

After the introduction of the grid, the process indeed became more structured and clear. The architect provided the residents with methods and tools to make their own design, to express their preferences, for example regarding the colours of the window frames:

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als lang niet meer mogen meedenken, omdat bouwkundigen dan al aan de slag zijn, dan willen ze vaak nog van alles. Maar dan moet er gewoon gewerkt worden. Dan moet het gewoon één kant op.'

[16] Hij [the architect] had het gebouw eigenlijk opgedeeld in zones van 3,30 meter en dat heeft ons heel erg geholpen. [...] [O]mdat we die maatstructuur hadden, konden we eigenlijk binnen de opzet van het plan/ Er kwam iemand die zei: "Goh, ik had eigenlijk 90 vierkante meter, maar ik wil eigenlijk 210." "Nou prima, dan trekken we er nog een stukje bij."'

[17] 'Ik geloof niet in volledige vrijheid van een collectieve bewonersgroep. Je moet dat sturen. Je moet een concept hebben. [...] Omdat je anders geen beslissingen kunt nemen. Er moet een keurslijf zijn waarbinnen je vrijheid definieert. Vrijheid in gebondenheid. Dat is in ieder geval mijn overtuiging. Anders blijft het zweven.'

'We, for example, have talked about […] colours. During this conversation, someone mentioned: "it is fifty shades of grey". The options indeed were five shades of grey. It is about the residents' appropriation of a certain imagery, which was defined by me.'[18]

The attitude of the architect

Interestingly, the architect appropriated the collective level of the project, including the grid support structure and the exterior of the building volumes. The resident said:

'The architect has said: ''The exterior is mine. That is where I want to make my mark.'' And that is off course his. There he was very stringent. [...] For example the windows: You could position the windows where you wanted. But he had a clear opinion about that. ''That I wouldn't do, I would do it like this.'' In a charming way, he is able to do that. He is very good at that. With a friendly smile; that is his nature. But that doesn't annoy me at all.'''[19]

The residents accepted and even appreciated this steering role:

'When you hire an architect, then the artist role is part of it. Because you know nothing about it. You just ask. You want a proposal; a bandwidth of what is possible and what is not. As a result, you can clearly see the architect's signature.'[20]

However, trust was important to give this degree of control to the architect. The open and transparent attitude of the architect seemed to be key in the realisation of this trust. The architect was not afraid to express his opinion, but explained his opinion and left space for disagreement with his opinion. He was willing to set his preferences aside, if the residents wanted that. A resident said:

'Be open; being able to listen. And showing the willingness to not only focus on your own design. That is important. Frederik was well able to do that.'[21]

The architect stated about this:

'I emphasised: ''When you surely want it differently, then I tuck myself. Because that is my role. But this is what I think.'' So it has become a building to my satisfaction. I feel proud.'[22]

[18] 'We hebben het bijvoorbeeld gehad over [...] kleurstelling. Of een gegeven moment riep iemand: "Dit is fifty shades of grey". Of eigenlijk five shades of grey. Nou dat was het ook inderdaad. Het is meer een soort appropriation, of het eigen maken van/ Het je eigen maken als bewoner van een bepaalde beeldtaal die wel vanuit mijn koker is gekomen.'

[19] 'Hij [the architect] heeft gezegd: "De buitenkant is van mij. Daar wil ik met name mijn stempel op zetten." En dat is ook van hem. Daar is hij heel strikt in geweest. [...] Bijvoorbeeld de ramen. De ramen mocht je overal plaatsen waar je wilde. Maar daar had hij wel een duidelijke mening over. "Dat zou ik niet doen, ik zou het zo doen." Op een hele charmante manier, dat kan hij. Dat kan hij HEEL goed. Vriendelijk lachen. Dat is natuurlijk een pose die hij aanneemt, maar dat vind ik helemaal niet erg.'

[20] 'Op het moment dat je een architect inhuurt, dan hoort het kunstenaars-achtige er wel bij. Want je weet van niks. Je vraagt ook; je wilt dan ook een voorstel; een bandbreedte van wat wel en niet kan. Je ziet wel duidelijk zijn signatuur.'

[21] 'Open staan voor, kunnen luisteren. En ook de bereidheid om niet alleen met je eigen ontwerp bezig te zijn. Dat is belangrijk. Frederik kon dat goed.'

A collection of individual voices

As a result of the architect's strong steering role in the collective structure and exterior of the project, the focus of the collaborative process was on the individual level. As a resident illustrated:

> '"Which tile do you want to put in the hall?" Frederik proposed slate. [...] He proposed something, then gave an explanation for it, and showed that it looked good. People are often busy with other things. They left such decisions to the architect.'[23]

The focus in the collaborative design process with the residents was mainly about the coordination and facilitation of individual wishes, dealing with conflicting demands and interests. The collaborative aspect was mainly to facilitate the individual's voice; a collection of individual voices, carefully brought together by professionals.

4.3.3. Sint Martenshof, Arnhem

The third case that was selected is the Sint Martenshof project, in Arnhem. Arnhem is a city in the East of the Netherlands, with over 150,000 inhabitants. One of its first expansions outside the medieval city walls was the Klarendal neighbourhood, in which the Sint Martenshof project is located. In the 1990s, plans were made to demolish the impoverished housing stock of Klarendal. The local community, however, successfully contested these plans. As a result of the resistance, the municipality and housing association Portaal, who together own most of the Klarendal housing stock, decided to renovate the main part of the Klarendal housing. The Sint Martenshof project is part of this renovation.

By a lack of interest from commercial developers, the Arnhem municipality and Portaal decided to initiate an alternative development process, in which residents could take the lead. Portaal and the municipality asked the advisory company Urbannerdam, experienced with the cocreative development of housing, to initiate the renovation of this U-shape building block surrounded by the Nijhoffstraat, the Hommelseweg and the Marten van Rossemstraat. The company developed a project plan and started the Sint Martenshof project. A group of residents was recruited to buy the building block to be renovated, to redevelop the dwellings collectively as collective private commissioners.

As a result, the building block of 40 small apartments has been transformed into 20 dwellings. Although the houses were very different, one architectural image has been created on the inside of the housing block. Within the block, it was decided to create a communal garden. The Sint Martenshof residents share a communal garden, in addition to a small private garden.

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[22] 'Ik heb steeds gezegd: "Als jullie het echt anders willen, dan plooi ik me. Want dat is mijn rol. Maar dit is wel wat vind." Dus het is ook echt wel een gebouw geworden waar ik zelf heel erg tevreden over ben. Trots.'

[23] 'Welke tegel ga je in de gang doen? Frederik stelde een leisteen voor. […] Hij stelt iets voor, dan heeft hij daar een uitleg bij, en dat ziet er goed uit. Mensen zijn vaak ook met andere dingen bezig. En dan laten ze dat ook een beetje zo.'

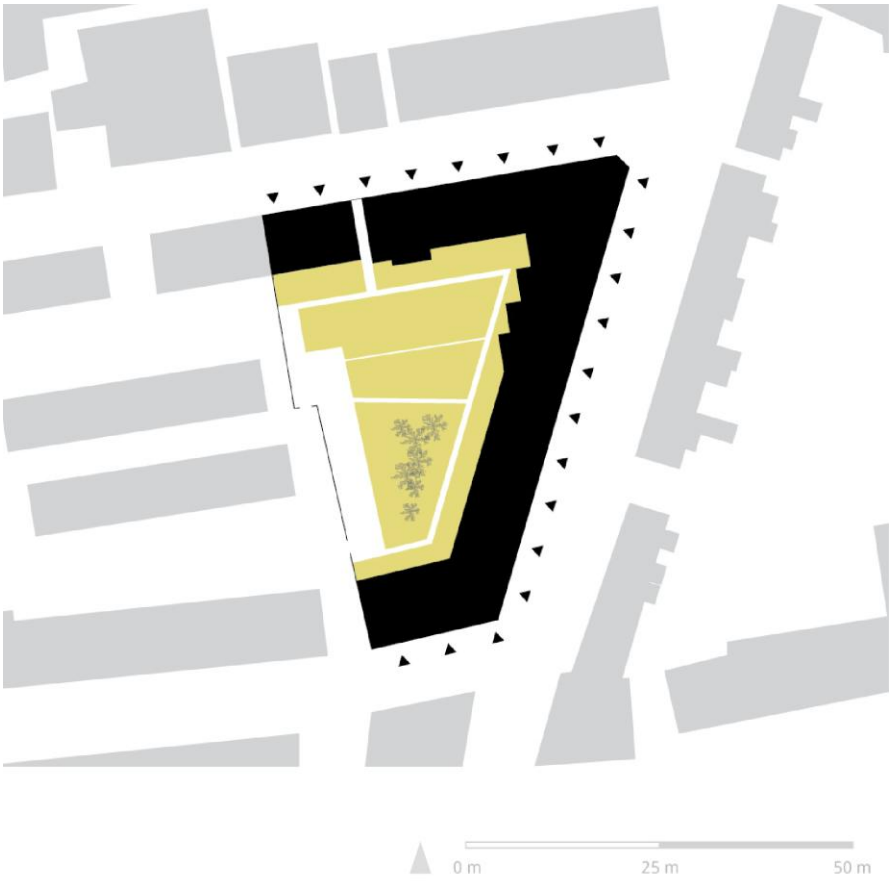

Figure 7 Plan and picture of Sint Martenshof, Arnhem

This communal aspect was an important reason for many residents to join the project, the resident explained. It offers the possibility to make use of a bigger garden than would have been possible in an individual project. Additionally, the communal property stimulates social interaction and solidarity between the neighbours.

Cocreation of the process

After the formation of the resident group, the residents had to select an architect, based on presentations of three architectural firms, brought forward by both professionals and residents. An Arnhem based office was selected for the design.

Talking about this selection process, the architect highlighted the focus on the design of the process instead of the product:

''When we thought about it, we came to the conclusion that at first instance you have to design the process. You are often obliged to think: ''O, that is a nice building, that we will do like this, let's make a beautiful design.'' But on one way or the other you have to manage the individuality. There are many interests in a collective project. So we have thought about the possibilities how to do deal with these interests.'[24]

In response to the interviewer's question if they already had presented an architectural image of the appearance of the building block, the architect answered:

'We deliberately did not do that. […] Just because you will start to fill in the blanks already, while this is typically something that people want to design themselves. You need to be sensitive to what people want. Architects and designers in general have the tendency to think FOR the people. [...] Starting with all kinds of ideas immediately is not a good idea. You first have talk about how you can work together optimally.'[25]

This was done in the first stages of the project. The residents decided that they wanted to create a common appearance within the building block. The architect was responsible for the coordination of the individual dwelling plans in relationship with this desired unity. Residents are organised collectively, but they have their individual motives, goals and interests too. The architect said:

[24] 'Toen we erover nadachten kwamen we tot de conclusie dat je eigenlijk in eerste instantie een proces moet ontwerpen. Je bent natuurlijk heel erg snel geneigd te denken: "O, dat is een leuk pand, dat gaan we zus en zo doen, leuk en mooi maken." Maar op de een of andere manier moet je al die individualiteit managen. Er zijn natuurlijk een heleboel belangen, ook in zo'n project. Dus we hebben nagedacht hoe je dat zou kunnen doen.'

