Design games as a tool, a mindset and a structure

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Aalto University publication series
Doctoral Dissertations 87/2012
Aalto University
School of Arts, Design and Architecture
books.aalto.fi

Graafinen suunnittelu:
Jaakko Kalsi

Materials:
Munken Pure 100 g
Galerie Art Silk 115 g
Colorit Rose 270 g

ISBN 978-952-60-4689-1
ISBN 978-952-60-4690-7 (pdf)
ISSN-L 1799-4934
ISSN 1799-4934
ISSN 1799-4942 (pdf)

Unigrafia
Helsinki
2012

441 697
Printed matter

Contents

Acknowledgements

This thesis has been made possible by great support from many people and I want to express my gratitude to all of them. This research was carried out mainly in Extreme Design project, but also through several other case studies in which I collaborated with other doctoral students, researchers, professors, and companies. I am grateful to Tekes – the Finnish Funding Agency for Technology and Innovation, participating companies, and Design Connections Doctoral School for enabling my work.

I want to thank especially Tuuli Mattelmäki and Thomas Binder whose supervision have guided me through this research journey. Besides giving constant feedback they have been always available for discussions whether I was in Finland, Denmark or somewhere in Asia. I am also grateful to Turkka Keinonen who insisted me to apply for the Design Connections Doctoral School and has ever since provided valuable comments for my work. I want to thank all those people who made it possible to visit Danmarks Design Skole and National University of Singapore as part of my studies. I also wish to express my gratitude to Pieter Jan Stappers and Mervi Hasu for reviewing my manuscript and giving me important feedback. Thanks to Eva Brandt for sharing her valuable insights into design games through our various interesting discussions, and Andres Lucero and Petra Ahde, whose projects provided test beds for this thesis. Special thanks go to Jung-Joo Lee, a dear friend and a colleague, with whom I have been exploring co-design and design games in several cases. I would also like to thank all those who have been writing various papers with me, and those who have been supporting the writing process with valuable comments and discussions.

It has been a great pleasure to work with: Maarit Mäkelä, Ilpo Koskinen, Salu Ylirisku, Salil Sayed, Lei Wang, Vesa Kantola, Vilma Lehtinen, Anu Kankainen, Mikael Runonen, Peter Kaario, Sofia Johansson, Kati Vehmas, and all the other great people related to my research projects, Design Connections Doctoral School, Department of Design, and Aalto University at large.

Last but not least I would like to thank my family and friends whose support and delightful company have given me strength to go through this research journey. I am grateful to my husband Ville Vaajakallio who has kept me sane during the process, believed in me, and continuously encouraged me even in times when my work has dominated our life.

Abstract

Design research has increasingly taken an interest in inviting users and other stakeholders to contribute in the early phases of the design process. In the discourse of organising creative collaboration, *design games* have become a popular concept; the game metaphor has been widely adopted to describe several design activities, which at first glance do not necessarily share many similarities with each other. Thus, the concept of design

games often leads to confusion about what is actually meant by it. Whereas previous literature gives various practical examples of applying a game metaphor (meaning calling what they do as 'a game' or 'a design game') in design, there are a lack of studies that address the following questions: *Why are these same or at least very similar methods sometimes called design games and sometimes, for instance, drama inspired methods, scenarios or just co-design workshops? What are the underlying play-qualities embedded in the activities labelled as design games?*

This dissertation argues that in order to productively apply design games, it is important to understand their core identity by looking at the roots of the play atmosphere along with the play-qualities essential to it. This is done by studying games, play and performance separately and in connection with the application context, co-design. The three main perspectives adopted in this search are design collaboration, facilitating creative interplay between current practices and future opportunities, and design materials as tools in ideation. In doing so, this dissertation builds a Play framework that presents the elements and core qualities of design games in an extensive but compact way.

The Play framework is developed by analysing several short-term empirical cases and a two-year design research project on co-design in relation to the existing literature on games, play and performance. The application domain illustrates the widening scope of design, including the recently much debated field of service design, through three cases ranging from recognizing novel partnership possibilities, understanding the evolving user needs during the long life span of bank services, and identifying novel service opportunities within social media.

The research evolves by displaying the background, empathic design and co-design via five empirical cases and related literature in the first two chapters. Following that, chapter three addresses the question of what makes a design game, which is further explored in chapters four and five in connection with a service design research project. In addition, chapter five looks at the qualities of design games from the design game designers' point of view, emphasising designing creative collaboration as a design process in itself. The final Play framework is summarised and discussed in chapter six by looking at *design games as a tool, as a mindset and as a structure*.

The contribution of this dissertation is three-fold: *First,* the Play framework offers theoretical and practical framework that helps to discuss, design, conduct and analyse co-design gatherings arranged through design games. *Second*, the empirical material provides examples of utilising a set of design games that can be applied and further developed in diverse design research projects. *Third*, the way creative collaboration is organised through design games from the beginning formulates a specific design games driven approach for carrying out creative collaboration throughout multidisciplinary design research projects.

Chapter 1
Setting the stage for co-design

1.1 Introduction

Design research has in recent years laid interest in inviting various people, from users to other stakeholders, to contribute in early phases of design processes. This has led to changes in design researchers' work context and role; creativity is not aimed only towards designing new products but increasingly towards creating opportunities for creative collaboration among different actors. The problem area has changed as well: novel design approaches have been welcomed outside traditional product development projects, thus widening the scope of design to cover various types of change, including development tasks that demand creative attitude and methods to question old assumptions and to reach novel solutions. These movements in design and design research signal the readiness to understand the potential of co-design as a meaningful input to direct the early *concept search* (Koskinen & Battarbee 2003, pp 37–50) in diverse settings. In this search, approaches that provide temporary places for co-design activities are called for, to direct exploration of design possibilities rising from people's daily experiences, needs and dreams.

Through my personal journey of investigating design researchers' roles and tools in early phases of design process, the issues of design collaboration, facilitating creative interplay between current practices and future opportunities, and design materials as tools in ideation, have emerged as central topics. Having a starting point in co-design and early design process, it has become clear that it is not the new concept ideas as such that are the main outcome but rather the process of co-constructing ideas in a dialog that reveals several points of views to the phenomenon under focus. To reach that, it is none of the three above mentioned topics alone but the interplay between them that highlights the holistic view with several potential directions for design to take.

1.1.1 Research focus

The dissertation takes the form of a travelogue; it describes the progress of my research journey, during which I have encountered many people and sources of inspiration that have influenced the empirical experiments and analyses reported in this dissertation. I will develop my line of arguments, following retrospectively my experiences in designing and facilitating various co-design events, which are called here *co-design gatherings*. A co-design gathering indicates a situation where at least two persons are temporarily connected in regard to place and time to carry out some design activities. It is not a spontaneous action as in practical situations where colleagues work together in a design studio. Rather, it can be described in terms of *social occasion* that is typically programmed in advance, possesses an agenda, has a pre-established unfolding of phases guided by someone, and invites only specific people (Goffman 1963, pp 18–19). The focus on co-design gatherings limits long-term collaboration and other application contexts beyond the scope of this research project.

1.1.2 What do I mean by design games?

When I started my research, my view on design games was heavily influenced by the games that I was familiar with from my childhood, such as card games, poker, solitaire and board games like chess and monopoly. In all of these games, the actions and interaction, either between players or between the player and the game, are guided by explicit rules and tangible game pieces; in other words, there is a certain kind of "playful attitude" that is difficult to verbalise but which is related to the positive tension coming from the desire to reach the goal of the game. But how do these childhood experiences relate to design games? When I first began my research journey, I thought that the connection would be straightforward and easy to show, but I was quite wrong. When I started to dive into the topic, I was amazed at how ambiguous the term "games" and, consequently, "design games" can be.

Regardless of the widespread use of the term "design games", there is no clear definition of it; instead, there are several different descriptions of the characteristics of design games that are dependent upon the particular application context and aims of the game. Design games are used for various purposes with different means and within various design fields. The definition of design games is flexible and context specific. Most descriptions of design games, however, agree that they are about staging participation, that there is seldom competition over who wins the game and that there are rules and tangible game pieces that guide the design moves (Brandt 2006).

The context-specific nature of design games is actually common for "games" in general and not just for design games. Salen and Zimmerman (2004) compared eight definitions of "game" from different fields and identified ten key elements of games – 1) they proceed according to rules that limit players; 2) they involve conflict or contest; 3) they are goal-oriented/outcome-oriented; 4) they involve an activity, process, or event; 5) they involve decision-making; 6) they are never associated with material gain; 7) they are artificial/safe/outside ordinary life; 8) they are voluntary; 9) they are uncertain, make-believe/representational; and, finally, 10) they are inefficient, system of parts/resources and tokens – that are part of more than one definition. However, only one of the key elements, that games are played according to rules, is common to nearly all of the definitions; otherwise, there is no consensus on the ten elements. Even though there is a lack of a common definition, people identify certain activities and things as games. According to Wittgenstein (1953/2009) this results from the complicated network of similarities between members of a family. He uses the expression "family resemblance" to characterize these similarities. So, although games are not easy to define, they form "a family" which members have family resemblance.

Furthermore, Salen and Zimmerman noticed that every definition emphasises distinct aspects derived from a specific context. Based on

their comparative study, Salen and Zimmerman (ibid. p 80) combined the different definitions and suggested the following definition: "*A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.*" This does not sound exactly the same as what was said above about design games having some commonalities. What then makes something a design game and how is it related to Salen and Zimmerman's definition of a game? This question has inspired me since the beginning of my research journey.

The work has been grounded in design research and co-design, and games that have been developed in other contexts and for other purposes are excluded, including a variety of sport games and board, card and video games played both for pleasure or, for example, for educational purposes. The research approach has determined the focus; the empirical case studies that are the main focus of interest have been conducted in design research projects that do not deal with the above-mentioned game contexts.

Nevertheless, some views outside the context of design research are embraced to deepen the understanding of different perspectives on play, games, and performance – the main terms embedded within the term "design games". One of these views is Dutch historian Johan Huizinga's (1950) book *Homo ludens – a study of the play element in culture*, in which he analyses several fundamental characteristics of "play" and presents his famous concept of "*homo ludens*", in English "*playing man*". The second reference that comes from outside the context of design research comes from the French philosopher and writer Roger Caillois (1961), who criticises Huizinga for focusing only on play and, hence, failing to describe "games" more generally. To fill in this gap, Caillois studies play and games in connection to one another in his book *Man, Play and Games*, in which he classifies games based on the most dominant qualities or objectives: competition, chance, simulation or vertigo.

In line with Caillois, I find play and games to be closely related to one another, and also inseparable parts of design games. There is one other related term that needs to be considered: that of "performance". Here I build on theatre director and Professor Richard Schechner's studies on performance (1985; 1988/2003; 2006) and the way he draws a picture of the performance process and the different roles in it. According to these three authors (Huizinga, Caillois, Schechner), play can be described in countless ways, for instance as biological, sociological or cultural phenomena. The same goes with games and performance; they also are fuzzy terms and many approaches are possible.

In this study, I will explore play, games and performance within the context of co-design, or, more precisely, I will assess their possible implications for the method called design games. Therefore, instead of providing exhaustive definitions to guide the reader in his/her journey, I will present different interpretations, methods of use, and aspects of those

three terms throughout the dissertation. I refer to these different aspects as "play-qualities" to indicate that they belong within the "sphere" of play, games and performance in general, whereas only some of them are identified as meaningful parts of design games.

Given that these terms are so elusive, I find it essential to look at the diverse ways in which they are used in the existing literature and in my own experiments before framing my own view or drawing conclusions about the terms. Similarly, I will explore and clarify the term "design games" and formulate a more precise definition of its meaning in relation to co-design gatherings at the end of this study.

Given the fact that scholars have yet to adequately define design games, I doubt that I will be able to present a solid definition that would cover all types of design games, not to mention games in general. Instead, I will introduce different interpretations to gradually build an understanding of design games as they emerge and guide co-design gatherings. In addition to the lack of a clear definition, the literature on design games is fragmented and lacking a well-structured framework that would give coherent ground for designing new design games, analysing them and discussing them. Given this starting point for the study, this research project has two aims:

1 To explore and develop a practical and theoretical framework for design games-driven co-design. Such a framework should be applicable in the early design process where the search for novel design opportunities is not restricted to the material world but, instead, extends into services. In saying that I want to develop a practical and theoretical framework, I mean that I want to provide useful information both for academics and practitioners alike. It will be built on a theoretical background that stems from design research, co-design and selected perspectives on play, games and performance. The word "practical" does not mean easy-to-follow guidelines, since those are beyond the scope of this dissertation; rather, it denotes the empirical grounds from which the framework stems.

2 To develop a set of design games that highlights the different aspects of co-design and illustrates the implications of the framework. The set will give empirical grounds for understanding design games in co-design and offer practical examples. The design games will also be developed to test the different aspects of design games and, hence, they will shed light on different application contexts, material settings, people's roles in co-design gatherings and play-qualities that influence the co-design gatherings and their possible outcomes.

In the following chapters, I will use terms "researcher" or "design researcher" for someone who has the role of a university researcher in a design research project, regardless of his/her disciplinary background. When there is the chance that profession might greatly influence the situation, then a more precise explanation is given. When I use the expression "game metaphor", it denotes that an activity is labelled a game or a design game regardless of whether or not the activity looks like a game in any of the above-mentioned respects. The expression "game characteristics" refers to those elements that can be observed in most games, such as rules and tangible game pieces (playing cards, game board, dice, etc.).

1.2 Data collection and handling

Empirical material was gathered across various case studies organised with colleagues, external partners and users from 2005 to 2010. The empirical experiences vary in length, intensity, context and aims while sharing the focus on designing and conducting creative collaboration beyond core design team, in particularly set co-design gatherings. Furthermore, they enlighten the role of tangible design material and the use of "games" from different angles, thus contributing to the understanding of the design games driven co-design that seeks for novel design opportunities.

The first three chapters discuss altogether five cases that emphasise momentarily engagement of various people in co-design. Experiences from these are combined in Chapter 3 as a base for the Play framework that is further elaborated in Chapters 4 and 5 in regard to full-scale design research project "Extreme Design – developing extreme service design methods", which includes several partners and three case studies. Whereas the first five cases take place within various design contexts and are mainly research-led, the Extreme Design project was positioned within *service design* and had practical design intentions as well.

Malterud (2001, pp 483–488) describes three overall criteria that should be considered in qualitative research: *reflexivity, validity / transferability* and *relevance*. Reflexivity has to do with being aware of the influence of the researcher's own position, background and interest in the research setting and outcomes. The approach I have adopted resembles a participatory action research that I have been actively involved with and shaped the encounters by putting great effort in preparing and structuring them. Since learning has taken place through experimenting while being involved in practical case studies and performing participative inquiries, I have experienced the dilemma of being a part of the studied situation. Also, my background in industrial design has guided my attention, for instance towards different uses for the tangible design material in co-design. Throughout the dissertation, I try to be explicit about my role in the cases being studied. I maintain reflexivity by de-

claring my preconceptions and the way my knowledge has increased from case to case through systematic experimentation, data collection and analysis. However, because of the research approach, where the experiments and existing literature are in continuous dialogue with one another, it has sometimes been difficult to adequately delineate what was known in advance and what emerged from the empirical cases.

Validity has to do with transferring the findings beyond the study setting. As Malterud (ibid.) points out, *"the findings from a qualitative study are not thought of as facts that are applicable to the population at large, but rather as descriptions, notions, or theories applicable within a specified setting"*. My research is based on a design context; it builds especially on the traditions of industrial design, empathic design and co-design, and it has been conducted in collaboration with the university and industry. Within this framework, I have explored various settings, people and design aims in relation to the ways that "games" and "design games" can be used and interpreted. I have done this to ensure that the framework I am building makes sense for other design research projects. The university-industry relationship has influenced the framing of the study and its transferability.