[25] '[D]at hebben wij heel bewust niet gedaan. Later bij een andere selectie hebben we dat ook niet gedaan. Juist ook omdat je het dan al heel erg gaat invullen, terwijl het nu precies iets is waar mensen zelf mee willen vormgeven. Dus dat moet je ook wel goed aanvoelen denk ik. Architecten en vormgevers in het algemeen hebben nog al snel de neiging om VOOR mensen te denken. [...] [I]k denk dat je jezelf in de vingers snijdt door in het begin al met allerlei ideeën te komen. Je moet het eerst hebben over hoe je optimaal kan samenwerken.'

'You have to work on the individual interest. At the same time you have to stick to a collective story line, and help the people with that, to connect to that. Because collectively, the chance to deliver quality increases.'[26]

Learning from each others' ideas

This quality lays in a physical collective appearance, the coherence of the dwellings, but also by using the collective of people. During the design processes, both collective and individual meetings were organised with the residents. The architect presented his ideas during the collective meetings, every three weeks. In between those collective meetings, there were individual design sessions with the architect. Every resident had two or three individual meetings with the architect.

The interaction between residents and their ideas was considered to be important during the collective meetings as well, according to the architect:

'We started with a collective phase. With workshops. We organised design meetings, during which everyone came together. People showed their ideas and sketches and were responded to those sketches. The residents were encouraged to discuss their ideas with other residents as well. These exchanges inspired people to think outside their own frame of reference. We facilitated that process of exchange.'[27]

In order to support this learning and the conversations about design ideas, the architect translated the design ideas into understandable representations, easy to be interpreted by laypeople. Understanding technical drawings like plans and sections appeared to be quite hard, therefore the architect used 3D representations to visualise the design proposals.

Individual versus collective interests

Another issue that highly influenced the Sint Martenshof process, was the conflict between individual interests and the collective interest. One of the resident group members was mainly focused on his individual interests, not acknowledging the collective case. This resident did not abide by collectively taken decisions and did not show a cooperative attitude.

However, a collective development is dependent on individual contributions. It took both the residents and the professionals a large amount of time and energy to deal with this individual. Most of the residents were willing to compromise for the sake of progress, but this resident was

[26] 'Je moet bezig zijn met het individuele belang. Tegelijkertijd moet je ook een rode draad vasthouden, en daar moet je mensen in begeleiden, om daaraan aan te haken. Omdat het vanuit de collectiviteit veel kansrijker wordt om kwaliteit op te leveren.'

[27] 'We zijn begonnen met een collectieve fase. Met workshops. We organiseerden ateliermiddagen, waarbij iedereen samenkwam. Dan werd er gepraat over het project en kon iedereen ook zelf zijn schetsjes en tekeningetjes laten zien en daar reageerden wij dan op. Dat konden ze ook met anderen doen, zodat er een soort kruisbestuiving ontstond. Soms is het ook dat iemand op een bepaalde manier over iets denkt, wat een buurman kan inspireren er ook anders over te gaan denken. Dat hebben we gefaciliteerd.'

determined to realise his own ideas, even though they were in conflict with agreed common principles.

The issues with this particular resident highlighted a tension between individual interests and the collective interest. This tension was clearly evident in the conflicts with the residents. However, it was an issue in the process in general as well. The resident wondered:

'To what extent do you need to decide collectively on issues such a fence? And what about the colours of the front doors? I am not that strict in these cases. […] I know that some neighbours actually wanted a different front door colour, but they were compliant towards the group. Maybe they did not have to do that.'[28]

The architect's attitude

The last quote highlights an issue with the architect as director of the collective design as well. The participants mentioned the tension between the architect's perspective and the residents' perspective. The Urbannerdam professional criticised the architect's role in the Sint Martenshof project:

'They operates rather autonumously. They strongly had their own ideas. […] In my opinion they were too busy defending their design.'[29]

With their strong idea about this uniform appearance, the architect often gave more priority to the collective expression than the individual dwelling, the resident stated:

'The architect mainly focused on the image of the exterior. That was his job off course; we really wanted to have one image. As a result, the windows and doors are all beautifully aligned. But we have very high doors in the bedroom façade without a window that can be opened.'[30]

Implicit motives

The architect recognised his steering influence, but intended to listen to the input of residents as well:

'Actually you are steering quite a lot. Based on your knowledge and ideas of what is the best approach, you come up with a concept on the best approach. Sometimes this is a aesthetical

[28] 'In hoeverre moet je iemand opleggen hoe de schutting eruit ziet. Ik ben daar zelf ook niet zo strak in. En de kleuren van de voordeuren? […] Ik weet dat mensen van een paar huizen verderop een [voordeur]kleur hebben gekregen die ze eigenlijk niet wilden. Die waren daar dan meegaander in. Terwijl anderen/ Eigenlijk achteraf hadden ze dat misschien niet moeten doen.'

[29] 'Ze waren redelijk autonoom. Ze hadden heel erg hun eigen idee. [...] Ik vond dat de architect het iets te druk had met het verdedigen van z'n eigen ontwerp.'

[30] '[D]e architect [heeft] ook heel erg vanuit het beeld gedacht, vanuit de buitenkant. Dat is zijn opdracht natuurlijk ook, we wilden graag één beeld hebben. De ramen en deuren zijn nu allemaal mooi uitgelijnd. Maar daardoor hebben wij hele hoge deuren in de slaapkamergevel, maar geen raam dat open kan.'

consideration. At the rooftop landscape, just to mention something, we worked with one material, for example. […] At the same time we also studied the input of residents. Sometimes we embraced this input, sometimes we did not. A mutual process, that is how it can be regarded.'[31]

Although the architect's role was criticised, the architect's strong idea about a common architectural language was appreciated by both the process facilitator and the residents. The criticism regarding the architect's role seemed not so much about the focus on a coherent appearance –although at the expense of individual interests-, but more about the way this coherent appearance was introduced and part of the process. The steering actions of the architect were mainly based on implicit values and goals, as the architect acknowledged when the interviewer asked about his personal ambitions in the project:

'That is a good question. It is something plays a role implicitly.'[32]

The implicit notions of value and preference made it hard to discuss the collective design adequately. Openness about motives and values even seemed to be more important than maximum voice. Residents wanted to be guided by a professional:

'Sometimes it is easier not to have to make a choice. EVERYTHING has been rebuilt here. All ceilings, all beams are replaced. If we would do it all over again, then we had/ Yes, I would have a far more critical view on all detailing. […] There are so many decisions that you need to take. […] I would prefer a way of working in which professional offer certain options, which I can choose. I would hire an architect to help me with the interior design as well.'[33]

But openness regarding motives and goals behind such options is essential for residents to accept the professional's guidance.

4.3.4. The three cases compared

The three housing projects in Tilburg, Leiden and Arnhem illustrated three cocreative processes. This section presents the results of a comparison between the cases. While the individual case analyses were done by open coding, the advanced cycles of coding moved towards a focus on the understanding of the role of the architect in the cocreative design process.

[31] 'Eigenlijk stuur je wel behoorlijk hoor. Op basis van je kennis en ideeën van hoe je het het beste kan aanpakken, kom je natuurlijk wel met een concept hoe je het het beste kunt doen. Soms is dat esthetisch. Stel het daklandschap, ik noem maar wat, daar werken we zoveel mogelijk met één materiaal. […] Tegelijkertijd hebben we ook input die we kregen bestudeerd en omarmd. Soms wel en soms niet. Echt een wisselwerking, zo kun je het wel zien.'

[32] 'Dat is op zich wel een hele goede vraag. Het is vaak iets waar je heel onbewust mee bezig bent.'

[33] 'Soms is het makkelijk om niet te hoeven kiezen. Bij ons is ALLES verbouwd. Het enige dat is blijven staan zijn de buitenruimte. Alle plafonds, alle balken zijn vervangen. Dan begin je zo met een schone lei, dan hadden we/ Ja, ik weet ook eigenlijk niet hoe we het dan nu zouden doen. (…) Ik zou nu nog veel kritischer nadenken over alle details. […] Ja joh. Er zijn ZO VEEL beslissingen die je moet nemen. […] Misschien zou ik het nu zo doen dat professionals meer keuzes zouden voorleggen. Dan zou ik ook een architect in de armen nemen voor het binnenwerk.

The results from the five interviews with the architects beyond the three cases supported the cross-case analysis and the interpretation of the results with regard to the architect's role. The results of the additional interview study with five architects are interwoven with the cross-case analysis results.

4.3.4.1. Cocreative design in practice

In all three studied cases, the future residents of the designs were involved in the design process. However, the three projects show different interpretations and implementations of the concept of cocreation. In the Tilburg case of De Stam and the Sint Martenshof project, the collective was a clearly determining layer or entity in the process. This collective entity was less present in the Marepark case, which could rather be characterised by a collection of individuals. The collective, in this case, was more represented and shaped by the professionals involved in the process. The architect expressed a clear ownership of the collective elements of the design. Residents were enabled to have a say on the collective design, but the primary focus of the residents was on their individual dwellings. Group discussions tend to focus more around the coordination of individual ideas and interest than on collective motives and qualities.

Despite a different focus, design problems and solutions were explored collectively in the Marepark project and the Sint Martenshof project. This was not really the case in the De Stam project. De Stam project is the only project in this multiple-case study that was originally initiated by residents. However, it can be argued that this case showed lower degrees of cocreation. Not so much because of the limited voice of the residents, but more because of the conflictive atmosphere during the process. Architect and residents were not able to create a design process that was really explorative, constructive and deliberate, exploring needs, goals, motives and interests, searching for creative design solutions. Actors were hardly willing to change their minds about their initial ideas and traditional ways of doing. The dialogue between parties was missing, obstructing a meaningful integration of needs and interests in the design process.

4.3.4.2. Boundary dynamics and the role of the architect

The study of the cases revealed many issues that play a role in the collaboration between residents, architects and other building professionals. Interestingly, problems were mentioned much more often than positive aspects of the cocreative process. All actors expressed a positive attitude towards the involvement of residents and the collaboration with professionals, but the perceived value of cocreation is rather abstract, often related to ideological, democratic motives. The only explicit boundary that was highlighted as an opportunity was a difference in knowledge and experience.

Differences in knowledge and experience

The divergent nature of the knowledge that participants possess is mentioned as a valuable opportunity in cocreation. Professionals bring their expertise on designing, building or developing. However, the do not have local knowledge related to a specific street, neighbourhood or building, neither do they exactly know what the users of their buildings want. The connection of professional knowledge with local knowledge and experience is considered to be a key value of cocreative design.

Different interests

However, most of the mentioned boundaries address threats or actual problems in the cocreative process. The most prominent issues are highlighted here. For example differences in interests.

Looking at the three cases, the relationship between architects and residents appears to be a layered relationship. The architect is related to each individual resident as well as to the entity of the group. The three cases showed that these relationships are influenced by the dynamics at boundaries between the architect and the individual resident and between the architect and the collective of residents. Furthermore, the dynamics at the boundaries between the individuals of the resident collectives and between the individual residents and the group appeared to be relevant to the relationship between the architect and the residents as well.

The architect, the residents' collective and the individual resident all have their interests and goals. At the level of the individual residents, these different interests can lead to conflicts within the group. These conflicts subsequently trigger new imbalances: dominant residents overshadow the quiet ones, taking an unequal part of the professional's time and energy. With this unequal distribution, the project risks frustrated residents who feel unheard and unseen. Such feelings were recognised by the resident respondents of Sint Martenshof and Marepark.

The architect as a coordinator

The architect appeared to play an important role regarding the issues between individual residents. In all the projects, the architect was responsible for the creation of a coherent set of design directives. Here, the divergent individual demands need to be blended into a coherent plan. The collective entity plays an interesting role in the relationship between architects and residents. The relevance of this entity seems to be clear; the individual residents aim to create a (partly) shared built environment, so the design project encompasses a level of shared building structures and facilities. However, this introduces new boundaries: conflicts of interests between an individual resident's wishes and the interest of the resident group as a whole. Such conflicts were mainly mentioned by the respondents of Sint Martenshof and Marepark.

Compared to Sint Martenshof and Marepark, the project of De Stam revealed relatively little boundary dynamics within the residents group and between de architect and de residents. This can be explained by the fact that the interactions in this process were strongly influenced by the rather difficult relationship between the residents' group and the housing association that functioned as the client of the project. The conflictive relationship did not address the relationship with the architect. However, the conflictive atmosphere did influence the architect's role. The architect highlighted that there was hardly space for collaborative exploration of needs and possible design solutions, impeding the architect's contribution to the process.

Although the case studies revealed many issues within the circle of influence of the architect, the co-creative architect appeared to be confronted with the consequences of boundary dynamics beyond his circle of influence as well.

The architect as a strategist

Interestingly, the architects seemed to use the different layers of interest –collective and individual- strategically. They used, for example, the collective level to trigger changes at the individual level, and used the individual level to highlight important aspect of the collective level, both related to the design process and the design product.

Three architects from the additional interview study mentioned a similar mechanism as well. One of these architects said:

'It was nice to see how individual conversations about the individual design could lead to the consideration of their façade, to the consideration of the entire exterior, to the consideration of the whole building block. People do not start with that scale, they just start with their own dwelling. But in the course of the project, the focus shifted to a broader view.'[34]

Differences in values and objectives between residents and architects

This also illustrates a frequently mentioned difference in interest between the architect and the residents; both between de architect and the individual resident and the architect and the collective. Residents' priorities on the collective level, for example, did not always resemble the architect's ideas about what the residents should consider as important. This addressed issues of control: what should be determined on the collective level and what should be determined individually? But also an issue of values; architect seemed to attach other values to the collective level than residents.

[34] '[Ik] vond het echt aardig om te zien dat als je een één op één gesprek hebt, waarbij je dus echt kan uitleggen wat er wel en niet kan in dat pand, wat er wel en niet voor de hand ligt. En vanuit dan, zeg maar, de stap naar de gevel, hun eigen pui, kon je langzamerhand de stap maken naar het hele blok. Daar beginnen mensen niet zo gauw mee, ze beginnen gewoon met hun eigen opgave en langzamerhand dijde dat een soort van uit. Dat vond ik wel mooi om te zien, naar dat hele gebouw.'

Architect 3, from the additional interview study, confirmed this by stating:

'If you are talking about building within the city, then you are talking about public aspects as well. It is the task of the architect to address these aspects.'[35]

The architect as integrator

This preferred focus on different scale levels of a design leads to a next issue. Interestingly, all three architects within the multiple-case study highlighted a certain significance or preference for an integral approach of the design situation.

The architect's dissatisfaction with the design process of De Stam related to this aspect. The architect highlighted the integral, holistic way of working and seeing as a basic value of his involvement in the design process. With this approach, the architect is able to combine various –seemingly conflicting- wishes and demands in the design. Furthermore, he mentioned the integral approach as significant to guarding coherence of the design, contributing to both the efficiency and the quality of the design. The fact that the architect was not given this role of integrator, resulted in mixed feelings toward the final building.

The integrating aspect of the architect's role was highlighted by several actors of the Sint Martenshof project as well. In contrast to the project of De Stam, the architect was explicitly asked as an integrator, with the task to smartly combine the variety of residents' demands, striving towards a coherent appearance, considered to contribute to the quality of the built environment. However, the residents experienced the architect's focus on a coherent appearance as too limiting. The coherent appearance became too important during the process; residents needed to make too many compromises, as one of the residents stated.

The architect of the Marepark project seems to represent a position in between the two architects. In contrast to the architect of De Stam, the Marepark architect was able to be an integrator, and to guarantee a coherent whole. In order to guarantee the alignment of the individuals' plans and the coherence in the design, he introduced a support structure with a grid, in which resident could realize their own ideas. He enabled the residents to create their own infill of this structure, based on an idiom defined by the architect. The architect considered the support structure really as his domain, where his authority was allowed. In contrast to the Sint Martenshof project, the residents did not experience this as too limiting.

Issues of creativity

With the use of a support structure on a grid, the Marepark architect aimed to achieve something else as well. He strongly emphasized a disbelief in complete freedom of

[35] 'Als je het over de stad zelf hebt, denk ik dat het wel goed is dat, de stad zit natuurlijk wel een publiek aspect aan. Ik vind dat zelf wel echt een taak van de architect. [...] Als het over de stad zelf gaat, vind ik het wel echt een taak.'

residents' voice and choice. Freedom can only exist within certain borders, and creativity needs constraints, he claimed. The support structure, in this way, supported the residents' abilities to create their own dwellings. The support structure was used for two reasons: it both stimulated the individual's creativity and allowed the alignment of the results of this creativity.

Related to the broadening of the residents' minds, architect 5 from the interview study mentioned:

'I always recommend the residents to organise an evening to show their plans to each other and to explain their ideas. In this way, people get to know other possibilities. They can use options they have not considered themselves yet. You learn from each other. You gain new insights and ideas. […] The value of collaboration is sharing knowledge, enabling to learn fast about what if possible.'[36]

This is needed, because people often just propose what they already know. It is the challenge to enrich the residents' frames of reference, which is easier within a collective context.

In order to enable residents to think creatively, however, architect 1 highlighted that she had to let go her preferred integral approach partially:

'We offered the opportunity to express wishes regarding plans, facades. We separated these elements during the conversations. That not in the nature of a designer; all elements are linked to each other. But it appeared to be necessary, in order to keep the process understandable for all.'[37]

This is related to the issue of integration. Sometimes compromises seemed to be needed regarding the integration.

Differences in domain-specific knowledge

The multiple-case study revealed the necessity of the enhancement of residents' domain-specific knowledge. In order to be involved in decision-making, residents need to be able to

[36] 'En ik zeg ook altijd tegen die groep van: "het is echt leuk om een dag of een avond elkaars plannen aan elkaar te laten zien, en ook te vertellen waarom je dingen je dingen doet of bedacht hebt." Want dan weet iedereen ook meer over wat de opties voor mogelijkheden bieden. Je kunt ook een optie kiezen die je niet zelf bedacht hebt. Van elkaar leer je weer. En kom je tot ander inzichten en andere ideeën. […] Het voordeel van een collectief proces is dat je kennis deelt, en daardoor meer en sneller kunt leren over wat er mogelijk is.'

[37] 'We hebben mensen individueel wensen laten uiten over plattegronden, gevels. We hebben alles heel erg opgeknipt. Als ontwerper doe je dat niet zo, want het één hangt samen met het ander, maar dat hebben we toch gedaan. Om het begrijpelijk te houden.'

make informed decisions. The Marepark project, for example, clearly highlighted the importance of this aspect. Various experts were invited during the process to elaborate on specialist topics related to housing.

The architects as a teacher

The architect plays a role in this process as well, as was confirmed by architects from the additional interview study. Architect 3 stated:

'I compare designing to teaching. You need to explain why some ideas are not possible. By explaining, you create support for design decisions. […] It does not work to just say: "that is not possible". You really need to explain it; this resembles education.'[38]

However, overcoming the differences in knowledge and experience is neither possible nor desirable. It seems useful to learn some things about domain-related aspects in order to make informed decisions, however, it does not make sense to remove all the differences. Architect 1 from the interview study highlighted this issue:

'Everyone thinks he knows it all. But that is REALLY not true. Just belief your professionals. Do not go finding it out yourself all the time. That takes a lot of time for both the resident and the professional, who needs to be paid. As a professional you need to considered many useless proposals seriously as well. We already know that is useless, but that is not allowed to say. It hard to find a right balance in this.'[39]

Issues of voice and control

The latter quote also addresses an issue of control. Some projects, such as the Tilburg project, revealed a perceived lack of control on the residents' side. However, interestingly, the interviews with the residents of the Marepark case and the Sint Martenshof project addressed a very different issue with regard to control: they sometimes did experience too much control, or voice. Having a voice resulted in the major task of making hundreds of choices. Without the experience of designing and building, making all these choices was perceived as rather hard and intensive. Having a voice seemed to make residents extra aware of all kind of details, while professionals might take decisions on such details easily. The residents appreciated the architect's guiding, steering attitude in this sense.

[38] 'Ik vergelijk het wel eens met lesgeven. Je moet mensen af en toe echt uitleggen waarom dingen niet kunnen. En daarmee creëer je draagvlak voor besluiten. […]Dus dat je zorgt dat mensen goed begrijpen hoe zo'n gebouw technisch een beetje in elkaar zit en waarom voor het maken van een gat dan bepaalde voorzieningen, dus staalwerk bijvoorbeeld, nodig is. En dat dus als zij een gat kiezen, de bovenbuurman dat dan misschien niet meer kan doen. Dat is een kwestie van uitleggen. Het helpt dan heel weinig, zeker bij dit soort bijdehante types/ Het helpt natuurlijk niet om te zeggen: "dat kan niet". Dan gaan ze zelf bellen en zeggen ze: "het kan wel". Je moet het echt uitleggen. Ik vind het echt parallellen met onderwijs hebben.'

[39] 'Iedereen vindt dat hij alles weet. Dat is ECHT niet altijd zo. Neem ook eens wat aan van je professionals. Ga niet overal zelf het wiel opnieuw uitvinden. Ten eerst kost dat heel erg veel tijd en je betaalt voor iemand, en het kost ook de professionals heel veel tijd. Omdat je heel veel foute dingen ook serieus moet behandelen. Waarvan wij al weten dat het niet goed is. Maar dat mag je niet zo zeggen. Dat is wel een moeilijk onderdeel.'