Relevance means that the knowledge I create is useful for other practitioners. In order to improve the relevance and validity of my findings, I have used several means for documenting the process and testing my interpretations:

1 Every co-design gathering included in the dissertation has been recorded on video and in still images and all the cases discussed in Chapters 4 and 5 were also transcribed.

2 The analysis included multiple data sources: videos, transcriptions, still images, written reports and notes, and co-constructed artefacts.

3 I have tested my interpretations and findings in two ways: *firstly*, I have tested them by having peer discussions with the design research community, and by publishing 20 papers in peer-reviewed conference publications and journals and lecturing at the university and at different seminars; *secondly*, I have tested them within my own research community by inviting colleagues to watch the videos with me, including people who were not involved in the case studies. Working with my colleagues on practical cases and analysing the data together with them inspired me to adopt an empathic design approach and to use interaction analysis for making sense of the data.

4 I have been explicit about my different roles in the cases and the research throughout the dissertation.

5 The main case, Extreme Design, has been carefully documented and presented in Chapter 5 to allow the reader to follow my argumentation.

1.2.1 Analyses of the data

This research has a qualitative and explorative nature and the analysis has been data-based, meaning that there were no pre-existing categories and that, for example, all the themes I present in Chapter 5 emerged from the data. In the co-design gatherings that I studied there was always more than one group of participants working simultaneously around a similar task, meaning that I obtained data from several similar settings in which different people participated. The large number of videos provided flexibility when choosing material into analyses with appropriate quality and allowed comparisons between the performances guided by me and those guided by others.

I applied interaction analysis (Jordan & Henderson 1995) as analytical foci to put attention on *"the shape of an event, its' high and low points, the relaxed and frenzied segments, and the temporal ordering of talk and nonverbal activity"* (ibid., Chapter 6, p 5). The steps towards the analysis followed the path of first creating a content log with headings and a brief summary of events, then marking any interesting parts on the log, organizing group sessions to get potentially significant observations from other researchers, and finally extending the observations individually by watching certain segments over and over again. Subsequently, I worked with Schechner's (1985; 1988/2003; 2006) performance theory to make sense of the emerging observations.

I arrived at my conclusions by following this iterative process of analysing the data but also engaging in interplay between the experiments, analysis and writing, as the next chapters will demonstrate. The research was not guided by any predetermined framework; instead, I developed the Play framework gradually as it influenced the structure of the later cases. In addition, I have continuously published and lectured to test and develop my understanding of co-design and design games.

1.3 Outline of the dissertation

This dissertation can be divided roughly into three parts: The first three chapters illustrate the development of the *Play framework* through the interplay between experiments and the related literature. The second part, Chapter 4, presents the implementation of the Play framework in the Extreme Design project. Thirdly, the framework is further rephrased and discussed in Chapters 5 and 6 based on gained experiences. The research approach, described in Chapter 1, has influenced the way I have organized the dissertation to move from empirical co-design experiments to literature and back to co-design again. An overview of the individual chapters is given below:

Setting the stage for co-design: 1

The first chapter introduces the approach and the main problem area: first, by articulating the inspiration for my research and introducing the three main topics of interest: 1) *Design collaboration,* 2) *Creative interplay between current practices and future opportunities,* and 3) *Design materials as tools in ideation* that directed the subsequent research. Then, by introducing the research approach and research program that I have followed and which is demonstrated through four short case studies conducted during 2007 and 2008.

Direct and indirect user involvement in co–design–moving between dialogue and narratives: 2

Chapter 2 describes more thoroughly the context of the dissertation and its particular focus: widening scope of design and empathic approaches in organising dialogue with users and other stakeholders. The cases presented in the first chapter are discussed in connection to the co-design approaches and techniques that aim at driving empathic sensitivity either through direct or indirect user involvement. In general, the chapter address the topic of *design and participation.*

Diving into games, play and performance: 3

Chapter 3 starts to build the link between *co-design and design games* by looking at the activities within the context of design, which their authors call "games" or "design games". Based on them, I will call attention to the gap in existing studies and accordingly propose that there is a need for a framework that will clarify the underlying attributes that influence the nature of seemingly distinct co-design practices, labelled as design games, and the concepts we use to discuss them. Then I will look further into the intersection of games, play and performance to address the relationship between design games and games in general. In this chapter, I will formulate the first version of the Play framework, which will then be tested and developed further in the following chapters.

Experimenting with design games driven co-design: 4

Chapter 4 describes how the Play framework was utilised during the two years that the design research project Extreme Design (1st June 2008–31st May 2010) lasted. The chapter will demonstrate how three case studies – 1) *People flow in senior houses;* 2) *Developing new service models for bank;* and 3) *Exploring social media as a source for new design openings* – with different company partners were established and carried out through de-

sign games. Three design games are described for studying play-qualities in co-design: *Project Planning Game* that was utilised to establish a shared project vision; *Character Game* that aimed at evoking empathic mindset through role-playing; and *Storytelling Game* that emphasised the user's point of view in collectively created narratives.

5 Play-qualities in co-design gatherings–design game designer's perspective: Chapter 5 will take four themes into closer examination to pinpoint how the Play framework was utilised in Extreme Design. Examples from my accounts are provided to illustrate my points of: *shared focus of attention, leaving visual traces, design games as tools for binding inputs from various people,* and *transporting participants into another world*. In the end, I will propose some revisions to the Play framework based on, for instance, increased understanding of the roles of design games' materials and of the meaning of game rules in co-design gatherings.

6 Play framework for co-design: The final chapter summarises the learning from the previous chapters in the form of the Play framework. At this point, I will define design games in relation to the Play framework. The Play framework illustrates design games as a tool, a mindset, and a structure. The chapter discusses the elements and play-qualities of the Play framework in relation to organising co-design guided by design games. I will also look back on my research journey and reflect upon my research aims and approach, and I will offer some suggestions for future research. Finally, I will conclude with the main points made in this dissertation.

1.4 Inspiration

The research described in this dissertation has been strongly influenced by a series of exercises called Situated Make Tools conducted during the Active@work project at the University of Art and Design Helsinki (currently Aalto University School of Arts, Design and Architecture, Department of Design) in the years 2004–2006. The overall aim of the project was to utilize user-centred design and co-design approaches highlighting empathic understanding, in order to develop concepts that support individual workers' (age 55+) sustainable wellbeing at work and motivation to work longer (see more, e.g. Vaajakallio & Mattelmäki 2007). Make Tools, introduced by Sanders and Dandavate (1999), were applied in the midst of ageing workers (cleaners, janitors and technical maintenance staff) work to combine observational studies and contextual idea generation. Hence the name *Situated Make Tools*.

The observational part aimed at establishing a view into the normal work practices to support broader design aims of the project, whereas the Situated Make Tools focused on generating design ideas expressed in physical, narrative and acted-out formats and developing insights into the workers' needs, desires and attitudes in relation to digital information and communication technologies. The exercise had two main objectives: 1) to explore how real-action context triggers and grounds concept design; and 2) to amplify worker's creativity through tangible Make Tools and a contextual approach. Let me give an example from one of the Situated Make Tools sessions to illustrate the method:

> Three persons are gathered around a table in the janitor's room in a school in Helsinki: a janitor and two design researchers[1]. The janitor explains his typical use of mobile technology while researchers ask clarifying questions. Soon the janitor is encouraged to build the mobile device of his dreams, that could improve his wellbeing during the work day, from the Make Tools on the table. The design material includes a variety of three-dimensional blocks covered with a fabric attachable with Velcro stickers to allow easy configurations with pieces that mimic buttons and displays. The janitor starts to play with the materials and ends up building a device with a few buttons and a camera; he cannot explicate their meanings yet, but the researchers expect that the functions will become clear once they start the Situated Make Tools exercise.
>
> After a short video shadowing, the researchers see something that evoke their curiosity and interrupt the activity. They ask the janitor what happened and how it could have been done differently. The janitor tells about the incident with one of the toilets and describes the flow of tasks needed to handle it. After his verbal illustration, he is encouraged to enact the situation anew – this time with the dream device (**Figure 1**).

Altogether six similar exercises were conducted and through analyses some patterns were identified in the way sessions progressed and in the way the contextual setting and the Make Tools influenced idea generation. The findings are connected to the overall structure of the co-design gatherings that took place in the midst of ageing workers working day. The key findings are presented in detail elsewhere[2]. I will next introduce the three main themes that have been explored further in the following chapters.

[1] All the observations and Situated Make Tools exercises were conducted by me and my colleague Salu Ylirisku.

Fig. 1

W: "Oh, Arabia's toilet container which are leaking. Ok. (Pretends to calling somewhere) Can I get a contact to the Putkivuorio, the supplier, please? The school attendant from the Snelman's elementary school, hello. The 4th floor's toilet's water container is broken. I don't know the model but it is roundish not angular. Can I have a new container for that? It's at Albert's side of the school building and girl's toilet. Ok, thank you. As soon as possible, please."

W: "Then I press this button to save the conversation and another button to convert it into text mode and at the same it turns it to an order."

A clip from a video recording illustrates how ageing worker acts out possible use scenario with the Make Tools.

1 Design collaboration

As the term co-design suggests, ideas are not generated by the users, designers or researcher alone but in the interaction between several people representing different backgrounds and skills. With the Situated Make Tools, the ageing workers became momentarily equal as designers with the researchers. It was noticed that the workers never stopped the action to initiate idea generation, though they were advised to do so. This emphasized the researcher as an opportunity seeker in the midst of the action and the initiator of idea generation who asks the user to reflect on what has been observed and how that could be changed. By giving the power to the workers to build mock-ups based on their personal experiences allowed them to describe functionalities and scenarios they found valuable. They did not need to be taught how to use mock-up because they were the designers.

[2] The following papers, where I am one of the authors, discuss Active@work and Situated Make Tools:

Vaajakallio, K. & Mattelmäki, T. (2007). Collaborative Design Exploration: Envisioning Future Practices with Make Tools. *Proceedings of Designing Pleasurable Products and Interfaces (DPPI07)*. University of Art and Design Helsinki, 223–238.

Mattelmäki, T., Vaajakallio, K. & Ylirisku, S. (2007). Active@work- Design dealing with social change. *Online proceedings of the Include conference 2007*. London: Helen Hamlyn Research Center, RCA. http://www.ektakta.com/include_proceedings/

Ylirisku, S. & Vaajakallio, K. (2007). Situated Make Tools for envisioning ICTs with ageing workers. *Online Proceedings of the Include conference 2007*. London: Helen Hamlyn Research Center, RCA. http://www.ektakta.com/include_proceedings/

Ylirisku, S., Vaajakallio, K., Buur, J. (2007). Framing innovation in co-design sessions with everyday people. *Online Proceedings of Nordic Design Research (Nordes07)*. Stockholm, Sweden: http://www.nordes.org/upload/papers/104.pdf

Mattelmäki, T. & Lehtonen (current Vaajakallio), K. (2006). Designing alternative arrangements for ageing workers. *Proceedings of the Participatory Design Conference (PDC 2006)*. ACM, 101–104.

Creative interplay between current practices and future opportunities 2

With Situated Make Tools it was possible to study people's practices in parallel with making a design intervention. New understanding was produced in the assumed use context, and it was grounded to those people's interpretation design concepts were targeted to. Being in a possible use context maintained the link between the current practises and the envisioned situations, as Buur and Søndergaard (2000) have also claimed. When observing with *eyes open for change* instead of being *eyes open for observing*, the context evoked new ideas and opportunities for the researchers as well (see more Vaajakallio & Mattelmäki 2007). The stance taken by the researchers at the study was to listen first what the ageing workers proposed and then address his/her own suggestions evoked by the observations, to test ideas immediately with the workers. Facilitators' roles are discussed more thoroughly in the next chapters.

What can be considered as a possible shortcoming of the approach is the exceptionally dynamic and unpredictable setting that is difficult to control: the enacted scenarios took place in various locations, outdoors and indoors, inside one building or between many buildings. Another possible shortcoming is the resources required since only one user participated at a time; hence there were as many gatherings as there were involved users. The improvisational character of the Situated Make Tools raises a question about how well these types of sessions can be planned beforehand without losing the sensitivity towards arousing design opportunities that at least partly result from being continuously alert.

Design materials as tools in ideation 3

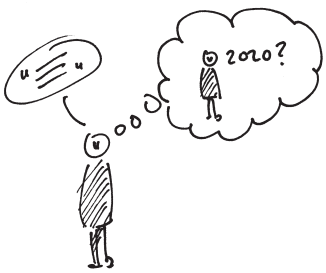
As stated by Ehn and Kyng (1991), even simplest mock-ups can create *hands-on-experiences* and, besides designers' idea generation, support users' thinking as well. Their unfinished nature can be seen as an advantage since it distinguishes them from real objects; people see them as ideation tools instead of considering them as representations of the final design (ibid.). We noticed that the Make Tools were abstract enough to be understood as a design language but concrete enough for the workers to offer insights on mobile technology. For instance, a woman from the cleaning maintenance staff reflected upon a recent phone call from an unsatisfied client while envisioning properties for a dream device (Vaajakallio & Mattelmäki 2007). Although having the open-character Make Tools guided discussion and thinking; they were created based on early assumptions of alternative design opportunities, consequently limiting the solution space as well. For example, one of the maintenance men came up with an idea of a smart vest, but he couldn't demonstrate his vision with the provided design material. The form of a mock-up he was able to build likely influenced his idea on how to use the device, as we discussed in (Ylirisku et al. 2007).

Since the workers had their Make Tools mock-ups illustrating their dream devices, it was logical to ask them to act out how the tool would be used in specific situations confronted during the observation. While performing those scenarios, they proposed new ideas, especially concerning useful features and interaction styles like the one illustrated in **Figure 1**. Often their ideas evolved through acting instead of relying on earlier proposed features, supporting the view that simple mock-ups may work as *things-to-act-with* when envisioning future opportunities (Brandt & Grunnet 2000). Since the interaction between people, environments and objects is tied to particular situations, by situating the idea generation to the possible application context we could reveal the relations that are hard to identify in a design studio.

Inspired by the experiences from the Active@work and particularly from the Situated Make Tools study, I formulated my further research based on them.

Fig. 2

Design collaboration



Creative interplay between current practices and future opportunities

Design materials as tools in ideation

In the Active@work project three themes, summed up in the figure, emerged as essential in organizing co-design with a company, without evident objects to be designed.