The architect as artist

The architects of Marepark and Sint Martenshof confirmed this role. The Marepark architect, for example, clearly highlighted his preferences regarding the building's appearance. A similar view could be recognised in the Sint Martenshof project.

Architect 5 highlighted that the architect is allowed to persuade residents if needed:

'It is your expertise to make beautiful things. So you need to clear to people if they propose something that does not fit.'[40]

However, a too steering role was perceived as destructive, as the resident from the Sint Martenshof project stated. The residents did want to be seduced and surprised by the architect's ideas, but did not want to be overruled.

Architect 5 stated, for similar reasons, that the architect has to make compromises now and then:

'You need to make the best of it. But that is not always possible. You sometimes deliver not the most beautiful projects. No stars of architectural quality. […] As an architect, you are the designer of people's wishes. If people want more space for less money, you cannot blame them for that. You need to make something that is acceptable then. Get used to it.'[41]

4.3.4.3. The cocreative architect: a mix of conflicting roles

The issues at boundaries in the cocreative process raise questions with regard to the role of the architect in cocreation. Architects appeared to perform as teachers, integrators, strategists, coordinators and artists. The cocreative architect needs to perform these different roles within the cocreative design process in order to facilitate a social learning process and to respond adequately to boundaries.

It is interesting to note that the roles are often coexisting, but conflicting. The architect of the De Stam project clearly recognised the conflicting roles expected of the architect.

[40] 'Dus je kennis is dat je iets moois kunt maken. En daar moet je ook heel duidelijk in zijn als mensen iets willen dat niet past.'

[41] 'En je moet proberen er meer van proberen te maken. En soms is dat heel moeilijk. Dan krijg je geen hele mooie projecten. Het zijn geen pareltjes van architectonische kwaliteit. […] Je kunt wel mooie dingen maken maar, uiteindelijk ben je als architect een vormgever van wensen van mensen. En als mensen het belangrijk vinden om heel veel ruimte te hebben voor minder geld. Dan kun je ze dat niet verwijten. Dan moet je daar iets van maken wat aanvaardbaar is. En wat is aanvaardbaar? Dat is vaak een kwestie van wennen. Je bent als architect niet uitvinder van altijd iets nieuws, dat is niet zo. Dat bestaat niet.'

'There is a tension between the need for clear conditions and giving voice. It is a delicate job to find the right balance. […] It is not able to capture design within a linear process, but people demand schedules and targets.'[42]

There is an inevitable tension in the architect's functioning in cocreation, risking:

- Either a too brief or a never-ending exploration of problems and solutions

The iterative exploration of problem and solutions supposed to be essential to the cocreative process. A too limited amount of iterative steps might lead to a limited change of understand among the participants. However, the process does not need to take too long either. The stage can be characterised as highly uncertain. Architects tend to be able to deal with this uncertainty rather well. However, for residents it may feel too uncertain, risking the residents quitting the project.

- Either a too narrow or a too extensive explorative process

Architects tend to highlight their integral approach as essential in dealing with the divergent perspectives of residents. Indeed, their holistic responses to wicked design problems, in which problems and solutions are explored together, are very valuable. Narrowing the process to a limited number of issues to make it accessible for residents might impede finding 'promising combinations'. However, integrating too many project elements in the design process may lead to confusion and frustration. Some elements of the project's process might benefit from alternative approaches, such as a consultative approach.

- Either a too facilitating or a too persuasive attitude

Architects need to enable the residents to generate and evaluate design solutions during the explorative design process. The cocreative architect, subsequently, needs an open mind towards the residents' contribution; they need to be willing to learn from the residents. Then the cocreative process can become a two-way process in which residents and architects are transforming each other. However, both a too facilitating role and a too persuasive role threaten this mutual learning process. Being too persuasive can lead to residents feeling frustrated and unheard. On the other hand, being a mere facilitator constrains the utilization of the architect's expertise. Furthermore, a too serving attitude is perceived as rather unattractive. Residents appreciate the architect's authority to a certain extent.

Cocreative architects need to find the right mix of roles during the course of the process. Within this mix of roles, finding the right balance in conflicting elements of these roles is key.

[42] 'Wat voor mij een spanningsveld is, is de spanning tussen strakke kaders stellen en juist veel ruimte geven. Dat is een delicaat spel. Ik ben iemand die dat heel makkelijk kan laten vieren, terwijl ik het ondertussen ZELF best wel in de gaten houd. Maar dat weet de rest dan niet. […] Dat kun je niet vatten in een rechtlijnige procedure. En dat moet je ook niet willen. Maar mensen eisen dat natuurlijk op een bepaald moment wel. Mensen willen wel graag een planning. "Wanneer is het dan klaar? En hoe gaat dat dan?"'

4.4. CONCLUSION

The multiple-case study showed three examples of cocreation, which illustrated discrepancies and imbalances within the cocreative design process. Issues regarding differences in knowledge, interests, values, control and creative skills were discussed.

The role of the architect in cocreation needs to be understood in the context of these issues. The act of designing seemed to be a useful way to explore the nature of the issues. The collective design process offers the opportunity to explore differences in knowledge, interests, values and perspectives.

In order to create such a process though, the architect needs to acknowledge and recognise the boundaries between participants. Subsequently, the architect needs to align his or her actions to these boundaries. The architect needs to draw or maintain boundaries where needed; the architect needs to cross boundaries where needed.

This means operating in the face of tensions. It is about finding the right balance at these tensions at boundaries. It can be concluded that this needed balance requires more than a single role, such as defined by the dominant models of the architect-as-technician or the architect-as-artist. Cocreation requires a careful mix of roles. Every boundary requires a different approach, with different actions. The multiple-case studied showed aspects of the architect as a coordinator, teacher, integrator, artist as well as a strategist. By continuously finding the right mix of and balance between all these roles, the architects can deal with the inevitable tension of cocreative design; effectively changing reality, both in a social sense –addressing the participants within the cocreative network– as well as in a technical sense –addressing the building itself.

It is important to note that the architect cannot be regarded as a neutral actor in such processes. The architect needs to facilitate, shape and fuel the collaborative process of learning at boundaries of the group as a whole, but he or she needs to fully engage in this process as an actor as well because the architect's involvement inevitably appeared to introduce boundaries as well. The architect's role in cocreative design cannot be regarded in isolation. The architect needs to consider his or her actions in relation to the boundary dynamics, including own boundaries. However, the cases showed that these boundaries were not always properly discussed, leading to some miscommunications and frustration, mainly because the architect was not always aware of and explicit about the differences in motives, values and objectives at stake.

5. EXPERIENCING COCREATION: THREE WORKSHOPS

In order to enrich the results from the multiple-case study, the author of this report did not only study the cocreative practice by observing design meetings and interviewing participants, but by experiencing cocreation as well. In the role of architect, the author organised three workshops with a group of people who would like to develop a housing project together. The reflection on this personal experience and the residents' experiences with regard to these workshops contributed to an enriched understanding of the cocreative process, the relationship between architects and residents and a more informed interpretation of the literature and research data.

5.1. METHODS

Three cocreative workshops were organised with a group of six future-residents who would like to develop a housing project together. The author of this report studied (elements of) the cocreative process by practicing cocreation –in the role of the architect– and subsequently reflecting on the practical experience –in the role of researcher again. This approach resembles an action research approach.

5.1.1. Elements of action research

Through the workshops, the cocreation of housing design was investigated using elements of an action research approach, which is 'a participatory process concerned with developing practical knowing [...]. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of concern to people [...]' (Reason & Bradbury, 2008, p. 4). It is a practice of participation, in which those who traditionally are subjects of research to a greater or less extent are engaged as inquiring co-researchers. Within action research, communities of inquiry and action evolve, addressing issues that are significant for those who participate as co-researchers. Such communities typically engage in cycles of action and reflection: in action stages co-researchers test practices; in reflection phases they make sense together and plan further actions. (Reason & Bradbury, 2008)

In the workshops organised in the context of this research, elements of this approach were used. In action research, the communities of inquiry participate in setting the research problem and planning the action stage. For the workshops in the context of this research, this is only partially the case. In case of this report, the community of inquiry addresses both the residents and the architect. However, the residents were not involved in the planning of the action stage – the workshops– and the setting of the problem; they were only involved during cycles of reflection.

The author as architect –part of the community of inquiry as architect, but the researcher of this community of inquiry as well– was involved in the setting of the problem, the planning and initiation of cycles of action and the cycles of reflection. Usually, these roles are not combined within one person. However, the author's experience as an architect in a cocreative design

process provides unusual, but helpful insights for the author as a researcher of cocreation in architecture.

5.1.2. Workshop objectives

The aim of the workshops was twofold. On the one hand, from the author's perspective as a researcher- the workshops aimed to gain additional insights into the cocreative design process and the relationship between architects and residents in such processes. On the other hand, from the author's perspective as an architect, it was aimed to experience cocreation. This experience supported the author-as-researcher in the understanding of the cocreative process and the architect's role in this process.

5.1.3. Workshop design

A group of six people -three couples- was gathered for the workshops. Important in the search for this group was the presence of an actual, real desire to develop housing, by a cocreative process. In collaboration with Veldacademie, a local knowledge centre dedicated to socio-spatial issues in the city of Rotterdam, it was possible to gather such a group and to start a cocreative housing design process.

Such a process, however, usually takes more time than was available for this graduation project. Therefore, the process was limited to a series of three workshops within a time span of five months, between November 2015 and March 2016.

Due to this limited number of workshops, some concessions had to be made with regard to the realism of the cocreative process. It was decided, for example, to exclude the search for a building site from the cocreative process. Although this is an important part of the development process, it would have taken too much time to seriously research the technical and financial feasibility of different sites. For the purpose of this graduation project, the researcher had chosen a design site, on the basis of input from the future-resident participants during the first workshop. Several aspects of the cocreation workshops, therefore, tend to a simulation of reality. However, the partly simulated character of the process also enabled the researcher to design workshops that dealt with exactly those elements of the cocreation process that were of interest for the research. The choice for a design location by the researcher, made it possible to focus on the collective design process during the three cocreation workshops.

Because of the focus on the collaborative design process, different design assignments were developed by the author. These assignments were designed to engage the residents in the act of designing. Additionally, they were made to trigger a group discussion about the residents' considerations with regard to the design.

During the workshops, the author-as-architect made notes with regard to her thoughts and feelings as an actor in the cocreative process. At the end of the workshops, the residents were asked to reflect on the workshops and the role of the architect in the workshops.

In order to be able to analyse this feedback and the workshops in general as a researcher again, the meetings were all video recorded. The author watched the videos, observed the workshop interactions, and reflected on the process in general, the relationship with the residents and the role of the architect.