1.5 Research approach

My research approach follows the *"exemplary design research"* introduced by Binder and Redström (2006), in which the design research is guided by a research program which forms a frame for carrying out a number of design experiments. The experiences gained from the Situated Make Tools and Active@work in general, presented above, formed a base for my research program:

> My study aims to explore how tangible and playful design representations such as Make Tools (Sanders & Dandavate 1999) and design games (Brandt & Messeter 2004) support facilitating everyday people's participation in the user-centred design process. [...] My research emphasizes the meanings of tangible design representations in user-centred design as a way to speed up the process and push it towards more design-based activity. [...] Despite of the relatively rich research on design representations in user centred design, there is still a need for studies about applying these representations in various design contexts, especially outside product design. [...] The idea of co-design, as seen in my research, is not only to get user-relevant ideas but also inspire and motivate designers. (Quotation from my research plan, January 2007)

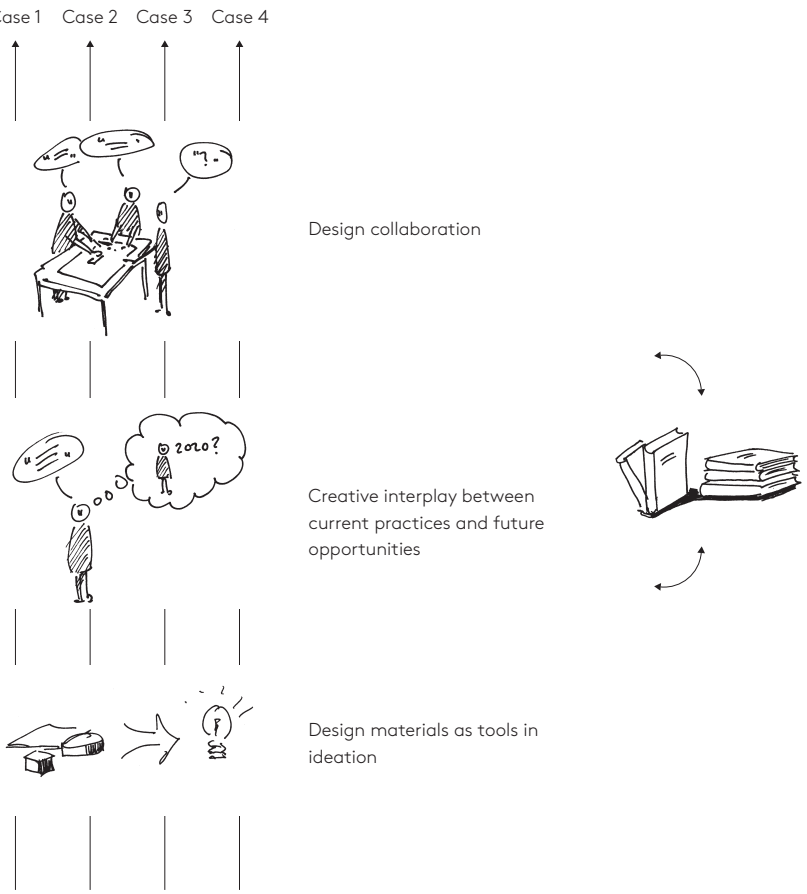
While writing the research plan quoted above, I was inspired by the work of American design researcher and psychologist Elizabeth Sanders about generative methods and by Danish design researcher Eva Brandt's work on design games. Although their work differ in many ways, they share a common interest in enhancing non-designers' creativity through tangible and visual design representations. The rather open nature of my research program allowed me to explore the meaning of tangible design material while questioning the use of games as a metaphor for describing an activity or practical way of designing and organising co-design in several contexts with distinct groups of people. Consequently, I refer to my research program as *"setting the stage for co-design"*. My industrial design education puts focus on a designerly way of thinking and doing (Cross, 2006) user research, i.e. the need for inspiration in addition to information, broadly speaking. This view has been inspired especially by my colleague and supervisor Tuuli Mattelmäki's extensive work on probes (e.g. 2006) and design empathy (e.g. 2003; 2006).

The experiments that will be described in the next section have been used to address the above-mentioned issues and questions stemming from the program, literature and the experiments. Jane Fulton Suri (2003, p 53), a psychologist who works in the IDEO design consultancy, has quoted Chinese philosopher Lao Tse to describe the meaning of personal discoveries in design: *"What I hear I forget. What I see, I remember. What I do, I understand!"* Correspondingly, empirical case studies have been

central in fostering a more profound understanding of co-design and design games and making it possible to develop a theoretical and practical framework. In some cases I have addressed a particular research question to which the experiment aims to give an answer while others have been more open for what they can answer and how.

Even though the research program set some constrains for carrying out design experiments, it didn't focus on any particular context. Instead it encouraged me to navigate in the wide scope of the design field to find fruitful areas in which to contribute. Next, I will briefly introduce four cases and the key experiences from them. The same cases will also be referred to throughout Chapters 2 and 3, to indicate their intertwined relation with the discussed literature and their role in developing the Play framework.

Fig. 3



The three identified themes of co-design were investigated further in four case studies, continuously reflecting experiences to the literature and between the cases.

Case 1. Co-design among young children — providing rules for interaction

The methods developed for sharing knowledge and generating solutions in co-design projects are mostly focusing on adults. This raises a question of whether they are applicable when designing with children. To explore this question, two separate co-design gatherings with the same children were organised, first time in 2007 and second time in 2008[3]. The main objective was to learn particularities of designing with kids. The first experiment focused on Make Tools and classroom environment as triggers for idea generation, whereas the second was guided by the experiences from the first session and utilised design games for handling group dynamics and creating a bridge between the imagined and real.

During the first gathering, children designed "a learning buddy" in groups of four. To warm up for the design and to assist the children to consider real life situations in their designs, we first had a discussion about their learning activities and related needs. The classroom environment with school books etc. was assumed to support design by inspiring and linking ideas to daily practices – however, without success. Even though children got engaged with the Make Tools, they focused on building the activity itself instead of reflecting their experiences concerning learning. Tables were arranged in groups, but they were too large to allow close collaboration, which, in any case, appeared to be new to the seven to eight-year-old kids and caused troubles in equal participation. The requirement for appropriate behaviour in classrooms created other constrains, as discussed also in (e.g. Druin 2002; Jones et al. 2003): for example, in normal learning situations, children should not talk freely or walk around without permission.

In the second session, the warm-up for the design task was guided through with the *Eco Game* (the topic originating from the school's theme of the year) that invited the children to discuss their daily experiences related to environmental issues. In their task, the children were assisted by *instruction cards* and *scene images* with blank speech bubbles. They chose an image in turns, told a story inspired by it, filled in the speech bubbles accordingly, and placed the image on the scenario board. (**Figure 4**) As soon as there were six images on the board, the children earned a key to open the "treasure box" (a locked bag with Make Tools in it) and could move on to the subsequent design task.

[3] These experiments are discussed in the following articles:

Vaajakallio, K., Mattelmäki, T. & Lee, J-J. (2010). "It became Elvis"– Co-design lessons with Children". *Interactions Magazine*. July/August. ACM, 26-29.

Vaajakallio, K., Lee, J-J. & Mattelmäki, T. (2009). "It has to be a group work!" – Co-design with Children. *Proceedings of the 8th International Conference on Interaction Design and Children*. USA, New York: ACM Press, 246-249.

Fig. 4

In the image on the left, a kid pretends talking to a phone with a Make Tools prop during the first session. In the picture below, kids are playing the Eco Game during the second experiment. The completed scenario is on the right.

Contrary to our expectations the implemented game-like structure with turn-takings and rules didn't overcome the challenges of equal participation or ground the ideas with current practices. It seemed that children's varying skills in writing and drawing created obstacles for collaboration in some groups in which the most dominant children overruled others, or resulted in lack of interest in some kids. For example, one boy preferred to stay under the table most of the game, as illustrated in the quotation below from our paper (Vaajakallio et al. 2009b). In most groups, however, children actually discussed various situations relevant to the topic and documented them on the board while playing the game. Still the discussion remained aloof from the subsequent design activity that allowed one to utilise one's skills and hence seemed to evoke more interest.

> Once the children had started playing the design game, we soon noticed that a boy was missing from one of the groups; he was crawling under the table while the rest of the group continued the game as if nothing had happened. Our strategy to support equal participation was obviously not working. We started to feel anxious. Suddenly the situation changed, as the kids moved on to build artefacts. They gathered around the corners of the tables; they were now standing close to each other, touching various Make Tools, starting to talk. Creative corners had emerged. (From video recording about the second session, May 2008)

Based on our experiences, we proposed (Vaajakallio et al. 2010a) that co-design with children is not so different from co-design with adults after all. However, in terms of research, various challenges of organising co-design such as group dynamics, the meaning of physical surroundings, participants' differing personalities and skills became more prominent with children than when working with adults. In other words, our observations pinpoint the sensitivity required from the researchers when designing and conducting co-design gatherings; what inspires and makes sense in some setting may provoke opposite reactions in another. Even if the finding was quite evident, it encouraged me to explore these themes further in the subsequent cases. Also the way the Eco Game guided children's group discussions strengthens the view of design games as a means to evoke memories (Ehn & Sjögren 1991, p 252) and to share experiences and attitudes about the topic under study. Although the game didn't maintain the link between everyday practices and design solutions, it increased understanding on children's point of views to environmental issues.

These observations together with the initial themes from my research program guided me in the next case where I observed evolving co-design among design partners and the role of design materials in it. Furthermore, whereas the experiments with kids explored contextual idea generation, the second case shifted the focus towards setting the stage for co-design in research environment.

Case 2. Co-design as embodied practice

The second case was organised between the two experiments with kids in 2007, including altogether seven co-design gatherings. It was part of a study on augmented mood boards (Lucero 2009[4]) which influenced the overall setting of the gatherings. It aimed at supporting dialogue among researchers and possible users, the industrial designers, to gain feedback for the initial design concepts and to develop them further together. According to the experiences from the first session with children, contextual approach was not necessarily the key factor in grounding imagined future alternatives to people's everyday practices. Resulting from this notion and being inspired by the *Design:Labs* approach (Binder 2007), the gatherings were set up in a room that was made to look and feel like a design studio. It was for this reason that we called them *Dialogue-labs*. The overall theme was to imagine future ways of creating and communicating mood boards (see more[5]).

[4] Andres Lucero is a Chilean graphic designer and interaction designer who did his doctoral research titled *Co-designing interactive spaces for and with designers: Supporting mood-board making* (2009) at the Eindhoven University of Technology.

[5] Articles, where I am one of the authors, concerning Dialogue-Labs:
Lucéro, A., Vaajakallio, K. & Dalsgaard, P. (2011). The dialogue-labs method: process, space and materials as structuring elements to spark dialogue in co-design events. *CoDesign Journal*. Taylor & Francis, 1–23.

The 45-minute co-design part was video-recorded. My purpose was to investigate in detail the dialogue and interaction between participants through interaction analyses (Jordan & Henderson 1995). In my analyses (Vaajakallio 2009) the aim was to gain a deeper understanding about the means of design representations and unfolding of the interaction described below:

> F [the invited participant] and K [me] are standing next to a large screen on the wall with a projected mute video on it, where Andres Lucero [whose research project the session belongs to] is using some sort of prototype to communicate a mood board; he wears black gloves that leave red traces on the mood board as his hand moves. F and K are encouraged to use the video as a source of inspiration while considering how the story of a mood board could be communicated differently.
> F: "*I think it is really strong [experience] for a person if you can focus in [to the image] – so this is a whole picture, and when you talk to people you zoom in, like if you have a [pair of] binoculars and just focus on this [part].*" [She shapes her hands so that only one part of the picture is visible, like seeing through a pair of binoculars]. K: "*So is it then like this one?*" [Takes, from a nearby table, a cube-shaped Velcro-covered prop (about 8cm x 8cm x 8 cm) with a hole in the middle of it and hands it to F.] F: "*Yes, exactly. Then it's like a lens, like a fisheye that makes it bigger [makes descriptive movements with her hand above the prop].*" F continues sketching the idea by moving the binocular prop back and forth in front of the projector, changing the visible area accordingly. K: "*That's nice, and then you can zoom in it.*" (Transcribed[6] based on the video recordings, June 2007, Finland)

Vaajakallio, K. (2009). Enacting design: understanding co-design as embodied practice. *Proceedings of Nordic Design Research Conference: ENGAGING ARTIFACTS (Nordes'09)*. Oslo, Norway, 1–10.

Lucero, A. & Vaajakallio, K. (2009). Dialogue-labs: Creating dialogue in co-design sessions. Proceedings of International Conference on Designing Pleasurable Products and Interfaces (DPPI09). Compiegne, France.

Lucero, A. & Vaajakallio, K. (2008). Co-Designing Mood Boards: Creating Dialogue with People. *Proceedings of International Conference on Human-Computer Interaction (IASTED HCI 2008)*. ACTA, 254–260.

Vaajakallio, K. (2008). Design Dialogues: Studying co-design activities in an artificial environment. *Copenhagen working papers on design*. No. 2, Danmarks Designskole.

[6] The account in its entirety is presented in (Vaajakallio 2008) and a further analysis of it in (Vaajakallio 2009).

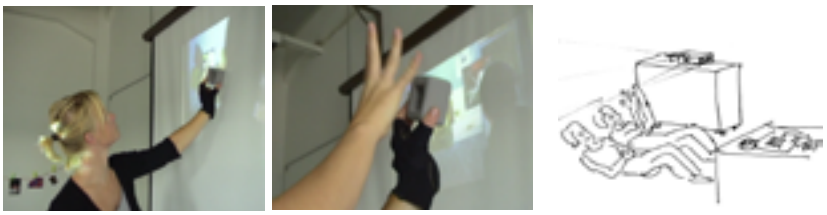
As for sharing experiences during the gathering, there were various triggers, or props, from the Make Tools to different objects and videos. These were used instead of design games, which were considered too structured for guiding the dialogue among only two participants. At this stage, I found rules and turn-taking essential for design games. The props were brought into the co-design gathering without specific connotations; the participants attached precise meanings to them, according to particular contextual needs. For instance, in the above example an anonymous Make Tools foam block became binoculars, and a pile of post cards was used later to represent a material sample. This ambiguity was seen essential when props were utilised in envisioning design opportunities through bodily interaction and performing, since *props gained their meaning in action*, not before it. In (Vaajakallio 2009) I refer to this type of design as *enacted design* and, accordingly, propose that co-design can be seen as embodied practice. By this, I mean that co-constructing artefacts is an integral part of interaction, one in which the emerging design is acted out and stabilized without necessarily involving traditional modes of representations, such as sketching by drawing. By understanding this, we can design the activities and provide the material that will allow enacted design to emerge in a similar manner as when we let the participants draw by giving them pen and paper.

When design is enacted, it becomes manifested through a performance, visualizing the consequences to everyone present and allowing "*joint reflection-in-action*" (Schön 1983) that engages all participants in the situation. The movement would be unclear in its reference if it would not be simultaneously explained verbally like in the above example, where F shapes her hands to illustrate a pair of binoculars and simultaneously states *"like if you have [a pair of] binoculars"*. This observation of enacted design indicates extension to Schön's (ibid.) notion of "*language of designing*" to include, in addition to drawings, bodily gestures and performance in addition to drawing.

However, during the seven gatherings, the main form of designing varied from sketching on paper and experimenting with props to discussing, with virtually no visualization. This was a result from not guiding the participants towards particular means of expression but instead providing them with many means for sketching. This observation suggests that providing a wide range of media for expression allows the participants to find an appropriate dialogue style in a particular situation, meaning that they can rely on a medium that they are familiar with or feel comfortable working with in a situation where the space and co-designers are typically new to them.

To summarise, the findings from this case study shed light on the richness and expressiveness of bodily interaction in co-design, in building a common design language, and assigning meanings to props in the dialogue.

Fig. 5



In the two first images F is sketching an idea of binoculars with a Make Tools block, whereas the picture on right side is an illustration of F and K in a situation where they are developing an idea of "watching a mood board as watching a sky". Drawn images were used as tool in analyzing the data.

The playfulness came not from referring to the activities as a game or utilising characteristics related to games (playing cards, game board, rules or turn-taking), but from the performances supported by various props. The game metaphor in co-design and the possibilities afforded by that are taken into the focus again in the following cases. For instance, in the next case the dialogue will be guided through the structure and rules provided by the design game in a manner similar to that of the Eco Game when utilised in the second experiment with kids. But whereas the Eco Game aimed at inviting responses from the kids as user representatives, in the next case the design game is used to make sense of the stories collected from users who are not present in the gathering. It also resembles the case described above in that the researcher is actively participating in co-design.