Of course it is not possible to make a valid distinction between (observations of) the architect and the researcher, when these roles are contained within one person. The different moments of making notes obviated this issue as much as possible. Still, the contributions of the workshops to the research should be valued differently than the contributions of the case studies. The workshop results can hardly be defined as scientifically valid or reliable. However, experiencing practice added useful insights into cocreation; it highlighted new issues and emphasised issues from literature and case study data. The experience supported the interpretation of the both literature and case study results.

The video recordings and observational notes are accessible via the author of this report.

5.2. WORKSHOP DESCRIPTIONS

The first workshop was used to introduce the series of workshops and to get to know the workshop participants. The author moderated a group discussion in which the participants were asked to elaborate on their dreams for the future and their motives for the desire to develop this future collectively. Furthermore, various themes related to collective housing projects were introduced and explored. These themes included the desired degree of social interaction, the preferred membership of the collective, the demanded collective facilities, and wishes with regard to location and building type. The input from this first workshop was used by the author to select an appropriate design location: a former school building at the Zoutziedersstraat in the city of Rotterdam. This building site was used to design the second and third workshop, providing a basis for a collaborative design process.

In the second workshop, the residents' wishes and demands were further explored during two design assignments. These assignments addressed the collective elements the participants would like to integrate in their new living environment. With the help of a prepared toolkit, functions had to be translated into spaces and relationships between these spaces. Each participant had to determine which facilities he or she wants to include in the project. Subsequently, they had to assign a certain number of square meters to this facility, using a limited amount of space. Because of the limited space available, the participants were urged to think about what they perceive as important; what their priorities are. In a second assignment, the participants were asked to make a configuration of the spaces on the building site. With this assignment, other variables of the urban system, such as the orientation with regard to the sun, were added to the process.

The participants were asked to do the design assignments individually, where after they presented their results and related considerations to the group. During and after these presentations, a group

Figure 8 Residents explaining their workshop results as part of the third workshop

Figure 9 Discussing design proposals with the resident group during the second workshop

discussion was facilitated in order to refine the –architect's and residents'- understanding of the participants' needs and to explore similarities and differences between the participants.

The programme of the third workshop resembled the second one; in this workshop a design assignment was done as well. However, this workshop started with the discussion of the design sketches made by the architect –the author of this research-, based on the results of the second workshop. Residents' reflections on the proposed design principles were stimulated. Subsequently, the participants were asked to make a mood board. Whilst in the previous workshop the future built environment was discussed on the basis of functions, facilities, square meters and relationships between spaces, now the residents had to focus on appearance and atmosphere, addressing issues such as materials, colours, form, the relationship between the dwellings and the street, the expression of entrance of the building and so on.

Again, participants were asked to present and explain their work to the other group members, stimulating the discussion among residents and between residents and the architect.

5.3. RESULTS

The experience and the analysis of the experience of the workshops provided interesting insights into the cocreative design process between architects and residents. This section presents the results based on both the notes of the author-as-architect and the analysis of the video recordings by the author-as-researcher.

The use of jargon

As an architect, the author was rather surprised by the differences she experienced with respect to the residents in the context of housing design. Even though the author is an inexperienced architect, discrepancies in talking and thinking about buildings were noticed. Although the author-as-architect was highly aware of the laymen participants, for example, jargon unknown to the residents was unconsciously used. Questions of the residents revealed this unintentional issue. For example, the concept of mass studies, quite usual in architectural design, was not understood by all residents, but considered to be known to them by the architect.

Different perceptions of the built environment

A second difference that was experienced addresses a difference in the perception of the built environment. Although not completely unknown, the author experienced that laymen indeed perceive buildings differently. This became clear in the discussions about the design location, the former school building at the Zoutziedersstraat in the city of Rotterdam, built in 1924. Whereas the architect was rather enthusiastic about the building's appearance with its symmetry and sophisticated brickwork decorations, for example, the residents defined its appearance as too formal and too dark, and therefore as somewhat unpleasant, resulting in a somewhat disappointed feeling. Different things were valued and they were valued differently.

A tendency to react on details

Thirdly, the workshops highlighted a difference between residents and the architect in the understanding of the design process. Although the author-as-architect tried to emphasise the exploratory aim of the design assignments and the design sketches, residents seemed to conceive the visualisations of possible futures more as definitive results, even when they created these visualizations themselves. Once an image or configuration was created, it was often treated as given. The residents tended to react on details rather than on the bigger picture that the visualisations tried to communicate. The architect, therefore, experienced the initiation of a useful design discussion as rather difficult.

Feeling vulnerable

Additionally, the sharing of design sketches was experienced as slightly uncomfortable by the author-as-architect. These sketches are first thought, first ideas. They represent a train of thoughts rather than a satisfactory and complete design. It felt quite vulnerable to show these incomplete, preliminary thoughts to the residents, giving them the opportunity to criticize the work.

Difficulties with creativity and design tasks

The residents appeared to experience difficulties with regard to the design elements of the workshops as well. The videos show a degree of hesitation to start designing during the design assignments. The residents expressed comments such as:

'It is quite complicated. […] You may give a second opinion.' (to architect)[43]

The residents needed some time before they started to think creatively. This seemed to be influenced by their inexperience regarding methods of architecture, representations, and spatial awareness. One of the residents commented:

'It is hard for me to imagine it'[44]

And:

'I have no spatial awareness. Please tell me how big 48 square meters is.'[45]

Interestingly, residents showed different responses to these difficulties, illustrated by these quotes:

'I realise that I think: is this possible? I am trying to find out if my ideas are even possible. I am limited in my thinking by the circumstances. On beforehand I already think: this is not possible.'[46]

[43] 'Het is wel ingewikkeld. [...] Een second opinion mag jij geven hoor.' (to architect)

[44] 'Ik vind het wel heel moeilijk om voor te stellen.'

[45] 'Ik heb het ruimtelijk inzicht van een druif. Kun je aangeven wat ongeveer 48 vierkante meter is?

[46] 'En ik merk ook dat ik denk: kan dat wel? Ik zit met dat gebouw in mijn hoofd. Ik ben ook aan het zoeken of ideeën wel echt kunnen. Ik word wel door de omstandigheden beperkt. Dat je al van te voren denkt: nou, dat kan eigenlijk helemaal niet.

And, in contrast:

'The first image I took, that could be my house. I loved it immediately. […] I just collected images based on my intuition. It is hard for me to imagine all the detail, no, so I just started working in an associative way.'[47]

During the collective reflection on the workshops, the residents highlighted that they experienced difficulties. They preferred to have more time for the assignments.

Exploring perspectives, ideas, needs, motives and values by design

But despite the difficulties, the workshops contained various interesting and useful conversations too. The collective reflection on the concrete design assignments' results appeared to reveal many of the reasons behind the participants' results. In these discussions it was possible to discover shared needs, common values and collective motives, but explore –seemingly– conflicting ideas as well.

The concrete topic of the inclusion of family homes, for example, enabled a discussion on issues of privacy and diversity. Another example addressed the relationship between private and public spaces. The concrete exploration of configurations of spaces facilitated a conversation about the desired interaction with the neighbourhood and the social value of the project.

Facilitating learning

Additionally, the workshops showed that residents learn from each other, by visualising and discussing their ideas. One of the residents presented the results of a design assignment by saying:

'For me it is still rather chaotic. I tend to change all the time. When I hear something from others. […] Your idea was nice as well. I can still alter my proposal.'[48]

In the reflections on the workshops, the residents said that they learned from the author-as-architect as well, mainly by introducing topics and focusing attention to these topics.

During the workshops, residents' ideas about their future living environment changed. A resident, for example, stated:

Dat merk ik. (…) Ik kan wel een plaatje met groene takjes opplakken, maar dat zegt dan niet zo veel. Daar kom ik niet helemaal uit.'

[47] 'Het eerste plaatje wat ik pakte, dat zou het zo kunnen zijn. Dat vond ik gelijk al heel erg mooi. [...] Dat vind ik er ook geweldig uitzien. Ik heb het maar gewoon op mijn gevoel gedaan, wat ik er leuk uit vond zien.[...] Ik werk echt helemaal op mijn gevoel. Ik pak eruit wat ik mooi vind. Ik vind het heel erg moeilijk om al te visualiseren in detail. Om dat al helemaal in details te gaan bedenken, nee, toTAAL niet. Dus ik ben maar gewoon heel associatief te werk gegaan.'

[48] 'Nou, voor mij is het nog een beetje een chaos. Ik heb ook nog steeds de neiging om te veranderen. Dan hoor ik wat en dan denk ik: "Oja, ik moet nog een blokje daarbij." [...] Ook het idee van wat jij zei, dat vond ik ook leuk. Maar je kan er nog mee schuiven.'

'Initially, I thought I would like to live down stairs. But I realize that I can go down stairs when I want, even when I live in an apartment. So I am still thinking about what I want. My initial idea has changed.'[49]

During the reflection on the workshops, the residents recognised these learning aspects as well:

'The size of my space of thinking really increase. […] "A, this is possible as well. En this as well. And that. And this." And it goes on and on. My thinking has been broadened.'[50]

5.4. CONCLUSION

The workshop experience revealed discrepancies between the architect and residents in perception of (the appearance of) buildings, values, language used to describe buildings and the building design process, creative skills, the interpretation of drawings and the perceived role of the design process in the development of the built environment.

Some of these discrepancies resemble boundaries found in the multiple-case study, such as a different interpretation and appreciation of the existing context. The workshop experience adds insights into the boundaries related to the performance of actual design tasks with non-designers. A focus on details and limited creative skills were only brought forward by literature, but not mentioned by the case study respondents.

However, the author-as-architect was not always aware of the boundaries. Jargon, for example, was still used, although the architect was highly aware of the lay residents. Furthermore, the architect did not always understand the boundaries properly. Although, for example, difficulties with regard to spatial thinking and creativity were expected, the influencing degree of these difficulties was underestimated. This clearly impedes a proper dealing with boundaries.

The residents' difficulties with spatial thinking and creativity highlight another issue as well, addressing the (usability of the) cocreative design workshop output. The design results produced by the residents tend to be a rather literal translation of their viewpoints. The value of the design assignments with the residents seemed to be mainly situated in the discussions and reflections the assignments triggered, more than the design solutions they provide. The collective design process proved to be useful to enable exploring and developing residents' needs, values, priorities and goals, together with learning about the domain of housing design. Residents brought forward several design ideas as well. However, the integral combination of these ideas and the holistic integration of the different needs and demands still seemed to be mainly in the hands of the architect.

[49] 'Ik dacht eerst, ik wil echt beneden. Maar ik realiseer me steeds meer, we wonen nu ook boven, en dan KAN ik dus gewoon naar beneden als ik dat wil. Dus ik ben nog even aan het denken. Eerst dacht ik dat ik ECHT beneden wilde, maar nu denk ik van ja, misschien ook wel boven. Dat maakt me eigenlijk niet zo veel meer uit.'

[50] Dat is wel gebeurd he, dat de ruimte in wat kan in je eigen denken echt veel groter is geworden. [...] Er is meer ruimte in je denken. "O, dat kan dus ook. En als dat kan, dan kan dat ook. En dat kan OOK." En dat gaat maar door.'

The workshops seem to confirm that the major value of the cocreative design process is in the exploration of divergent perspectives, motives, values and ideas –social learning at boundaries-, rather than the collective creation of design solutions. These conclusions also underline the need for different –conflicting- roles as an architect, including the architect as a teacher, as an integrator and an artist.

6. CONCLUSIONS

Cocreation presents a new set of conditions that challenges the architect's practice. It urges architects to rethink their profession and to redefine their practice. What exactly is their role in the design process when residents –in contrast to traditional processes– are involved from the very start? However, relatively little appeared to be known about cocreative relationships and how architects and residents engage in cocreation.

This research, therefore, aimed to explore the cocreative design process and the architect's practice in this process, in order to support architects who are or want to be involved in cocreation. The findings from both literature and the empirical studies were used to reflect on the architect's practice in cocreative housing projects, in order to answer the main research question:

What is the role of the architect in the cocreative design of housing with a group of residents?

This chapter puts forward the final conclusions, derived from the research results presented through this report, addressing the concept of cocreation, the cocreative design process, issues in the cocreative design process and the role of the architect in these processes.

6.1. Answering the research questions

What is cocreation?

In the introduction of this report, cocreation was defined as 'collective creativity' (Sanders & Stappers, 2008). A simple definition. But understanding the exact meaning of collective creativity seems rather complicated. Cocreation refers to a process that is neither completely bottom-up nor entirely top-down; neither completely controlled by professionals nor in the power of residents. It can be understood as an integration of these two approaches, in which designers and non-designers, experts and non-experts work together as partners. The nature of this partnership varies from project to project.

The need to acknowledge differences between participants

However, in every case the introduction of residents as partners in the design process introduces interests, values, power, skills, knowledge and perspectives that differ from the architect. These differences can be defined as boundaries. Working together with residents as partners inevitably makes working with these boundaries central to the process.

These boundaries between participants encompass both the value and the weakness of cocreation; they can be places of unusual learning but places of misunderstanding and distrust too. In order to realise effective partnership between the divergent partners, therefore, cocreation needs to be regarded in ways that embrace (tension because of) differences in power, values, knowledge and perspectives as inescapable, essential and productive.

A process of reshaping boundaries

At boundaries, in the interaction between architects and residents, the discrepancies and imbalances between them are negotiated and mediated. By this process of negotiation and mediation, the discrepancies can be reversed, strengthened, resolved, faded; boundaries are being reproduced and changed through interaction. The concept of cocreation needs to be understood as a collection of such dynamic boundary processes, in which boundaries are both the start and the result of interactions between the cocreative participants. Based on literature, this collective process of change was argued to be understood as a process of social learning, defined as a change of understanding within a network through social interaction within that network.

2. What are the characteristics of the cocreative design process?

The necessary change of understanding can be facilitated by the act of collectively designing, a collective design process. Within this act of collectively designing, however, not all actors 'design' to the same extent. When referring to the design process in general, the definition of cocreation as collective creativity seems to grasp the cocreative reality. The case studies showed, for example, that residents were involved in the process of generating ideas, developing ideas and evaluating ideas, together with the designer. However, when zooming in on this involvement in greater detail, as was done in this research, it is possible to make some questioning remarks with regard to the definition of cocreation as 'collective creativity'.

The sense and nonsense of collective creativity with non-designers

Although residents can be involved in aspects of the creative design process, not all elements of the creative process seemed to be easily accessible for non-designers. In the iterative (re)framing of problem-solution pairs to explore the problem and solutions space of the design project, the value of the residents' involvement mainly seemed to address the evaluation of these frames. By the evaluation of these frames, the residents provided valuable insights into their –often implicit– needs, contributing to an adequate interpretation of the design problem. However, the residents' contributions to the element of synthesis -the creative link between analysis and evaluation in the iterative design cycle- appeared to be relatively limited. If residents generated design ideas, this generative process tended to lack the integral, holistic approach that was assumed to be needed in the (cocreative) design process, the research showed.

Most residents -in the case studies as well as the workshops- expressed to be satisfied with this limited involvement in the creation of actual design proposals. A certain degree of surprise and guidance was appreciated.

This aspect does not seem to be captured well by the definition of 'collective creativity', when applying creativity in a more narrow sense. Cocreation does not seem to be collective creativity, but rather the collective exploration of problem and solution space in design projects. This exploration, in which perspectives, ideas and preferences are discussed, encompasses the main value of cocreation. For this exploration, creativity is essential, but the creative capital does not necessarily have to come from the residents themselves.

A collective, iterative process of framing and reframing: the value of cocreation

Perceptions of the design problem and design outcomes are rather divergent in the cocreative design process, due to differences in objectives, values, worldviews, and knowledge. Through the framing and reframing of the design proposals, these differences can be collectively explored, discussed and reshaped. Reflections on design statements proposed by a specific actor enable to trigger collective reflections on the norms and reasons behind the statement of this actor, enhancing the participants' understanding regarding this actor. Additionally, the same discussions can trigger reflection on one's own norms and reasons behind certain ideas or positions. By iteratively creating and reflecting on design proposals, collective learning cycles can be realised. Through these learning cycles, a common understanding of (the discrepancies between) each other's perspectives and positions has to be created, together with a common understanding of potential design solutions.

A close link between the social and technical reality of the design

In this way, the cocreative design product needs to be understood as a representation of the cocreative design process. In the cocreative design process, the social system and the technical or physical system are closely linked. In cocreative design processes, the collaborative process shapes how the design is developed, but the design itself can shape and structure the collaboration as well. Like a design can have rhythm, hierarchy and proportion, a process can have these characteristics as well.

3. What are opportunities and threats in the cooperation between groups of residents, architects and other building professionals in the cocreative housing design process?

However, this recognition is poorly included in the dominant conceptions of architectural design and the architect's profession.

The ignorance or suppression of boundaries: a major threat

Architecture appeared to have a rather ambiguous relationship with cocreative design. By some architects the involvement of residents in the design is perceived as threatening their professional values, their expertise and autonomy; hinging on an idea of necessary isolation from the integrated fields of form and people. In contrast, other architects present themselves as fervent supporters of the cocreative ideal, perceiving it as all good, often conceiving themselves as mere facilitators of the residents, without imposing on them. However, as literature showed, these relationships do not deliver satisfactory results.

Both positions regarding the relationship with residents do not face the inevitable discrepancies and imbalances that are introduced with the involvement of residents. These boundaries are overlooked, denied or suppressed. This often results in miscommunication, misunderstanding, frustration, distrust and conflict between the participants. Without the inclusion of exploring and discussing differences, there is no proper way of dealing with these negative feelings and the conflicts.

The architect's opportunity to contribute to the process

But when the boundaries are embraced as productive and essential, boundaries can be explored, considered and reshaped. The architect can contribute significantly to this process. By demystifying the design process and enabling participants to be involved in the iterative, integral process of the exploration of design problems and possible design solutions, the architect can facilitate the explication of boundaries among the cocreative participants, as well as drive the process of reshaping these boundaries, by facilitating learning from and about each other in a collective process of designing; of framing and reframing design problems and solutions towards a commonly supported plan.

What is the role of the architect in the cocreative design of housing with a group of residents?

It seems hardly possible to define cocreation in an absolute way; due to the many possible contexts, situations, actors, roles and tasks, many more variations of cocreation are possible. Shared control, for example, is important, but what if residents decide to leave all the work to others? Is it really a collaborative creation then? And what if residents in the design process are only involved in decision-making? Is it still a creative collaboration, collaborative creativity? Cocreation appears to be rather defined by grey areas than black-and-white demarcations.

Entering a field of ambiguity

Although these realistic, integrated approaches, with the development of corresponding theories and practices, seem highly needed in the cocreation domain, moving away from the ideal positions of full citizen control or consensus inevitably introduces haziness. Instead of fighting for full citizen control, it is now about finding the right balance of control; and instead of striving for the ideal consensus; it is about working with –often uncomfortable– discrepancies.

These discrepancies force cocreative practitioners to leave the dialectic positions of good or bad, inclusive or exclusive, democratic or authoritarian, in order to enter a field of ambiguity. But if cocreative architects want to achieve concrete results, they need to apply a rather realistic approach to cocreation, embracing and utilising the tensions because of the complex web of discrepancies, differences and imbalances between actors. It is about balancing on the lines of these discrepancies and imbalances; between the discrepancies and imbalances. As one of the residents in the multiple-case study stated, this is like a dance. It indeed involves making conscious movements. However, it is hardly possible to write choreographies for this dance. The sequence of steps and movements can only be determined within the process.

However, this does not mean that the movements are random or arbitrary. The realistic conceptualisation of cocreation makes paying attention to the quality of the cocreation crucial. The architect's role in cocreation is more than the development of a collaborative toolkit of participation techniques or engaging an increasing number of people. It requires reflection on hard issues of discrepancies and imbalances. Utilising the social dynamics of cocreation requires a conscious weighing of steps, reflecting on every step to determine the next step.

The need for a high self-awareness

In order to be able to do so, the architect needs to reformulate his expertise. This does not mean losing Architecture's distinctive values, knowledge, experience and skills. It rather means a higher (self-) awareness of these distinctive characteristics and the willingness to discuss, rethink and justify them when needed; being open for the transformative aspects of working with residents; regarding collaborative design as a whetstone for what constitutes the architect's expertise.

The study of the cocreative projects in this research, however, showed that this is not always sufficiently done. The architects in these processes are aware of the discrepancies and imbalances to some degree, but often revealed a more narrow understanding of their own position with regard to the boundaries in the process. The architects tend to position themselves a neutral observer of the dynamics, but did seem realise insufficiently how they are inevitably influencing the social system by their very involvement in that system. Through the three cocreative workshops, the author experienced this issue as well. As a result, interactions in processes risk to focus around concrete actions, glossing over differences regarding the reasons and motivations behind the actions.

Conceptions of the relationship between architects and residents and the architect's profession need to include the importance of the social realm in cocreation, acknowledging and embracing the boundary dynamics that define cocreative projects. The design process shapes the design, but the design itself defines and structures the design process as well. With his or her expertise in designing and experience with design processes, the architect can play a key role in the creation of the necessary link between the social and the technical system that comprises the creation of housing.

The cocreative architect: a mix of roles in a context of tension

In dealing with these tensions, it is about finding the right balance. In order to find this balance, the effective cocreative architect needs to apply various roles. This research illustrated roles of an integrator, coordinator, artist, teacher and strategist. But new situations might ask for additional roles. The right mix of roles comes from a deep acknowledgement of the social context that makes the process; it is the architect's task to find the right balance between such roles, by reflection-in-action with regard to the social as well as technical realm of housing design, continuously maintaining, drawing or crossing boundaries between the architect and the residents.