Case 3. Stories as source of inspiration

The third case included three sessions organized through the same game framework but with distinct aims, participants and researchers. The main objective was to transform narrative data into a design game that would allow collaborative interpretation[7]. The data consisted of hundreds of stories which were gathered by Kalevala Women's Association as a part of a writing competition in 2007, the topic of which was significant jewellery. Collaborative interpretation is needed in many user-centred design processes to allow personal interpretations for wider group of people and to approach the data from several views that participant represent in the session. For instance, ethnographically inspired field studies can be transformed into a video-card game (Buur & Søndergaard 2000) to enable collaborative viewing in a structured but inspiring way.

[7]The data was part of Petra Ahde's doctoral research about meaningful jewelries. Together with her, I organized the first session at Kalevala Koru Oy , while Sanna Latva-Ranta took care of the student project at Kuopio Academy of Design and Young-Ae Hahn helped Petra with a third case in the Illinois Institute of Technology.

All three gatherings aimed at identifying qualities of meaningful jewellery, whereas the first two had also design intentions. The first session was organised together with representatives from Kalevala Koru (Finnish jewellery manufacturer) to generate ideas for marketing purposes, whereas the second initiated a student project in Kuopio Academy of Design and was used to prompt themes and starting points for jewellery design and for more focused user study. As an outcome from each session, there was some visual illustration, a booklet or a poster which summed up the discussions and some of the main ideas.

There were 36 stories that were chosen into a game. The game rules explained the progress of the game from individual reading to sharing insights and collaboratively clustering and naming identified themes and, finally, considering possible design openings. The rules of the game were written on A5 paper provided to every participant to allow individual proceeding within certain time limits. The individual phase included three sub-phases, and every step had *an instruction card* describing clearly what to do. After reading the instructions, the player placed a numbered card on *a holder* in front of her/him. This way the other players and the facilitator could easily follow the progression (FIGURE 6). Once all three cards were in the holder, it was placed in the middle of the table to indicate readiness to move on to the collaborative phase.

In (Vaajakallio et al. 2009a) we discuss how game framework 1) *allowed participants to put their full attention on searching design opportunities from the provided stories instead of thinking what they should be doing,* and 2) *allowed utilizing the same data for three different contexts and purposes, with only minor modifications.* Moreover, the collaborative interpretation with people having various backgrounds provided important insights into the material, improving our understanding of the data. Particularly the session with design students resulted in many design ideas that were developed further during their design course – some of those ideas found their way even into manufacturing. In this experiment, the game metaphor was put in action in the form of explicit rules and as visual game material. In other words, the game metaphor helped to transform the user data (i.e. stories) into an easy-to-follow structure allowing for individual and collaborative interpretation. The idea of considering the activity as a game got me thinking *rules* and *game material*. The rules described how the game would progress, the goal of the game, and the material that would be utilised in the game to reach the goal. The game material consists of pieces of user data in the form of printed stories combined with step-by-step reading instructions and part of the game rules, written on three cards and given to every participant. Through the look of a game (rules and playing cards) and by referring to the activity explicitly as a design game, the participants were encouraged to think of games that they have played before, since it has been claimed (e.g. Johansson 2005)

Fig. 6

Left side: individual phases were guided through with the help of instruction cards, which also helped the facilitator to follow the progress. Right side: Visual images were used to bring in visual qualities to the mainly textual user data.

that if participants see the connection, they will feel more comfortable in a new situation. Hence, the game metaphor was valuable in making concrete decisions about how to design the design game and in facilitating the co-design gathering. In addition, after the game rules and material had been created the first time, the game was easy to repeat in several co-design gatherings.

So far, I have explored co-design gatherings as one-off platforms for inviting several people to contribute to ongoing design research projects. Although these gatherings have always included more than one experiment, they have been separate encounters, repeating the same structure and objectives with distinct participants. As a contrast to that, the next case contains a sequence of three co-design gatherings aiming at continuity and content-wise progress; the participants were the same in most of the gatherings, but the design tasks and objectives changed based on the previous gatherings.

Case 4. Co-designing University

Three co-design gatherings were organized within a three-week timeline in autumn 2008. One objective was to gather people from three universities (Helsinki School of Economics, Helsinki University of Technology and University of Art and Design Helsinki, which merged into Aalto University in the beginning of 2010) to change ideas and expectations of the Design Factory (DF) in order to feed its development process. DF is one of Aalto University's key projects and aims at bringing together people and activities from different departments focusing on education and research in areas of product development.

The co-design gatherings were organized as the planning of Design Factory was in progress, and students and other potential users were eager to contribute. Inspired by "*event-driven design process*" (Brandt 2001), there were four steps, namely, gathering background information and then conducting three encounters with distinct aims and theme building on the outcome of each. The first session focused on setting a common vision of

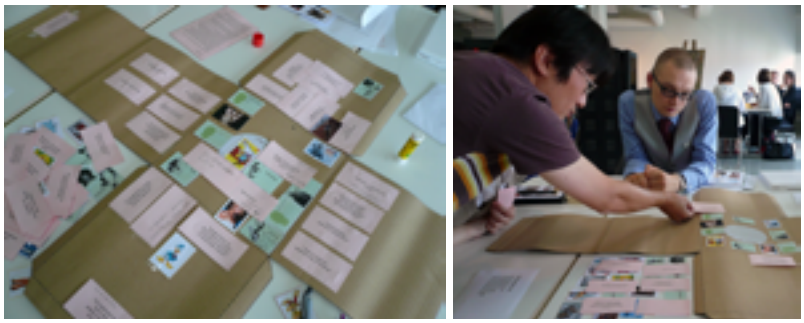
the core spirits and values of Design Factory. The second meeting looked at people and practices collaboratively, identifying the key actors as well as the activities, and work cultures that would meet in Design Factory. The third gathering concentrated on brainstorming spatial solutions which would support the issues identified in the two previous gatherings. Prior to the co-design gatherings we performed unstructured interviews for some 20 students, professors, researchers and workshop personnel from the three universities to map expectations, attitudes and needs concerning Design Factory. These discussions served as background knowledge for planning the co-design gatherings and provided game material for the first session.

Special attention was paid on supporting group dynamics since the participants represented different levels in a hierarchy (students, professors, and researchers) and different professions, which might cause tension between distinct interests and perspectives. For example, a *Value Game* was developed to discuss diverse opinions and needs in a structured way and to reach consensus on the core values of the Design Factory (**Figure 7**). Statements from the interviews were presented in playing cards, to put the focus on them instead of focusing on possible contradicting subjective views. The players defined their opinions, for example through a set of images ranging from Donald Duck to Dalai Lama, i.e. through well-known characters with peculiar opinions, life style or influence in business or societal areas. Playful elements like these were provided to support discussion on values in a game-like spirit that has been suggested to promote relaxed atmosphere (e.g. Johansson 2005).

All the co-design gatherings until the "Co-designing University" case were one-off experimentations without long-term design process or then at least one design researcher, who was responsible of the co-design gatherings, was also involved in the whole design research project to which they contributed (as was the case in Dialogue-labs). In "Co-designing University", the people in charge of developing the Design Factory took part to the gatherings but not to the preparations and interpretations between them. This resulted in critical observations concerning how the learning, which took place during the process of designing and conducting co-design gatherings, was communicated to those who were not involved in every step. Even if the workshops were documented in the form of visual booklets that could work as reminders during the continuing development process, the insights gained when selecting certain quotations from the interviews, deciding who to invite, how to support dialogue and envisioning future alternatives, were not shared.

In other words, much of the knowledge, ideas, and empathy that emerged in the process of designing the material for the collaborative activities resided in the researchers who designed and organised the gatherings: some of it was implicit and thus hard to share, while some was explicit but not appropriately documented and thus couldn't be shared. This raised questions related to documentation and participation in regard to learning:

Fig. 7



The Value Game combined elements such as game rules, turn-taking, game board, and playing cards. For instance, well-known characters were provided as playing cards to direct the discussion on values.

Whose involvement is essential throughout the process, and who can contribute momentarily? What kind of learning are we after, and who should learn? These questions are explored and discussed further throughout this dissertation and especially in relation to the Extreme Design project that followed the cases presented above.

Conclusions

I have now presented five design research cases that have varied in form and length as well as in context and participants. Some – for example learning about co-design that involves children as design partners – have been more research based, while some have more design-oriented aims like in the last case that concerned co-designing university. They all shared an interest in enhancing creative collaboration that focuses on tangible design material and in using the game as a metaphor (i.e. label) or as practical structure with a visual look related to games, for instance the rules and tangible game material. The following table summarises the key findings (**Table 1**).

One aspect given attention is various relationships between participants (e.g. users, development team and researchers) indicated in the above cases. It is rarely possible to clearly point out whose idea something was if the co-design evolved in a dialogue, as it ideally should do: someone shares experiences, an opinion etc. with others, the reactions to that invite further reactions and so on, gradually taking the initial idea further. However, we can look at who is involved in this design dialogue and roughly map the roles based on that:

Generating future visions in user – researcher interaction
Creating design proposals within a group of users
Enacting design solutions in designer – design researcher interaction
Seeking design openings within a multidisciplinary group

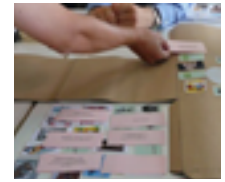
1.6 Problem area and further considerations

The cases introduced above followed my research program investigating different aspects of co-design. Next, I will discuss experiences and learning from the practical experiments concerning the three core themes identified as the base of the research program. I will then show how the cases produced new questions for further consideration and focused my research more strongly around the design games and wider view on user involvement in co-design. As will be pointed out below and in the following chapters, how to organise co-design is not a trivial question but includes several things that need to be considered, some of them rather intuitive and implicit, some demanding more explicit treatment.

Design collaboration

There are several forms of design collaboration as the examples above indicate. Since the Situated Make Tools exercises, the following cases demonstrate how I began to see co-design in wider terms, where direct user involvement is not necessary but where other stakeholders, designers, marketing people etc. might prove to be desirable design partners, depending on the particular contextual aims. In most cases, I have been one of the co-designers together with other participants. If the researcher guides the situation too much, there is a risk of preventing the emergence of unexpected issues. Nevertheless, there are also positive sides for acting in a double role of a researcher/co-designer, which justifies the involvement. These include the opportunity to utilise personal experiences, as well as pursuing the aims of the study by stimulating the discussion during co-design. Sometimes researchers form a part of the user group, as in the case of "Designing University", where the researchers were one possible user group of the Design Factory. Hence, researchers may present an important user perspective in line with other involved users. Different roles and strategies in co-design gatherings are examined later on in this dissertation. Especially the possibilities of design games in facilitating progress in co-design are given more attention in the following chapters.

Table 1 Summaries of different cases and design partners in them. It is important to notice that also in those cases where the researchers were not involved in the actual co-design gatherings as co-designers they had produced the design material that directs and frames the design.

CASE	DESIGN COLLABORATION	CURRENT – FUTURE	DESIGN MATERIALS
Active@work Five one-off co-design gatherings with identical aims and material but with different participants and place.	Design took place in a dialogue among researchers and an ageing worker. The researchers' role was supportive and initiating during the design gatherings where user's ideas were emphasised. However, the researchers also proposed new ideas. Co-design built on direct user involvement.	Contextual approach supported creative interplay between current practices and future opportunities as well as idea generation. In that interplay, design materials worked as things-to-act-with. With enough support, users were able to envision and enact future visions that were grounded to their current work practices.	
Co-design among young children Two one-off co-design gatherings with the same overall research objectives and participants but with a different design task and material.	Design took place in a dialogue among a group of children without researchers' intervention. The researchers were purely facilitators, not design partners. However, the researchers' creative input was embedded in the design game and other design material. Co-design built on direct user involvement, however, the case was research-oriented without practical design objectives.	Regardless of the contextual approach, design ideas and kids' everyday life remained separate. Design game was prominent in directing discussions and gathering user insights, although not perfect in supporting group dynamics. A classroom setting had explicit and implicit constrains, affecting the creative collaboration negatively. Many challenges in creative collaboration became evident with the children emphasising the need for contextual sensitivity in all co-design.	
Co-design as embodied practise Seven one-off co-design gatherings (four in Finland & three in Netherlands) with identical aims, setting and material but with different participants.	Design evolved in a dialogue among the designer and the researcher (in one gathering there were always two pairs working simultaneously). The researchers were equal design partners. Co-design built on direct user involvement, since the designers were also possible users of the designed solution.	In enacted design, ideas are sketched through bodily actions and performance (instead of e.g. drawing) where props gain their meaning in the action. This extended the language of design and enabled joint reflection-in-action. Providing a variety of props allowed participants to choose the sketching medium they felt comfortable working with.	
Stories as a source of inspiration Three one-off co-design gatherings with identical material but with separate aims, context, researchers and participants.	Co-design took place in a dialogue among researchers and participants. The researchers were equal design partners. There was no direct user involvement, as ideation was grounded to user's experiences through stories written by them.	Users' insights were presented in the form of stories used as inspiration for design. The design game gave rules for the interpretation, including individual and collective efforts and an easy-to-repeat structure. Moreover, it invited insights from various people, creating more holistic view on the data.	
Co-designing University A sequence of three co-design gatherings with separate aims, building on the results from the previous session, with the same participants.	Co-design evolved a dialogue among a multidisciplinary group where the researchers had an equal right to contribute. Co-design built on direct user involvement, since participants were possible users of the Design Factory, the unit under development.	To ground design ideas to the understanding of current practices, possible users were invited to take part as design partners. Temporal interventions to the on-going development project gave rise to critical questions in relation to learning, documentation and participation. Who should be involved and when, how to share the learning emerging during the process, etc?	

Creative interplay between current practices and future opportunities

During the four cases, I explored various ways (listed below) to utilise contextual elements and insights from people's everyday life in creative design process to support imagination and function as a link between current practices and future opportunities. My aim was to understand how contextual knowledge can be maintained in design proposals when co-design activity is set in a Design:Lab (e.g. Binder 2007) or a meeting room.

For example, the design game strategy applied in the second experiment of "Co-design among young children" was prominent in the way it directed discussions towards ecological issues, as had been hoped, but it didn't maintain the link between designed objects and everyday practices. In the "Co-design as embodied practice" case, the setting had similarities with a laboratory or theatre stage when the researchers' meeting room was transformed temporarily into a design studio. This allowed concentrating on those elements of a design studio that were found relevant in relation to the given design task. The meeting room was more controllable and flexible to our purposes than for example the participating designers' studios had the co-design taken place there. In the "Stories as source of inspiration" case, people's aspirations were brought into co-design in the form of written stories, and the design game provided a framework to link interpretations of user data and idea generation together. In "Co-designing University" finding appropriate people, representing various users, for collaboration was considered a key factor in gaining insights into participants' practices and their wishes in relation to seeking novel design opportunities.

One reason for a contextual approach is to let the participants feel that they are the experts in the situation at hand. When moving away from contextual approaches, a need for other ways of trust and comfort creation arises among the participants. The design games in the above examples illustrate, in line with many other sources (e.g. Brandt & Messeter 2004; Johansson 2005), how the game structure can support that aim. For instance, in "Stories as source of inspiration", after the game the student participants told to the facilitator that they found the game rules and step-by-step structure helpful, since well-defined guidelines allowed them to concentrate on the content instead of feeling uncertain about what was expected from them.

Design materials as tools in ideation

In Situated Make Tools, I observed how tangible design representations and continuous dialogue among ageing workers and design researchers revealed the reasoning behind design suggestions. This process remained unclear in children's design proposals, and it may be even harder to capture when designing evolves through enacting, unless the researcher is

active participant in the co-design process. These observations point out the need for other means of documentation besides a co-created artefact, to capture the process of designing in order to understand the link between an artefact and the life of the people who created it. In this view, I am distancing myself from researchers (e.g. Sanders & Dandavate 1999) who emphasize the resulting artefact and its descriptions as the main source of inspiration in co-design. I agree with them in that the resulting artefact has an important role in evoking further ideation, especially by allowing more concrete story-telling through it. My concern, however, is that in co-design, where several participants' views and insights meet, what has been left out of the resulting artefact may be as important for guiding further understanding of the topic and ideas as the ones integrated within the artefact. And, if these decisions and negotiations are not incorporated within the presentation of the artefact to researcher, how can we know about them?

In the fourth case, it was noticed that lot of learning and ideas related to the new premises emerged already when preparing the actual co-design gatherings, but without proper documentation those ideas remained partly unrevealed for those attending only to the gatherings. This may be improved by more careful documentation; however, it also suggests the importance of engaging persons who should apply insights in their daily work – as much as possible throughout the process.

Exploring design games in co-design

Some reasons for inviting different people to contribute to design in the previous cases included: achieving several perspectives to a topic, mutual learning among participants, and finding inspiration from other people and their experiences. Consequently, design games were utilised to frame the interaction in various ways, with game characteristics being more evident in some exercises than in others. Visual and playful elements were applied for instance in order to evoke curiosity towards the topics and to direct the discussion towards certain themes. As examples, playing cards depicting well-known characters were utilised to invite opinions about the core values of Design Factory, and scene images with empty speech bubbles triggered children's reactions towards ecological issues. Game material helped to maintain the focus in the topic while the game rules made the participants to approach it from many directions. This provided valuable observations and ideas for group discussions.

But as the experiences from the *Eco-Game* indicate, design games do not provide a self-evident solution: there is always a need for sensitivity towards the participants' capabilities and what inspires them in order to design the activities and rules accordingly. This is relevant in co-design because *"disappointment and confusion can arise when objectives are set beyond the abilities of the group"* as drama workshop facilitator Chris

Johnston (1998/2005, p 69) has pointed out. These experiences encourage taking a better look at the characteristics and aspects of various uses and interpretations of games and design games and how they can support collaborative explorations and open up diverse perspectives for the participants, without forgetting the contextual requirements.

1.7 Co–design gatherings to obtain contributions from several people

I have now described my research approach, in which empirical cases form an important part of the argumentation. I have discussed several aspects of co-design which are central in my research and presented the main findings so far. I will next explain where they lead to.

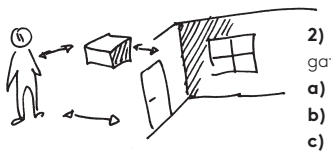
As the case studies demonstrated, the design material given to the co-design partners in general seems to engage the participants, whether they are skilled designers, children, university students or professors, and direct the discussion. I explored design games as an additional strategy to introduce contextual elements instead of setting the co-design gatherings within an actual use context. Based on the experiences, I find them prominent in bridging the gap between people's current needs and the design solutions they generate during co-design sessions. On the one hand, the game metaphor proved to be useful in designing the co-design activities, for instance in easy-to-follow steps with instructions, and, on the other hand, by bringing in fragments of user's values and insights as a basis for design. In addition, orchestrating a co-design gathering in the form of explicit rules and a game structure made it possible to repeat it, hence to utilise the same data with different participants and foci.

Based on the experiences so far, *design games* can mean a label for an activity through which an author aims to get people to see particular actions as a game; or/and it can describe an activity that looks and feels like a game with explicit rules and game pieces. There is no artificial conflict, as in Salen and Zimmerman's (2004) definition of "games", or evident competition; instead, playing the game results in a co-constructed visual outcome. This description does not add much to what was the starting point for the journey and it does not help answer the question, *what makes some co-design activity a design game?*

For example, enacted forms of design showed similar prominence in enhancing joint idea generation through different combinations of tangible props, acting and contextual settings without calling it a design game. *So what makes something a (design) game?* In order to answer this question, I will next look more carefully at the three topics that emerged during the case studies (**Figure 8**). I will do this by first focusing on the application context – co-design – before going deeper into design games or games, play and performance, which will be given more attention later in my journey.

Fig. 8

1) Capturing thoughts behind design proposals.
Documenting the process of co-design so that it illustrates the link between created artefacts and its relevance to the people who created it.



2) How to introduce contextual information for design gathering? By understanding relations between
a) people (who are involved)
b) materials (what materials are introduced and how)
c) setting (where the co-design is set)

3) Roles and facilitation in co-design:
Who is the designer?
Who are desirable design partners?
Leads into the notions of:
direct user involvement and
indirect user involvement

The three interesting topics, summed up in the figure, which emerged during the case studies, are further discussed in the next chapters.

Chapter 2
Direct and indirect user involvement: moving between dialogue and narratives

In this chapter I will discuss the five cases introduced in the previous chapter in connection with methods that aim at driving empathic sensitivity in user-centred design (UCD). I will discuss the meaning of creative user study approaches that stress imagination in line with information. In that discussion, the relationship between user-centred design, user experience and co-design will be looked at. In general, I will discuss the topic of *design and participation* by addressing some approaches, techniques and reasons for direct and indirect user involvement in co-design. The focus will be on empathic understanding in early design process.

2.1 From user–centred design to user experience and co–design

Although the overall aim of creating designs that are appropriate for its users has in general remained unchanged, the focus on and approaches towards better understanding the influence of design have varied during the last decades. For example, whereas in the 1970s the main emphasis was put on ergonomics and cognition, in the 1980s and in the beginning of the 1990s usability was given more attention (Julier 2000). It was common for all these approaches to consider users as subjects in the study that aimed at design guidelines with quantitative qualifiers that could be justified through measurements.

Subsequently, *user-centred design* (UCD) that emphasizes emotions and pleasure, in addition to usability, as meaningful factors in user experience has become a common approach. According to Rizzo (2010, p 2) *"For UCD the scope of design is to produce a better world for people, that meaning interacts with products and services in a manner appropriate to the user and the context."* In user-centred design or *human-centred design*, it is acknowledged that designers' own experiences may be insufficient information sources, especially when designing for people or context the designers are not familiar with (Jääskö & Keinonen 2006, pp 92-93). Consequently, researchers and practitioners have been developing several methods, for collecting and interpreting user information, as presented for example in (ibid., pp 92–131), in regard to early design process.

ISO 13407 (ISO 1999) defines human-centred design as iterative process that involves users throughout the design process in which specifications, evaluations and design solutions are based on user studies and continuous user involvement. Accordingly, in Rizzo's (2010) view user-centred design has two major benefits in design: focusing on the users and on the iterative process where intermediate results are continuously evaluated.

Although users are at the centre of design in user-centred design, user-centred design can be approached from many angles: some highlight analytical and rather objective perspective into user knowledge (e.g. Hyysalo 2006) while others give more room for creative and subjective interpretations (e.g. Gaver et al. 2004). For example Jääskö and Mattelmäki (2003)

see user experience as a complex set of affecting variables including a product's look and feel, socio-cultural context, time/historic context, physical context, use context and market context. This framework has been further developed since (Jääskö et al. 2003; Jääskö & Keinonen 2006, p 97), but the fundamental idea of the affecting factors remains the same.

Sanders and Dandavate (1999) proposes understanding user experiences by studying what people *say, do* and *make,* highlighting four types of knowledge: *explicit, observable, tacit,* and *latent* (**Figure 9**). Explicit knowledge refers to things about which people can talk for example in interviews, whereas other kind of knowledge can be found in peoples' actions, practices and environment and can be approached by observing what people do and how they use things. The last two types of knowledge include people's tacit knowledge, dreams and feelings and are often unconscious and thus hardest to reveal. It has been proposed that by letting people *make* something new, for example letting them to create a simple mock-up or a collage, can help them to have a grasp on emotional aspects of the experience. (Sanders & Dandavate 1999; Sleeswijk Visser et al. 2005)

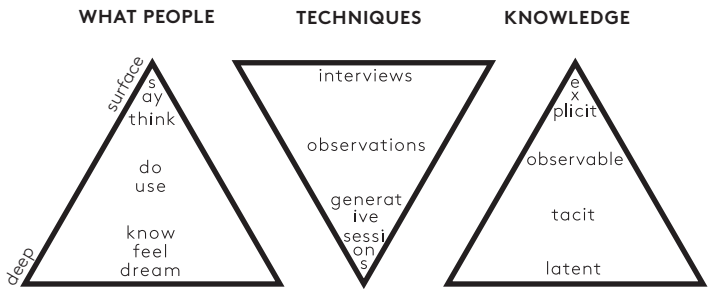


Fig. 9

Sanders and her colleagues have mapped different kinds of user information and appropriate approaches for them, as presented in the picture (adapted: Sleeswijk Visser et al. 2005).

A combination of more than one method to gain insights from all four types of user knowledge benefits most design projects in creating a comprehensive image of the potential users. Sleeswijk Visser's dissertation (2009) titled *Bringing the everyday life of people into design* meticulously describes *contextmapping*, an approach that *"combines several research methods in order to generate rich experience information"* (ibid., p 17). As in the cases I have conducted, the number of participants in contextmapping is small in order to create a dialogue among designers or researchers and the participants, and to learn from people's personal stories (ibid.).

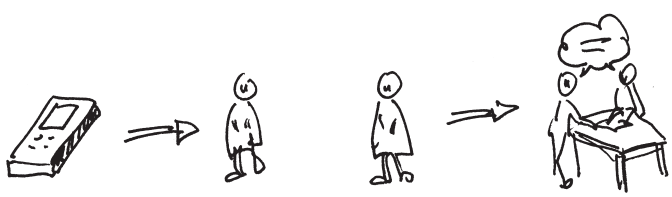
User experience design, as described by Battarbee (2004, p 25), considers people's subjective experiences and values as important to recognize in design as cognitions and functional properties in earlier decades.

Subjectivity of user's experiences can be considered as consisting of two parts: what is provided through design and what the user brings into the interaction (Sanders 2002). Moreover, besides people's *current experience* (the moment), it addresses *past experiences* (memories) and *future experiences* (dreams) as well (Sanders 2001).

It has been acknowledged that experiences as such cannot be designed, but as Sanders (2002) proposes we can design for experiencing, in Evenson's (2005, p 153) words by designing *"resources to support the activities in the experience process"*. According to Sanders, designing for experiencing demands new mindset in two ways: *Firstly,* the focus shifts from things we design such as objects, services, and interfaces to people we are designing for (2002). *Secondly*, since experiencing is in people *"it's about designing with people and not just for them"* (2001, p 219). This perspective assumes that everyone is creative and can become a design partner already in the early design process if provided with appropriate tools instead of allowing to stay as a passive consumer or a user (ibid.). Accordingly, Sanders is critical of the notion of users and uses instead the terms *ordinary or everyday people* to denote design process participants without design education (e.g. 2001).

Because in the beginning of my research I was inspired by Sanders' work on generative methods, including Make Tools and other visual tool kits (www.maketools.com), I have been influenced by her views on UCD in many ways. However, for the sake of simplicity, I find it appropriate to use the term *user* even if I agree with Sanders that the term does not imply creative contribution other people – besides designers – may have in the design process. In participatory design (PD), Ehn and Kyng (1991) have proposed *designing users* for a similar purpose. What these both suggestions denote is the active role in design given to people who are affected by it. And whereas designing users may not be sufficient in all user-centred design activities, for example users may be observed or interviewed, it is descriptive for an approach or rather a mindset in which users are seen as design partners instead of passive informants.

Fig. 10



From objects to people

From designing *for* people designing *with* people

Over last decade there has been a shift from focusing on products to focusing on people. Furthermore, while design has moved beyond products, users have been given more power in the design process.

2.1.1 Seeking empathic under–standing of other people's experiences

By considering users' creative input as an important source of design ideas, the focus of user-centred design has shifted towards more creative approaches which do not consider users purely from the objective point of view but seek to understand people's subjective values, attitudes and desires as well. In this search, empathic understanding of other people's experiences has been considered central. "*If we want to make sense of how products enter our minds in reflective terms, we need to understand how people themselves experience them. We need empathic understanding of the user (Koskinen & Battarbee 2003, p 45)*." As Fulton Suri (2003, p 52) states, empathic design aims at "*achieving greater awareness, an extended imagination and sensitivity to another person's world in a powerfully memorable way*".

According to Battarbee, empathy is more an attitude than a strict set of methods (2003, p 108), and the aims of empathic design, as described by Mattelmäki (2003, p 119), are to seek design opportunities rather than solutions for recognized problems. Hence design empathy is not only about facts but inspiration as well (ibid., pp 119–120). In line with that, Gaver et al. (2004) underline the need for designers' and researchers' subjective interpretations, in which users are seen in relation to researchers' own experiences in *"understanding their [users] responses empathetically, not intellectually (ibid., p 5)"*. I am sympathetic to their claim that, in our efforts of better understand those people we are designing for, we should recognise the limits of that knowledge. That in mind, Gaver and his colleagues purposefully conducted user studies that provided fragmented, incomplete and confusing results, to prevent designers and researchers *"from arriving comfortable conclusions (ibid., p 5)"* about users' lives.

I agree with the perspectives given above regarding empathic design and support Mattelmäki's (2006) claim that, to reach an empathic understanding of a user's experiences, there is a need for creative methods that are open to designers' interpretations. As a result, creative and collaborative approaches such as *probes* (Gaver et al. 1999; Mattelmäki 2006), *Make Tools* (Sanders & Dandavate 1999), *design games* (Ehn & Sjögren 1991; Johansson 2005; Brandt & Messeter 2004), and other so-called *innovative methods* (Hanington 2003), have emerged to augment the understanding gained by the traditional means. As pointed out by Keinonen (2009), the aim of the innovative methods is often to speculate with future designs rather than aim at reliable and valid explanations of the existing ones. Therefore they suit particularly well for early design process, often referred to as concept design or fuzzy-front-end, to direct design decisions; to inform what actually should be designed, and for whom.

According to Keinonen and Takala (2006, pp 19–28), there are several purposes for concept design including: *1) product development, 2) innovations, 3) shared vision, 4) building a competence, and 5) expectation management*. Although their examples are often from product development

environments, concept design is a larger phenomenon that may take place outside product design as well. For example, in the five cases presented earlier, the main aims of co-design were similar with the purposes of concept design. These included creating concepts to evoke discussion, mapping potential design space, collecting insights for coming design decisions, reaching shared visions, and increasing researchers' competence on creative collaboration – not introducing features of the final design. Regardless of their varying purposes, the cases share the fundamental character of concept design by being liberated from the demands of the production. Thus they have more freedom in applying innovative techniques for seeking holistic and empathic view on users (Keinonen & Takala 2006, pp 19–28).

2.1.2 Involving several partners in design process

Like Keinonen and Takala (2006), who write about the many purposes of concept design, Binder and Brandt (2008) point out that searching *what to design* has become part of designers' tasks. As proposed, this open starting point gives more room for user studies and explorative methods. Furthermore, designers' and researchers' creativity is not targeted only towards designing new products, or services but increasingly towards creating opportunities for creative collaboration among different people and developing tools that enhance the creativity of others (e.g. Sanders & Dandavate 1999; Brandt 2006). Binder and Brandt (2008, p 116) describe the influence this shift has had in design research: *"It's not uncommon that new design opportunities are sought across organizational and institutional boundaries. Thus, recent literature address the ways design research can be organized to involve designers and clients and how findings and results can be produced and represented."*

The repertoire of methods for participation has focused on both generating design ideas and interpreting user information in multidisciplinary teams including also users and other stakeholders (e.g. Buur & Søndergaard 2000; Westerlund 2009; Johansson 2005). As Binder and Brandt (2008) state, ethnographic field studies have been one starting point for collaborative inquiry. For example, Johansson (2005) looks in his doctoral dissertation *Participatory inquiry – Collaborative Design* into how ethnographic field studies can be used in exploratory design sessions involving users and other stakeholders. As is typical for innovative methods pointed out by Keinonen (2009), Johansson demonstrates in his research that exploring *what is* and envisioning *what can be*, can be meaningfully combined in design sessions with various participants.