When knowledge boundaries need to be crossed, the architect has to perform as a teacher. When interest boundaries need to be aligned, the architect needs to act as a coordinator. When collective decisions need to made, the architect can draw or maintain expert boundaries, applying the artist role to guide a divergent group into one direction. And so on.

6.2. Recommendations for Architecture's practice

With this alternative understanding of cocreation in mind, several recommendations can be made for the field of Architecture and the practice of cocreation within the field of Architecture. Two of these recommendations are highlighted: the need to develop appropriate methods and tools for

cocreative design, and the advice to consider Architectural education in the light of the findings of this research.

The need for design methods and tools for cocreation

Although many exciting toolkits and methods have been developed to design with resident communities, not all of these methods do adequately address the essential boundary dynamics between participants during the design process. It is recommended to reflect on current methods with the theoretical and empirical insights of this research in mind. Do the methods address boundaries between participants? Do the methods facilitate a social learning process at these boundaries? Additionally, new methods and tools could be developed, based on the central notion of cocreation as a process of social learning at boundaries.

Implications for architectural education

To achieve effective cocreation, it is not only necessary to create appropriate methods and tools, architects need to be trained to use these tools as well. The best cocreative methods and tools are useless unless the architect applies them with the right knowledge and attitude. It is recommended to develop educational programmes to make this knowledge available, and to stimulate architects to develop the right attitude, with a corresponding professional identity and view on the architect's role(s). The conscious development of a professional identity is limited part of the current educational system and the models of the architect-as-artist and the architect-as-technician are rather dominant in Architectures schools. These models are useful, but in order to educate cocreative architects, these models need to be complemented with other types of roles. The cocreative architect needs to develop a deep understanding of these divergent roles and must acknowledge that his or her role is formed by more than one role. Architects need to develop a reflective, flexible attitude, in order to be able find the right mix of roles and to properly deal with the conflicting aspects within this mix of roles.

With the understanding of the process of cocreative design and the cocreative architect as presented through this report, this research aimed to contribute to the necessary move beyond the dominant dialectic positions of good or bad, inclusive or exclusive, democratic or authoritarian in the field of Architecture. It developed an understanding of cocreation not glossing over differences, but realistically addressing the unsolvable tensions within the collaborative process of cocreation, in order to support the architect's practice in complex, but exciting cocreative projects towards a durable and pleasant built environment in which residents feel at home.

7. DISCUSSION

In the course of this report, insights have been gained that enable to grasp the complex social process of cocreation in housing design and the architect's practice in these processes. Such a social perspective was needed, since an appropriate model of these processes appeared to be not available. But although interesting insights were gained, the research has its limitations too. This last chapter reflects on these limitations. It discusses the theoretical perspective, the research results, and the methods used to come to these results. Finally, recommendations for further research are given.

7.1. DISCUSSION OF THEORETICAL PERSPECTIVE

In order to answer the main research question, therefore, a theoretical perspective had to be developed, which was developed during a previous research. This perspective has been extended in the specific context of the design process in this research. Although the development of this theoretical framework was partly beyond the scope of this research, in order to be able to evaluate this research's conclusions, it is important to discuss the underlying theoretical perspective as a whole. This section, therefore, reflects on various aspects of this report's use of theories, addressing the perspective of cocreation in general as well as the theories used in this report.

The focus on discrepancies and imbalances

In the first part of this graduation project, a general theoretical perspective on cocreative processes was created. In order to understand its social dynamics, it was proposed to conceive cocreation from a social network perspective, bringing the relationships and interactions between the actors involved in cocreation to the heart of focus. In order to describe these relationships and interactions, the concept of boundaries was introduced.

The concept of boundaries enables to get a grip on the multiple differences, discrepancies and imbalances prominently emergent in the collaboration between designers and non-designers, professionals and non-professionals, experts and laymen. Addressing these differences, dealing with the discrepancies and working with the imbalances is considered to be essential in cocreation, and framed as a process of social learning towards a shared scheme of future action, a design for the development of housing.

Literature written by other researchers and observations by the writer of this report indeed confirms that the discrepancies and imbalances are very important in processes of cocreation and highly influential in the course of such processes. The differences between actors exactly seem to grasp the crux of cocreation, containing its strengths and weaknesses. The diversity between participants can lead to new opportunities, unusual learning and valuable collaboration on the one hand. On the other hand, differences can be a source of misunderstanding, frustration and conflict, threatening the project's progress and results. (S. Akkerman, 2011; Kerosuo, 2006; Wenger, 2000)

However, with the focus on these differences and the use of the concepts of boundaries and social learning at boundaries –all related to these differences–, the effects of initial similarities between

project actors on the course of cocreative processes are disregarded. Although similarities in experiences and competences between actors are considered to be not very beneficial for (social) learning (Wenger, 2000), research suggests that a resemblance in values, goals and motives can contribute to effective teamwork. (Mickan & Rodger, 2000) A certain common ground is considered to be useful or even necessary, to create a generative tension, in which effective collaboration can take place. (Mickan & Rodger, 2000; Wenger, 2000) These potential contributions to the collaborative process of cocreative have not been considered in this research. Although one overarching common perspective could not be recognized, the research results showed that various actors within the projects share certain values, goals and motives. The influence of these 'similarity ties' with regard to the evolution of the overall network might be an interesting lead for further research, to complement this research's focus on stakeholders' differences in cocreative processes.

The assumption of interdependency

The theoretical perspective assumes a network of actors, who can be rather different, but who have a mutual interest in each other; who need each other to accomplish the design task and to develop a scheme of future action. It assumes recognition of use and value of (cocreative) collaboration. The theoretical perspective subsequently provides a framework to understand the dynamics between the actors who –although the interdependency is recognized– often struggle to work together effectively.

This seems, however, to resemble the cocreative practice only partially. All research respondents expressed a positive attitude towards the involvement of residents in the development of their living environment. They highlighted the importance of involvement with regard to the quality of the built environment and the perceived satisfaction with this environment. However, for some respondents, mainly from institutions, this positive attitude seemed to address a rather abstract social ideal than a concrete interest at the project's level. The social ideal, in which the value of the involvement of residents is acknowledged by the professional, does not always seem to be translated into concrete interests on the smaller scale.

This tension recognized with regard to the assumption of mutual interdependency, highlights an issue addressing the scope of the theoretical perspective. The framework enables to get a grip on the cocreative process, based on the assumption that all actors want to be involved in the process. It does not address, however, how to create such a (common) commitment to start a cocreative process.

The use of the concept of learning.

In the theoretical framework, the boundaries between actors, with their differences and discrepancies, are considered to be social interfaces; places of change. This change is captured by the concept of social learning, defined as a change of understanding in social networks through interaction (Reed et al., 2010). In this report, the concept of social learning was studied in the context of the design process. The theoretical perspective, in which cocreation was framed as a

process of social learning at boundaries, was extended by exploring the role of the act of designing in the process of social learning.

However, it can be argued that other types of learning might have been appropriate for the purpose of this research as well. The concept of informal learning, for example, also seems to resemble aspects of the cocreative process. This type of learning can be characterized by an inductive process of reflection and action, comparable to the explorative (re)framing of problem and solutions in design processes as described in this report. Furthermore, it is recognized that learning is linked to learning of others. (Marsick & Watkins, 2001) However, in informal learning control of learning rests primarily in the hands of the individual learner. (Marsick & Watkins, 2001) This does not represent the complex social dynamics of cocreative design. The concept of social learning did enable to approach the boundary dynamics in cocreative processes from a systems perspective, focusing on a change of understanding within the network as a whole, highlighting the interdependent interactions between the actors.

The assumption of designing as solving wicked problems

In the exploration of boundary dynamics and social learning in the context of design processes, design was defined as a process of problem solving. More specifically, it was defined as a process of solving complex, wicked problems, in which only studying such problems does not lead to progress, since it is not possible to comprehend wicked problems by mere analysis. Many components of wicked problems cannot be expected to emerge until some attempts have been made at generating solutions, was stated. In order to come to a design scheme, the problem and solutions need to be explored iteratively, in close tension. (Lawson & Dorst, 2009)

However, some writers on design do not agree with this inextricable and iterative link between problems and solutions. Pena and Parshall (Pena & Parshall, 2001) for example, emphasize the distinction between problem seeking and problem solving. The two processes require different attitudes and capabilities, they state. Problem seeking –analysis– requires analytical skills, being at ease with abstract concepts, asking the right questions and separating wants from needs, while solving problems –synthesis– requires creative skills. They doubt if one person can combine these attitudes and capabilities. Therefore, they are in favour of separate specialists: programmers who first define the design problem and designers who subsequently solve the problem. (Pena & Parshall, 2001)

However, with these statements, they seem to ignore both the wicked characteristics of design problems and the collaborative nature of design projects in general. In practice, priorities and objectives of clients tend to change during the development process. (Siva & London, 2012) In cocreative design projects including groups of residents, this change is even considered to be essential, as was argued in this report. A linear, sequential conception of problem seeking and problem solving does not seem to be appropriate in this case, impeding the necessary change of understanding towards a commonly agreed design scheme.

7.2. DISCUSSION OF METHODS AND RESULTS

In addition to the theoretical perspective, some remarks with regard to the methods and results can be made.

The use of interviews to study a dynamic social process

A first remark addresses the use of interviews. In the multiple-case study interviews were used a main method to collect data. The individual conversations with different actors enabled to gain valuable insights into their motives, goals, values and perspectives with regard to the housing design project. Through the interviews, it was possible to gather a broad range of perceptions related to cocreation and the cocreative design projects.

However, the single interviews with the participants may not have been optimal to gain insights into the dynamic aspect of the social process of cocreation. In order to get a grip on these dynamics, it is not only important to understand the differences in perceptions between the actors, but also the changes of actor's perceptions during the process. During the interviews it appeared to be quite hard to trigger the interviewees to indicate and elaborate on such changes in retrospect. Asking for the respondents' views on the positive and the negative aspects of the process turned out to be the most effective way to address the process' social dynamics. Especially questions about problems and obstacles –the negative aspects– triggered the interviewees to elaborate on the process. As a result, some boundaries may have been remained unmentioned. Additionally, it might have resulted in an overrepresentation of problematic boundary issues.

The selection of resident respondents

Additionally, the selection of the resident respondents for the interviews might have influenced the research results. The multiple-case study highlighted the influence of the boundaries and social dynamics within the group of residents involved in the cocreative design process, influencing the relationship between architects and residents as well. However, only one resident was interviewed per case, limiting the validity of the results addressing the group dynamics among residents. Furthermore, resident respondents were not selected randomly from the resident group. In some cases they were approached via the architect or another project's professional, influencing the validity as well.