The interplay between the two has been one of my initial interests as well, and I will continue studying that through this dissertation. However, whereas Johansson (2005) looks into how ethnography can contribute to design and proposes the design games approach as a medium to transform the snippets from the field studies into a collaborative *"sketching*

material", I continue from that by focusing on what actually are the core qualities of design games. However, before going into them, this chapter prepares the ground by introducing the background for co-design; as it has evolved from user-centred design to user experience design, perspectives to co-design, and how empathic design is part of the way co-design is organized in my research. As I have already touched upon some of those issues, I will next discuss the confusion in the terminology concerning participation in design, which results from the tradition, discipline, and community where authors belong or contribute to (Mattelmäki & Sleeswijk Visser 2011, p 7).

In their recent article *Lost in co-x: Interpretations of co-design and co-creation* Mattelmäki and Sleeswijk Visser (2011) address the terminological challenge caused by several overlapping terms with co-design, including co-creation and participatory design (PD). The aim of their article is to clarify the use of the concepts in design research and related fields (for example marketing that is connected to service design). They summarise the various uses of co-design and co-creation as follows (ibid., p 11): *"Co-design is a process and the planning, adjusting tools and facilitation is built on a mindset based on collaboration. Co-creation can take place within co-design processes but focuses much more on the collective creativity of involved users and stakeholders."*

In their mapping, Mattelmäki and Sleeswijk Visser (ibid.) looked, for example, at the way Sanders and Simons (2009) use the concept of *co-design*, referring to collective creativity during a design process, *co-creation* being a particular case of collaboration aiming at creating something unknown. Sanders and Simons (2009) propose that co-creation may occur within communities, among organizations, in B2B context, and between companies and the people they serve. It may also take place throughout the design process.

One of the sources in Mattelmäki's and Sleeswijk Visser's article (2011) was Cottam and Leadbeater (2004, p 22), who describe *co-creation* of services as a *"creative and interactive process which challenges the views of all parties and seeks to combine professional and local expertise in new ways"*. According to them, co-creation could provide means to challenge traditional thinking on economical and social issues, thus leading to new innovations. Thackara (2006, p 223) uses the term co-design approximately the same way: *"Collaborative design means finding ways to share a vision of a system among all its actors and stakeholders as the system evolves."*

One of the approaches often related to co-design and co-creation is participatory design, where common interests are shared in involving users actively in the creative design process. Participatory design, which emerged in Scandinavia in the 70s, emphasises user involvement in design, arising from a political ideology to empower workers and labour unions in workplace design. According to Mattelmäki and Sleeswijk Visser (2011), while

co-design and participatory design build on the same mindset and tools, co-design has a less political standpoint. Around the time when participatory design emerged in Scandinavia, action research (Horgen et al. 1999) was influencing a wider geographical area, sharing many similar interests in organisational development – however, according to Westerlund (2009, p 39), with a lesser design orientation.

Since users have been given a more active role when designing for user experience, a user experience approach has been proposed as a passage between user-centred design and co-design, where people express their experiences and knowledge directly to the design process (Rizzo 2010). According to Rizzo (ibid., p 1) user-centred design is a more precise methodology, whereas "*co-design is a set of creative techniques whose aim is to inspire the design process. Creative exercises are usually applied to enhance idea generation and concept design, they are characterised for the presence of non-designers (end users but not only) as participants and leaded by designers.*" According to her (ibid.), co-design aims to feed designers' creativity with a set of creative techniques, such as creative sessions, where participants can express their ideas via tools provided by the designers to get inspiration and fresh ideas to be further developed by the design team.

In his dissertation *"Design as Sociopolitical navigation: A Performative Framework for Action-Oriented Design"*, Clark (2007) points out the gap in most participatory design projects which focus on involving end users and other stakeholders but leaves one important interest group, decision makers, outside the scope. In his (ibid.) view, design with participative qualities cannot be reduced to an artefact, report, or a set of specifications to be handed to developers in an organization; like many others, he underlines the need for organizing design activities that support engagement. Although he (ibid.) stresses decision makers' involvement, he makes distinction between participatory design and *performative framework,* that he proposes for co-design, in their focus; while the former focus on *who will be involved*, performative framework looks at *how and when different actors engage*.

Both of the above views are of interest to my studies, and therefore I find Clark's (ibid.) perspective valuable, especially regarding the attention it brings to the whole process of establishing a collaborative project and the interrelationship between activities during it. Another interesting point in his study is the view he has on collaborative activities as a performance, where, for example, some of the activities can be considered as *rehearsing* or *performing*. By bringing our attention to the creation of the design project proposal, Clark (ibid.) points to a less studied phase in design with wide implications for how the project can unfold including influences to the practice context, wished outcomes, and the amount of time and resources different interest groups can use for the project (ibid., pp 142–144).

Like Clark, Halse (2008) is interested in performance's point of view in co-design. As he describes, performing scenarios about future work (as

part of collaborative design) is, simultaneously, a continued inquiry into the practice and an exploration of possibilities for changing it. Hence it can be perceived as rehearsing the future. I find this explicit and concurrent exploration of current and non-existing scenarios an interesting source of ideas, and a possibility to bind various participants' insights into a common vision. To open a window for new opportunities, Halse (ibid., p 197) proposes interplay between *making familiar* and *making strange*. This can happen, for instance, in the following way (ibid, p 197): *"When software developers are familiarized with situations of maintenance practice, but estranged from the technologies they work with on an everyday basis; and vice versa, service technicians are familiarized with technological components for mobile ERP solutions, but estranged from the everyday routines of maintenance work."* According to Halse (ibid.), design games are one way of setting the stage for familiarization and estrangement while including users and other stakeholders as well.

Whereas Clark (2007) and Halse (2008) both look at co-design through the performance metaphor, Binder and Brandt (2008) describe the settings where these future rehearsals or prototyping possible changes typically take place as *Design:Labs.* Previously they have used metaphors like *workshop, studio* and *atelier*, which all, according to them, entail attractive characteristics for design research. However, they find the metaphor of *laboratory* superior in terms of addressing the transparency of the process, experimentation and documentation. Binder (2010, p 19) has stated that: *"To think of this space in terms of a laboratory instead of as a workshop made it easier for us to understand and explain what kind of a setup we were creating."* According to Binder and Brandt (2008, p 121), Design:Lab is *"a platform for a collaborative inquiry that is based on design experiments."* In other words, Design:Lab is a collaborative space for designerly exploration that takes advantage of a controlled environment and uses experimentation to go beyond observation in the real context towards prototyping possible changes (Binder 2007). The views described above, later referred to Halse et al. (2010), illustrate co-design as a bodily engaging and performative activity to imagine and test the unwinding future. Drawing from performance studies, as Clark (2007) and Halse (2008) have done in order to better understand co-design, seems logical from that perspective.

One approach for organising co-design is that of *generative sessions* introduced by Sanders and Dandavate (1999) and Sleeswijk Visser et al. (2005) where users are enticed to express their needs and dreams in a visual format through *generative tools* such as the Make Tools. The presentation of these artefacts inspires the design team and elicits new insights (ibid.).

Summary

Co-design, as discussed in this dissertation, includes all those views above, i.e. co-design, co-creation and participatory design. They all can be associated with the idea that people are creative if provided with an appropriate setting and tools. As mentioned earlier, we are talking here about an arranged situation with a predesigned structure, task and a facilitator who is responsible for guiding the situation. The outcomes of these situations are not always *"really designs but rather a common understanding of the complexity and visions and ideas for improvement"* (Mattelmäki & Sleeswijk Visser 2011, p 10).

What is important is the creative interplay between the existing and imagined and support for it through a set of playful and tangible design material, an aspect that I will discuss later in this and next chapter. Co-design is also about making the familiar unfamiliar and vice versa, as was described by Halse (2008). Although I use the term co-design most of the time to describe specific co-design gatherings, activities or design processes, I sometimes also use *creative collaboration* as a synonym to it. Creative collaboration shares, approximately, the same meaning, but it is purposefully left ambiguous to cover wider application areas, including service design that will be introduced briefly next.

2.1.3 Widening scope of design

The movement towards user experience and co-design has been influenced by the changes in society at large, which has put attention to human-centred solutions in several societal levels and domains. We need more holistic approaches to improve the environment, products and services we are continuously in touch with and surrounded by in our daily life. For instance, digitalization, new communication channels and ubiquitous technology, among other technological achievements, have brought up new opportunities for peoples' everyday life by affecting delivery, distribution of services, user interfaces, user interaction, and thus the whole user experience. Customer behaviour has changed in line with the technological development; while technology has become intertwined in daily practices, people increasingly demand more options to satisfy their personal preferences.

Besides the opportunities and needs the new technological landscape has brought up, design competence has been seen as novel approach to solve complex challenges such as increased chronic illnesses, social problems and environmental changes. For instance, Cottam and Leadbeater (2004), who have been working with societal issues in UK, call for more integrated perspective on social, economical and ecological sustainability. According to them, for instance health services could be changed by studying the traditional structures from different angles, including that of design methods. They call their approach *transformation design* (ibid.). New multidisciplinary research institutes and centres have been established to tackle the associated problems. For example, there is Mindlab in Denmark and Participle in

the UK, and there are more market-oriented service design consultancies around Europe (e.g. Live|work in London). Their common denominator is integration of design with other disciplines in search of innovative solutions.

As an example of the widening scope of design, design research projects at the Aalto University School of Arts, Design and Architecture have expanded the role of design to address, among other things, organizational practices and social change in the context of wellbeing and working population growing older (Mattelmäki et al. 2007), creative tourism (Miettinen 2007) and social innovations (Bello 2008). One of the areas gaining increasing attention is *service design*, which emphasizes user experience as a driving force in service development previously characterized mainly by business and technology driven approaches.

The need for stronger user orientation in designing services has been noticed within economical studies on services, among others. For instance, one limitation of the traditional management thinking, pointed out by Möller et al. (2008, p 31–48), is that it does not consider the value of services from the clients' or users' perspective. According to them (ibid.), the most successful service providers are not those who focus on their own capabilities or their clients' current needs, but those who incorporate clients' and users' experiences and capabilities into the service co-creation process. They do not define in which terms they use the expression of co-creation, but service design literature typically refers to it in two ways (Mager 2009, p 38): either it is understood as design collaboration during the development process having similar meaning with co-design in this dissertation, or as users' active role in constructing the experience at the time of consuming a service.

Service design is often contrasted with other disciplines like management, marketing or product design; a few (e.g. Holmlid 2007) though emphasize service design as part of related disciplines. According to Holmlid (ibid.), service design and participatory design share central areas, for instance, that of utilising participative techniques. According to Mattelmäki and Sleeswijk Visser (2011, p 6), this confuses the use of co-x terms even further: *"Methods that were developed for co-designing with potential users or other stakeholders are now utilised in service design to create potential service solutions with clients, the solutions which are then to be co-created with customers and producers."*

Apparently the comparisons that underline service design as distinct from other design disciplines try to highlight special challenges faced when designing services. However, the critics of those comparisons point out that the attributes used *"do not capture the process and interactive nature of the services"* (Edvardsson et al. 2005, p 115). In that quotation, Edvardsson and his colleagues (ibid.) refer to intangibility, heterogeneity (or variability), inseparability, and perishability (IHIP), attributes which are often seen as unique characteristics of services, and thus influencing radically how to design them (see e.g. Maffei et al. 2005; Edvardsson et al. 2005).

Although I am sympathetic to the attempts to clarify the core of service design, I do not find the distinction between services and other disciplines very rewarding. As Richard Buchanan (1992, p 10) has put it in his famous article *Wicked Problems in Design Thinking*, there are several areas of design thinking, which are *"tempting to identify and limit specific professions within each area [...]. But this would not be adequate because these areas are not simply categories of objects that reflect the result of design. [...] they are also places of invention shared by all designers, places where one discovers the dimensions of design thinking by a reconsideration of problems and solutions. [...] In fact, signs, things, actions, and thoughts are not only interconnected, they also interpenetrate and merge in contemporary design thinking with surprising consequences for innovation."* His statement suggests that there is a risk of losing opportunity for novel innovations if different domains of design are considered too separate from each other. This is especially true in service design, which integrates several design domains, including processes, interaction, surroundings and devices.

Moreover, generalizations over various design projects are hard to do because every case is unique. For instance, principles that guide designing health-related services (and products as well) are different from those that guide the design related to people's hobbies. Still, there are some specific features, such as organizing services around the notion of *customer journey*[8] (e.g. Holmlid & Evenson 2006), that most services share. From a customer journey point of view, services are built upon a series of episodes - service moments - in time; there is interaction between the user and service personnel and other people around, as well as between the user and the environment with physical touch-points (i.e. devices, furniture, brochures, receipts etc.). Like any experiences these experiences are shaped by people's expectations (history), current needs and future wishes (see **Figure 11**).

Fig. 11

In service design and alike where there is no object to focus on, the attention in design is on time (e.g. customer journey), interactions between people, environments as well as on devices and people with history and future dreams.

[8] Customer journey is one of the concepts applied in service design to emphasise and define the process. It aims to describe the process of experiencing service through different touch-points from the customer's point of view.

What I find worth of further studies are the immaterial aspects of early design processes. These aspects are more apparent in service design than in product based design. Service design deals with envisioning and discussing future alternatives to feed design projects when there is yet no tangible evidence at hand. This is especially remarkable when we consider co-design, which incorporates other people's input in addition to designers.

Besides immateriality of services, another factor that is remarkable in service design is its systemic approach: services are seen as a complex set of related systems that happen over time. Figures 12 and 13 illustrate the systemic and processual nature of services. They are, however, just simplifications that merely highlight the main activities and touch-points without going into details.

Summary

Co-design is a fuzzy term and has many counterparts. In this dissertation, co-design means collaborative knowledge sharing and creation process, where different practitioners' skills, experiences and creativity are brought together in order to support generative thinking and thereby to reach novel solutions (Mattelmäki 2007, pp 231–236). It has been acknowledged that measurable facts are not enough when designing for experiences; more innovative methods that take into account emotional responses, personal diversity and empathic understanding are needed. Accordingly, co-design in this dissertation builds on user-centred design but with stronger emphasis on users' creative input during the early design process. The application domain of co-design extends beyond product design, as co-design is being increasingly utilized, for example, for service design. Since empathic understanding of other people's experiences and views is central to the way co-design is defined in my research, the next section provides an overview of some co-design techniques from this particular point of view.

Fig. 12 A blueprint of activities in a sandwich bar during one short moment related to a customer journey. The figure illustrates both the things that are visible for the user and activities that are carried out by the service personnel. The infrastructure needed that should be invisible to the user is also shown. (Adapted from Johanna Nieminen, Service Business Classification project, Aalto University, Service Factory, 2010.)

Fig. 13 A customer journey related to metro in Helsinki. Besides the activities, the figure also pinpoints the physical touch-points that are important in creating the full service experience. (Adapted from Sandra Viña, Spice project at Aalto University, 2010.)

Fig.12

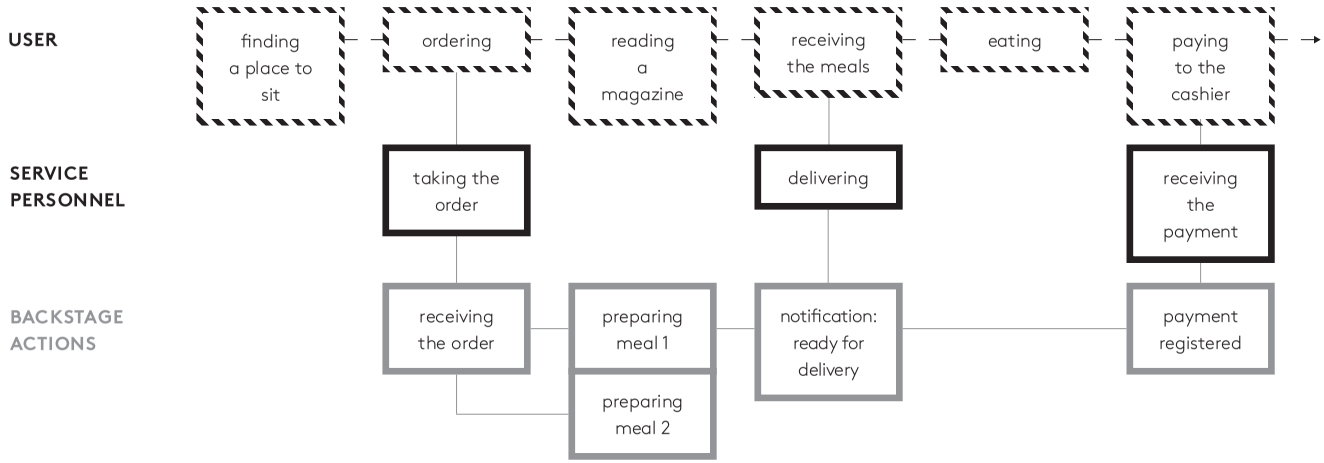
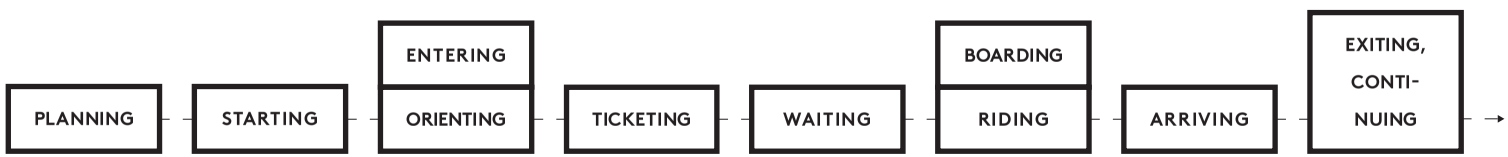


Fig.13



journey planner
services and website
navigation
placefinding
maps
station staff
brochure
phone

transportation networks
service signs and communication
station/entrance finding
station architecture

doors
elevators
stairs
direction signage
guidance for disabled
notifications on screens, monitors and displays
sound guidance
illumination
public toilets
air quality

ticket office
on-line
phone ticket
kiosks
vending machine
card reader
instructions

waiting environment
soundscape
signage
free internet connection
illumination
art works and exhibition
advertisement
maps
furniture
notifications
other people
complimentary services

doors
sound and light signage
storage space
seats
air quality
emergency
screens
interior/exterior design
seats
arriving info
direction info

way finding
doors
elevators
stairs
escalators
direction signage
guidance for disabled
notifications
sound guidance
illumination
emergency exits
soundscape
public toilets

final destination finding
maps
connecting transportation
bus
bike
taxi
tram
supplementary services

2.2 Dialogue-based and narrative approaches in co–design

According to Wright and McCarthy (2008), there are two types of methods that are the drivers for empathic sensibility in human-computer interaction design: *dialogue-based approach* and *narrative approach*. The main difference is that while the first engages designers and users for direct dialogue, the latter may involve little or none direct contact between the two. In general, empathic design requires some sort of dialogue between the designer/design researcher and the user or stakeholder, as has been mentioned earlier. In co-design, dialogue may easily be understood only as face-to-face meetings between users, but in addition to that, there can also be indirect user involvement guided through narratives or role-playing. Some of the methods used to organise different forms of dialogue are reviewed here in an attempt to understand the ways in which they elicit empathic responses. The aim is also to illustrate the type of knowledge related to empathic user research.

What should be understood is that a designer or a researcher can be user-oriented but still stay in the role of an observer. This is typical of usability and ergonomic design, which does not provide means for *role immersion* that is needed, in some degree, to reach empathic understanding (Koskinen & Battarbee 2003). Role immersion does not mean to become the other but "*to make sense of the other through oneself*" (Wright & McCarthy 2008, p 641). The methods aiming at allowing the designers to see the worlds of the others through their own eyes are ambiguous and open-ended in order to invite subjective interpretations.

Probe is one of the approaches geared to gather subjective views on people's experiences and to organize dialogue between designers and users (Gaver et al. 1999; Mattelmäki 2006). Probes are based on self-documentation and often include open questions, diaries and photo assignments, for gathering contextual insights, opinions, and stories and to envision potential design ideas. According to Gaver et al. (2004, p 6), probes make the strange familiar and the familiar strange, thus providing constrains and openings for design. Probes combine observable facts and emotional responses: *firstly*, from the users who reflect on their life through them and, *secondly*, from the designers or researchers who initiate the study and interpret the returned probe packages (Mattelmäki 2006, pp 61–62). Unlike in cultural probes, in empathic probes the process is typically complemented with interviews for gathering further details (ibid.).

Mattelmäki (ibid., p 58) proposes four main reasons for probing: *inspiration, information, participation, and dialogue*. I am especially interested in how probes may work as *agents of dialogue* in three ways: *firstly*, indirectly through probes, in which designers give something from themselves to the users, the filled probes in return telling something about the users; *secondly*, where direct involvement during interviews *"strengthen their [designers] motivation to empathise the user perspective and apply it to product design"* (ibid., p 61); *thirdly*, probe study is typically interpreted

into some sort of user representations to introduce users to a wider design team. In other words, probes can build up interaction between the users and the designers, as well as within the design team.

In the five co-design cases discussed so far, the Make Tools or other design material and the design games play a role similar to the probe packages in promoting dialogue both indirectly and directly. Only the case where stories were used as an inspiration for design, users' insights were introduced through their stories instead of inviting the users as design partners. In the other experiments, the design material, corresponding to probe packages, was utilized in a dialogue either among users (e.g. Co-design among children) or between researchers and users (e.g. Co-designing University). For example, the Eco Game evoked personal responses simultaneously from several kids in a dialogical process where it was quite likely that the responses influenced each other. This contrasts with probe studies that mainly invite users' reactions in isolation from other people's presence.

Many co-design techniques engage users and other stakeholders in creative exercises so that they can express *"their experience and knowledge directly in the design process"* (Rizzo 2010, p 1). Thus co-design gatherings typically produce material and create understanding of users' world, dealing implicitly or rather more consciously with different kinds of user representations. Often in co-design, user material is condensed and combined into different descriptions in a collective manner (e.g. Mattelmäki 2006, pp 88–89; Sleeswijk Visser 2009, pp 101–103), but user representations are also used to communicate user study and co-design findings for people who have not been part of the study. For example, software and interaction designer Alan Cooper (1999) introduced *personas* in the human-computer interaction context to illustrate users' needs, goals and actions to designers in regard to a certain technological solution. However, there has been some criticism (Nielsen 2002, p 100) about that these personas do not deal with users' emotional aspects but instead present *"hypothetical archetypes of actual users"* and hence become *"flat characters"*.

As an alternative, Nielsen (ibid.) proposes that personas should engage their audience through more vivid characters resembling those created in screenwriting. Similarly, Wright and McCarthy (2008, p 642) claim that *"a richer polyvocal world that has emotion as well as agency, character as well as plot, has to be created for readers to engage empathically with characters and author"*. *Pastiche Scenarios* (Blythe & Wright 2006) or films may be one source for richly-drawn characters and situations that may draw out an empathic response from the readers/viewers. Pastiche scenarios (ibid.) draw on existing literature and through well-known characters, such as Agatha Christie's Miss Marple, they illustrate how particular encultured individuals could experience technology. In Blythe's and Wright's (ibid., p 1146) view, it is fundamental that the characters *"convey a sense of a distinct personality"*. According to Blythe and Wright (ibid.),

in its aims of eliciting inspiration, empathy and fresh points of view by making familiar unfamiliar, pastiche scenarios resemble cultural probes.

The examples above were given to clarify the nature and meaning of user information in co-design as a way of eliciting empathic understanding and inspiration, instead of concentrating on explaining the current situation. User representations aim to encourage creativity by inviting imagination, the way Mattelmäki (2006, p 95) explains probes: *"Since the probe material never tells the whole story about people and their experiences, the material is supplemented, through storytelling."* Consequently, user representations are influenced by the purpose, selection of the material, the chosen visualization format, and personal skills and interests of the people doing it. Thus the outcome is not an image of reality but reconstruction of parts of it. We can adopt theatre director Professor Richard Schechner's (1985, p 51) notion, concerning ethnographic films that are shot in the field but edited at home, about user representations: *"History so-called is not "what happened" but what has been constructed out of events, memories, records: all shaped by the world view of whoever – individually or collectively – is encoding (and performing) history. To "make history" is not to do something but to do something with what has been done."*

In order to engage their audiences and to elicit empathy, user representations should be rich in details and allow some level of role immersion. In co-design, this is often reached by co-constructing user representations together with those people who should implement user information in their work, whether they are researchers, designers or other stakeholders. Moreover, creating representations of current and future world collectively is often more than just sharing information by engaging various people, such as users and other stakeholders, to vision *what could be*. I will next give some examples of co-design techniques that engage participants by performing either in order to reach role immersion or to rehearse the future in terms of Halse et al. (2010). Again, some of them build on direct user involvement, while others understand design partners in wider terms. Also, user data is broadly considered as covering the data collected during a user study as well as the verbal and visual material available in face-to-face encounters.

When these action-oriented scenario techniques are referred to in design literature, they are often called *theatre techniques* (e.g. Sato & Salvador 1999), *drama methods* (e.g. Brandt & Grunnet 2000) or *role playing* (e.g. Iacucci et al. 2000a; Svanæs & Seland 2004; Diaz-Kommonen et al. 2009) to highlight their connection to theatre performances. I will next look at techniques where play and performance shape the dialogue while creating future visions in relation to the themes addressed before: *design collaboration* (roles and facilitation), *interplay between current practices and envisioned future* (contextual information), and *role of design material* (the link between future visions and people's daily life).

2.2.1 Empathy and design ideas through acting

Scenarios are typically narrative descriptions of use situations and interactions employing a visual or textual format or a combination of both, thus often resembling storyboards or cartoons. They can combine information from user studies with imaginable future solutions. Since scenarios allow focusing on interaction, experience and values instead of physical products they are often used to convey early concept ideas (Keinonen 2000). As described by Diaz-Kommonen et al. (2009, p 81), *"storyboards can capture characters' important moments such as encounters, emotions, moves, expressions, gestures, sounds, utterances, thoughts, words, environments and artifacts"*.

When scenarios are applied in co-design, they often take the shape of a performance, as in the "Situated Make Tools study" or in the "Co-design as embodied practice" cases. In the former, ageing workers were encouraged to act out possible use scenarios in a real use context, whereas in the latter, co-design evolved through enactment without further guidance. In both cases, scenarios were utilised to envision and perform future visions with the users. Whereas the former was performed in the use context, the latter took place in a workshop environment that was designed to look like a use context – a design studio.

Similarly, several studies have applied some sort of role-playing in co-design to either explore new design opportunities by acting out scenarios that highlight users' experiences (Brandt & Grunnet 2000) or to deepen designers' or stakeholders understanding of other people's experiences by trying things out by themselves (Buchenau & Fulton Suri 2000). For instance, within the service design domain it has been argued that drawings and mock-ups guide thinking towards physical (product) aspects instead of immaterial service experience and values (Pollak 2008). To shift the focus away from products, Pollak (ibid.), among others, suggests acting out ideas in a form of scenarios that tie the needs and solutions to people's lives.

Scenarios may be scripted beforehand, improvised or be something in between, depending on who is the actor, what is the purpose, and where the performance takes place. Brandt and Grunnet (2000) suggest acting out scenarios for two overall purposes: firstly – as with *experience prototyping* (Buchenau & Fulton Suri 2000) – within a design team to build up empathy towards the users by stepping into their shoes, and, secondly, to engage users into improvisation of use scenarios. In general, both purposes aim at feeding the design process by providing new ways of seeing the phenomenon under study. The first purpose reminds especially of the role immersion stressed by Wright and McCarthy (2008), although they emphasise engaging empathetically with users without the necessity for bodily experience.

One defining feature is the place: there are arguments on behalf and against contextual and workshop type settings. Often contextual in-situ ideation and workshops are used in alternation (e.g. Brandt & Grunnet 2000). Let's see first the contextual approaches and then move to the settings further away from the possible application context.

Many authors have emphasized contextual approaches, either by taking the workshops into the context under study (e.g. Binder 2007; Halse et al. 2010) or conducting design experiments *on the fly* while users are engaged in their everyday practices (Iacucci & Kuutti 2002; Ylirisku & Vaajakallio 2007). One reason for highlighting the use context stems from the aim to ground future visions, so-called *what if* worlds, in the knowledge of what is now. Building future visions on top of current situations can help to maintain the link between the imagined and facts. When organizing co-design in isolated workshop setups like meeting rooms, there is a risk of losing the contact with everyday practices, which can be valuable sources of knowledge and inspiration.

For example, Iacucci and Kuutti (2002) concocted small plays together with users while observing them performing their daily activities. For them, setting the performance to a possible use context aimed at evoking thoughts, needs and skills which are bound to specific contexts and actions, and thus hard to verbalize. The overall purpose was to create scenarios with potential users to test ideas, gather new insights and create realistic snapshots from imagined use situations.

A similar approach was taken in the "Situated Make Tools study", where ageing workers were encouraged to build a dream device from a provided set of Make Tools and act out possible use situations during ninety-minute observations at their work places. As we observed (Vaajakallio & Mattelmäki 2007), the real context revealed design opportunities embodied in people, environments, practices and tools. This is relevant especially when the context is not well known by the actors or facilitators of the performance, since it simultaneously provides information about the application domain and shows immediately the prominence of the ideas in regard to the place.

In both of the above examples (Iacucci & Kuutti 2002; Vaajakallio & Mattelmäki 2007), it was claimed that the enacted scenarios also supported the researcher's work in creating plausible use scenarios later in the design process. One reason became evident in our experiments: through drawn scenarios done based on the user's in-situ performances, it was easier to show the link between a specific need in a particular work practice or situation and the proposed solution. This made it easier to justify, to the partnering company, the relevance of the concepts developed. In other words, contextual performances provided concrete understanding of the environment, situations and practices as well as means to communicate them further. However, as was mentioned earlier, researchers' questions in the Situated Make Tools were fundamental in order to push the ideas to the desired level of detail for the benefit of the actual design. Detailed information about why a specific feature or user interface was preferred was necessary to understand and clarify the goal of the envisioned functionality. (Vaajakallio & Mattelmäki 2007)

Correspondingly, it has been proposed that bodily engaging approaches, like implications of *Forum Theatre*[9], can make otherwise hard-to-grasp tacit knowledge explicit (Brandt & Grunnet 2000). This notion was based on the experiences Brandt and Grunnet (ibid.) had from applying drama methods in product development projects, looking at future artefacts and technologies, first within the design team, and later with users. Based on their experiences, they propose that besides supporting imagination, the use context may create more equal setting for co-design among researchers and users (ibid.). This was also noticed in the "Situated Make Tools study" where ageing workers represented the experts on the context while researchers had knowledge on design; hence in contextual co-design both were experts and novices equally.