A focus on designers versus non-designers, experts versus laymen

In this research, the process of cocreation was framed as a collaborative process of designers and non-designers, experts and non-experts. These distinctions framed the case study designs –mainly in the selection of respondents– as well as the analysis and interpretations of the research data. Although no hypotheses were formulated with regard to the boundaries, the focus during the analysis was on discrepancies between the residents as residents and the architects as architects.

Literature questions the use of these distinctions. Reijndorp (Reijndorp, 2010a) for instance, highlights that all professionals are residents as well. Additionally, residents often develop into semi-professionals during the process. If residents are learning about the process, about the domain-

specific knowledge that is needed, if they develop relevant skills and become responsible for certain elements in the process, their role increasingly starts to resemble the role of the professional. (Reijndorp, 2010b) It questions the sharp distinction between professionals and laymen and challenges researchers of cocreative processes to be careful and nuanced with regard to the distinctions.

For these reasons, it might be questioned if it was useful to distinguish between residents and professionals in understanding cocreation. However, the division of stakeholders on the basis of distinct role conceptualisations seems to be justified in the light of the aim of this research. In the end, this graduation project aimed to explore the process of cocreation to support architects involved in these processes. Seen from this goal, it is considered to be appropriate to fund the understanding of cocreation on a systems perspective that distinguishes between the architect, residents and non-designer building professionals.

Still, it might be the case that through the case study designs based on these different roles, influential boundaries beyond the scope of these roles remained unaddressed. Additionally, boundaries beyond this focus might have been overlooked in the interpretation of the data.

7.3. RECOMMENDATIONS FOR FUTURE RESEARCH

The aforementioned discussions already highlighted some interesting leads for further research, both to deepen and broaden the understanding of the cocreative process. The influence of similarities between participants was mentioned, to supplement this report's focus on the discrepancies and imbalances between actors in the cocreative process. Furthermore, it was suggested to explore the conditions of cocreation as process of social learning at boundaries. Several other recommendations for future research can be made as well.

The concept of common understanding in cocreative design

In order to refine the insights developed through this research, it is recommended to additionally study the concept of common understanding. In the cocreative design process, it appeared to be important to develop a common understanding among the process' actors with regard to each other's perspectives and positions and with regard to the possible solutions of the design problem. However, it was recognised as well, that this common understanding does not imply the development of similar motives, the same perspectives and equal values. As said by Habraken: 'For the same act, agreed upon by all, different reasons will be given by different participants. [...] Because the form stands for itself it is possible to agree about it without ever agreeing about the reasons, motivations and meanings behind it.' (Habraken in: Jeng, 1995, p. 79) The concept of common understanding within the context of cocreative housing design needs to be understood as 'common enough' to allow progress and the agreement on a certain design result, without ignoring its possible inclusion of differences and tension. In further research, the concept of common understanding the context of cocreative design might be explored more in depth.

The relationship between attitudes, experiences, knowledge and emotions

The considerations regarding the concept of common understanding highlight another interesting lead for further research. Through this report, a theoretical understanding is created with regard to the different elements that are involved in architectural design reasoning, based on the model of 'design logic', developed by Jeng (1995). This model distinguishes between levels of norms and a level of 'facts', influencing the constitution of design statements during a design process. In the application of this model of design reasoning in a collaborative design context, Jeng recognises that these norms and facts are influenced not only by cognitive factors, but by affective factors as well. Knowledge, attitudes, emotions and (previous) experiences all influence design thinking. However, neither in Jeng's model nor in this report, the exact relationships between these elements are indicated. It would be interesting, for example, to explore how emotions influence design thinking; or what the exact differences are in architectural reasoning between designers and non-designers. In order to extend the understanding of cocreative design, it is recommended to research the influence of these factors more in detail.

The role of trust and a lack of trust

Furthermore, it is highly recommended to explore the role of trust in cocreative design in future research. Both concepts were frequently mentioned during the interviews; they seemed to play an important role in the boundary dynamics between actors.

In the multiple-case study, trust was indicated as an input and output factor of the cocreative process. On the one hand, it was related to the start of the collaborative process. The resident from the Marepark project in the city of Leiden, for example, highlighted the importance of trust with regard to the selection of the architect. But it was mentioned as a product of the interactions between participants as well. Trust seemed needed to bridge the inevitable gaps between the actors; gaps in knowledge, gaps in skills, gaps in authority and so on. These gaps were partially bridged by social learning, the focus of the theoretical perspective in this report. Residents, for example, were enhanced to generate and evaluate design solutions by a broadening of their framework of references and by increasing their knowledge on technical issues. The research showed, however, that it is neither possible nor desirable to bridge the gaps completely. Trust may be an essential concept here; it seemed necessary to create an effective balance of control between residents, architects and other housing professionals. Future research is needed to further explore the role of trust in the social processes of cocreative design.

The influence of project characteristics

Finally, it is recommended to further study the influences of specific project characteristics on the (boundaries in) cocreative design processes. Although the cases selected for the purpose of this research were chosen based on similar criteria, the projects still represent quite a broad range of project types. The project in Tilburg, for example, was financed by a housing association. In contrast, the Marepark project in Leiden and the Sint Martenshof project in Arnhem were financed by the residents themselves. Such characteristics seemed to influence the process rather strong. Future research needs to be done in order to gain specific insights into the influences of these project

characteristics on the collaboration between residents, architects and other housing professionals in the cocreative design of housing.

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APPENDICES

A. INTERVIEW GUIDE MULTIPLE-CASE STUDY

B. INTERVIEW GUIDE INTERVIEW STUDY ARCHITECTS

C. TRANSCRIPTION GUIDE

D. TRANSCRIPTIONS

A. INTERVIEW GUIDE MULTIPLE-CASE STUDY

This guide was used for the interviews within the multiple-case study. Per case, three actors were interviewed: a resident, the architect and another professional involved in the process. The interview questions were adapted to the respondent's role in the process. All topics, however, were covered from respondent to respondent.

- Introductie: introductie interviewer en het onderzoek, introductie respondent

Eerdere ervaringen met co-creatie

- Welke ervaring heeft u met co-creatie?

Project-gerelateerde vragen

- Kunt u het project introduceren?
- Hoe en wanneer bent u betrokken geraakt bij het project? Met welke vraag bent u betrokken geraakt, welke taken had u?
- Hoe waren bewoners/architect/andere professionals betrokken bij het proces?
- Hoe verliep de samenwerking?
  - Wat was u relatie tot de andere betrokkenen?
  - Wat vond u van deze rol?
  - Hoe was de communicatie georganiseerd? Hoe vaak?
  - Hoe werden beslissingen genomen?
  - Wat werd gemeenschappelijk bepaald, wat individueel?
  - Welke (ontwerp- en communicatie-) middelen werden gebruikt?
  - Waren er conflicten? Waarover? Hoe verliepen deze?
  - Waren er discrepanties tussen de verschillende rollen/relaties als architect?
- Wat hebt u geleerd van het project/het ontwerpen met bewoners?
- Hoe zou u de meerwaarde van het co-creatieve proces omschrijven?
- Wat waren de belangrijkste obstakels in het proces, tussen betrokken?
- Welke tips zou u professionals geven die met bewonersgroepen gaan werken?

Output

- Hoe lang heeft het proces geduurd?
- Ziet u meerwaarde in de betrokkenheid van bewoners vanaf het begin? Welke?
- Wat vindt u van het eindresultaat, van het gebouw zoals het er nu staat?
  - Wat kunt u erg waarderen?
  - Wat had beter gekund volgens u?
  - In hoeverre zijn de oorspronkelijke ambities gerealiseerd?

B. INTERVIEW GUIDE INTERVIEW STUDY ARCHITECTS

This guide was used for the additional interviews with five architects with cocreative experience.

- Introductie: introductie interviewer en het onderzoek, introductie respondent

Ervaringen met bewonersgroepen en co-creatie

- Kunt u vertellen over de projecten/het project die u in samenwerking met een bewonerscollectief heeft gedaan?

Proces – van een specifiek gekozen project/van meerdere projecten

- Hoe en wanneer bent u betrokken geraakt bij het project? Met welke vraag bent u betrokken geraakt, welke taken had u?
- Hoe waren bewoners betrokken bij het proces?
- Hoe verliep de samenwerking?
  - Wat was u relatie tot de andere betrokkenen?
  - Wat vond u van deze rol?
  - Hoe was de communicatie georganiseerd? Hoe vaak?
  - Hoe werden beslissingen genomen?
  - Wat werd gemeenschappelijk bepaald, wat individueel?
  - Welke (ontwerp- en communicatie-) middelen werden gebruikt?
  - Waren er conflicten? Waarover? Hoe verliepen deze?
  - Waren er discrepanties tussen de verschillende rollen/relaties als architect?
- Op welke manier is samengewerkt met overige professionals?
- Hoe zou u de rol van de architect in co-creatie omschrijven?
- Als de architect samen met bewoners woonwensen verkent en ontwerpt, wat zijn dan de belangrijkste aandachtspunten voor de architect?
- Wat hebt u geleerd van het project en het ontwerpen met bewoners?

Output

- Hoe lang heeft het proces geduurd?
- Ziet u meerwaarde in de betrokkenheid van bewoners vanaf het begin? Welke?
- Wat vindt u van het eindresultaat, van het gebouw zoals het er nu staat/zoals het nu is ontworpen?
  - Wat kunt u erg waarderen?
  - Wat had beter gekund volgens u?
  - In hoeverre zijn de oorspronkelijke ambities gerealiseerd?

C. TRANSCRIPTION GUIDE

All interviews were audio-recorded and transcribed, to make the data available on paper for analysis. Verbatim transcripts were made, in order to represent the interviews as accurately as possible, both in content and form. Nevertheless, some measures were taken at the expense of accuracy of form, to the benefit of legibility and the accuracy of content. The applied rules for transcription are:

- The interviewer needs to be indicated with 'I' (interviewer), the interviewee with 'P' (participant);
- In between statements of the interviewer en the interviewee, whitespace need to be inserted;
- Confirming, assenting noises of the interviewer do not need to be transcribed;
- 'Euhs' do not need to be transcribed;
- If interviewees immediately correct a word or phrase, only the corrected word or phrase needs to be transcribed;
- Silent moments within or in between statements need to be indicated with (...);
- If the interviewee or the interviewer emphasises a certain word or a part of a word, this needs to transcribed in capitals;
- If the interviewee or the interviewer leaves a sentence unfinished, this sentence needs to be closed with /;
- If the interviewee and the interviewer are talking simultaneously, the simultaneously spoken phrases need to be started and closed with //;
- If the interviewee or the interviewer makes non-verbal sounds, these need to be added in parentheses, for example (laughing);
- Other activities or actions during the interview are added in parentheses as well, for example (cell phone rings)

D. TRANSCRIPTIONS

The transcriptions of the interviews of the multiple-case study, the additional interview study and the workshops are included in a separate document, linked to this report.