Experience prototyping and *bodystorming* take advantage of physical environments and acting out to highlight bodily experiences and design empathy. They aim at personal discoveries rather than objective knowledge (Buchenau & Fulton Suri 2000). They do not typically engage users as in the previous examples but, instead, concentrate on providing users' perspective to the designers. In its simplest form, experience prototyping might mean, for instance, adapting children's perspective to a museum experience by walking through a museum at the height of the child (Holmlid & Evenson 2006, p 343). The example I gave in regard to "Co-design as embodied practice" in pages 24 and 25, illustrate a situation that has similarities with experience prototyping and bodystorming although there the enactment emphasises idea generation rather than gaining design empathy.

2 Moving away from contextual approaches: role-taking in scenario building

Typically, when involving users as actors in a performance, they do not pretend being someone else but themselves; it is the situation and tools that are new. In other words, when users are invited to perform scenarios, they most often "play" themselves. Hence, the *what if* questions and tangible *props* that work as "*things-to-act-with*" (Brandt & Grunnet 2000) may be enough to tune the participants into a performing mode. However, since most people do not have previous experiences of enacting scenarios, there is typically a need to encourage the participants to play. This is especially the case when there is no direct user involvement, but, instead, the design team including relevant stakeholders are trying, by some sort of role-play, to gain empathic sensibility towards the users or phenomenon under study.

[9] Forum Theatre is a type of theatre created by Augusto Boal as part of the Theatre of the Oppressed, where the audience becomes 'spectators' by intervening into the play verbally or going on stage to perform a part, hence blurring the boundary between spectators and actors (Schechner 2006, pp 104–105).

Above I pointed out some of the benefits that can be reached when placing the scenario creation into an actual application context. Besides the positive influence, there are some challenges as well. Particularly in service design, defining the use context may be hard since it typically covers several locations bound together as a *customer journey* (**Figure 14**), i.e. the experience consists of several activities and stages such as preparation, approach, arrival, actual service experience, and follow-up. Demonstrating a customer journey in-situ, through acting out the scenario, may hence not serve the purpose of envisioning new experiences, as it works with a more specific object-based design. Besides several places, service experience often involves many people.

Fig.14

Since services take place in many locations and environments, in-situ performances may not be appropriate. Especially acting out the whole service journey, like the one illustrated in the image, is challenging. (Image adapted from Johanna Nieminen's MA thesis work she did as part of the Service Business Classification project at Aalto University, Service Factory. That particular customer journey is based on observations done in 2010 in Iso Omena shopping centre in Finland.)

To avoid time consuming and complex settings, envisioning future scenarios are often performed in meeting rooms, where it is easy to invite several people such as users, designers, stakeholders at once; researchers typically do some preparatory fieldwork to get familiar with the practice context and draw from that when designing a co-design gathering. In addition, the artificial environment apart from peoples' everyday practices may sometimes make it easier to change roles and gain fresh viewpoints.

When we ask people to act scenarios, we should remember community drama facilitator Chris Johnston's (1998/2005, p 63) point about performing in drama workshops[10], namely, *"for a participant there's nothing worse than showing vulnerability and having it disrespected"*. Therefore,

[10]He defines a drama workshop in the following way: "[...] *a collaborative event which might have one of the following objectives: recreation, learning, experimentation, debate, confidence-building, research into social conflict or even devising a play*. [...] *it uses the drama medium and tends not to involve the presence of an audience.*" (Johnston, 1998/2005, in the introduction)

there may be (un)conscious resistance to let it go, an attitude which need to be overruled by creating an atmosphere where participants feel comfortable and safe. According to him, right atmosphere is simultaneously informal yet disciplined and relaxed but spontaneous (ibid. p 64). It can be built through an evolving situation where actions and tasks move from simple towards more complex, in a so-called step-wise process, as has been suggested is the case in regard to design workshops as well (e.g. Sleeswijk Visser et al. 2005).

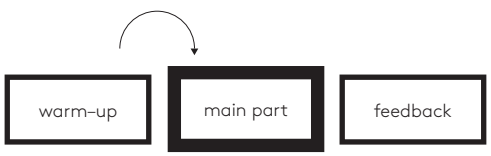
2.2.2 The order of activities and boundaries for action

Johnston (1998/2005) divides drama workshops roughly into three main sequences, which are *warm-up, main part, and feedback* (**Figure 15**). I agree with Johnston (ibid. p 116), who proposes that it would be more appropriate to describe the first part of the workshop as *tune-up* instead of *warm-up*, since the aim is not so much about warming the body for the exercises than tuning-in the participants to each other and to a right mood. Correspondingly, in co-design, warm-up is often also called *sensitizing*, since it aims at gradually transforming participants' thoughts into the topic of the co-design gathering and towards a creative mood.

Whatever the labels, a some kind of ritual bridge is necessary to enable moving from ordinary behaviour into play mood, especially because people come to the session with different things in their mind and with distinct moods (Johnston 1998/2005). The three parts give a basic frame to set the timeline for actions. When designing the activities and timeline, it should be remembered that enough room must be allocated for the third part as well, as it is easily left with less attention than the first two parts. The feedback and the wrap-up create a feeling of completeness and a sense of closure for the participants. Without that they may feel that the work and time they have invested have been compromised (ibid.).

Fig.15 **OVERALL STRUCTURE OF DRAMA WORKSHOP**

Ritual bridge is necessary to move from ordinary behavior into a play mood.



Johnston underlines the need for a warm-up activity that works as a ritual bridge for the participants to enable moving from ordinary behaviour into a play mood necessary in drama workshops.

Sensitising in empathic design often goes beyond the co-design event, covering a longer time span. As proposed by Sleeswijk Visser (2009; Kouprie & Sleeswijk Visser 2009), reaching the state of feeling empathy towards others' experience is a process of *discovery, immersion, connection and detachment*. To simplify, these phases are: entering to the user's world, taking the user's point of reference, resonating with users through one's own experiences, and design with the user perspective in mind (Sleeswijk Visser 2009, p 192). Based on this model, to reach empathic understanding needs time in two ways: *firstly*, those people that are invited to become short-term design partners may need to be tuned-in to the topic and to become sensitive towards their own experiences and wishes in regard to that; *secondly*, empathy towards users needs time and effort from the researchers and designers, who should go through the four steps presented above.

For the first purpose, a co-design gathering may precede the tuning-in activities, for example in the form of a sensitizing package, similar to probes, that is given to the co-design partners approximately a week before the gathering (Sleeswijk Visser et al. 2005). We utilized a similar approach, for instance in the "Co-designing University", where the participants were given a pre-task so that they would be better prepared when entering the co-design. The pre-task was a package of images of widely known characters also utilised in the Value Game (see **Figure 7** in page 37). The task was to *"envision the values and spirit of Design Factory through the provided characters and persons. Who could be the ancestor of Design Factory: the one whose values guide new family members in their practices, create spirits for it, and whose genes the new family members share? (You do not have to stick with the characters provided; you can also bring new members to the family). Be prepared to briefly introduce your choice for others in the first workshop."* Most participants came to the session prepared and ready to present the ancestor that illustrated the desired values for Design Factory.

Actually, in many cases co-design gatherings precede several meetings between researchers and users. There are various actions, from probes to interviews and observations, that all, in their part, tune the co-designers in the right mood and help them to become aware of personal wishes and perceptions. Sometimes, co-design events can be considered as a "backbone" of joint research efforts in the stream of collaborative inquiry (Binder & Brandt 2008). Related to that notion, Binder (2010, p 19) has stated: *"Instead of seeing the individual workshop as just one among several ways to conduct design research, we began to see the entire innovation process as structured by a series of workshops."*

Binder's (ibid.) notion turns our attention to the whole design process in relation to one-off co-design gatherings as *"event-driven process"* (Brandt 2001), where the iterative development process culminates into

"different types of events with collaborative inquiry and design" (ibid., p 219). As described by Brandt (ibid., p 220), in that process there are three types of co-design events: those with one or more potential users, those involving interest groups from other divisions, and those that are held within the design team.

The last two participation types describe what the term *stakeholders* often denote in co-design. Whereas in Brandt's (2001) case stakeholders came largely, but not only, from within the organisation that designs and manufactures the products, in many other cases, especially in design research, the design team often includes people from an university and from the partnering companies as illustrated in, for example, (Johansson 2005; Mattelmäki 2006; Westerlund 2009). In service design, the group of stakeholders may even be wider (Cottam & Leadbeater 2004).

When considering co-design as a continuum in a design process, continuity between events becomes one of the central issues to consider. Brandt (2001, pp 226–227) suggests that the progress in this respect should be monitored, while ensuring that essential insights are maintained through the project, for instance by establishing a constant dialogue with the important interest groups, such as users. I will return to this wider perspective on co-design in the following chapters, but next I will discuss co-design gatherings in relation drama workshops' governing rules, as presented by Johnston (1998/2005). The aim is to see whether those rules can be adapted for co-design and what they could mean for understanding and organising it.

Six polarities of drama workshops

Johnston (1998/2005, pp 24–52) suggests six polarities which may help to understand the governing rules of drama workshops, i.e. the relationship between: *1) the fixed and the free, 2) surface and depth, 3) the centre and the edge, 4) the individual and the collective, 5) the performer and the audience,* and *6) the simple and the complex*. I will next describe them in more detail to illustrate what they could mean in co-design. Detailed examples about applying fixed elements as boundaries for co-design are given in Chapters 4 and 5, whereas a more general description is given below.

The fixed elements provide frames for action, within which people can enjoy freedom because they feel safer – and thus can take more risks. *"It is characteristic of the relationship between freedom and structure that an increase of rules does not necessarily give you less freedom (ibid., p 25)."* Fixed elements may be, for example, a theme ("*betrayal*"), a restriction ("*no speech*"), or an objective ("*to win a favour*"). (Johnston1998/2005)

In the five co-design cases, the fixed elements came from a variety of props constructed according to insights gained from field studies. Besides providing structures, they also maintain the link between imagined and real; they introduce certain situations, themes or roles to be explored for

example through the performance. Make Tools can be seen as a type of fixed elements, alike the characters utilised in the "Co-designing University" case. They set some boundaries for imagination but are still open for many interpretations. Another example is video snippets from the field studies which ground the conversation to the users and use context, although not physically being there, for instance the ones used by Buur and Søndergaard (2000). Video snippets may also be used to collaboratively construct scenarios about users and use situations, as Johansson (2005) and Brandt (2006) illustrate. Then, the fixed elements are those that need to be used, but, for example, their order and meaning is left for the participants to describe.

Design games that I have utilised have had similar qualities: they provide guidelines and frames, within which the players have freedom to choose the topics for discussions and comfortable means for expressions and alternative solutions. For example, the Eco Game guided the children to reflect on their everyday life in regard to ecological issues, but as every group used their personal experiences, skills and knowledge in the game and subsequent design task they ended up with very distinct outcomes.

Many theatrical exercises call for lateral thinking and spontaneity, which can be considered as "*imagination-in-action*" (Johnston 1998/2005, p 136). This became evident in the "Situated Make Tools study" and in "Co-design as embodied practice", as illustrated earlier. However, this may require supporting the "fool" in us and getting rid of the "audience" role we all take on. According to Johnston (ibid., p 43), participants in drama sessions should tolerate foolish behaviour to allow their creativity to *"draw from any aspect of psyche"*. The fool in this context does not mean stupidity but being free from the need to be in control of everything.

The notions of a fool and an audience are related to one of the polarities Johnston introduces: *relationship between the performer and the audience*. In this context, audience refers to the two mindsets within one person; it is important to let the audience mindset go away when being a performer, since it implies self-consciousness and self-criticism. Here we are dealing with the performer's fears regarding the audience reactions about him/her on stage preventing the emergence of a spontaneous and emotion-driven performance. Improvisation, drama, and play are processes where the *dictator* in us, our conscious mind which needs to be in control of everything, feels uncomfortable and thus need to be overruled (ibid., pp 40–45).

In the "Situated Make Tools study", some ageing workers didn't feel comfortable with acting in public places where they work; for example, a cleaning woman, who was working at a public swimming hall, preferred verbal descriptions of the dream device while being supported with the mock-up – nevertheless, without engaging with the space. For some, for example for a technical maintenance man working at school, performing

scenarios was acceptable and seemed very natural. Since the users were not accustomed to performing scenarios, we developed several strategies to help them step into play mood. These are presented below.

1. The researchers conducted several observations on similar locations and work practises to get familiar with the context and with what could be expected to happen there.

2. Before organising the situated Make Tools sessions there had been several meetings between the users and researchers so that they knew each other prior to co-design.

3. To create a design mindset, every session started by discussion and by the building of the dream device.

4. The researchers initiated the performance by asking about what had just happened and whether that could be changed with the dream device, after which they asked the user to show how.

5. The performances in which the participants acted as themselves took place in a familiar environment and were based on their daily practises. Furthermore, users built the dream device, so it was their design – not the researchers' design.

6. Tangible Make Tools were useful in performances where ideas evolved through acting instead of being presentations of earlier proposed features.

Another polarity, *the surface and the depth,* is more conceptual considering the performer's bodily and facial gestures as surface and memories, feelings, hopes, opinions and desires as internal features provoking the external gestures. Thus the surface and the depth always co-exist in a manner comparable to an ice-berg, which has its visible part above the surface and the hidden dimensions beneath it. I find the ice-berg a useful metaphor since co-design activities such as design games, role-play and several user representations are, in a similar manner, combinations of easily observable facts and hard-to-verbalise internal phenomena. It is important to recognize both parts of the ice-berg when making interpretations. This is the kind of user information Sanders and Dandavate (1999) call tacit or latent. They suggest approaching it by letting people to express their experiences and wishes in generative sessions.

The centre and the edge exist in two ways: *firstly*, a person is on the edge if considered as having a lower status or less important role in a group, and, *secondly*, the physical stage consists of centre and edge areas. These two

are intertwined: since the stage is a symbolic territory defining the group, it is necessary to be there in order to become a member of that group. But, entering the centre exposes one to emotional risks; one is more vulnerable in the centre than when hiding at the edge. (Johnston 1998/2005) The emotional risk involved in co-design becomes evident when people are invited to do things they are not familiar with, or if they need to work with people with different opinions. In the "Co-designing University" case, we did a brief user study before the gatherings and utilised material from that in the form of playing cards that presented various opinions, expectations and wishes related to the Design Factory. By introducing various views on the topic without pointing to anyone present, the quotations from the interviews gave an equal starting point for each participant in the co-design. The statements became building blocks that were directed towards the desired values, thus excluding the need to defend one's own stance.

All group work involves interplay between *individuals and collective,* thus a successful group needs to tolerate and moreover to celebrate personal differences. Being in a group requires one to support others' creativity besides focusing on one's own needs. If everyone plays according to these rules, the group becomes more than the sum of individuals in it. (Johnston 1998/2005) This is the basic principle in multidisciplinary co-design and the reason behind it. The methods used to enhance collaboration and creativity leave room for participants' subjective experiences and skills as well.

The relationship between *the simple and the complex* is close with the structure of the workshop and the order of the activities applied in it. As was already discussed, in most co-design gatherings, like in community drama, the natural progression is from the simple to the complex. One strategy is to establish a familiar territory through simple exercises that gradually move towards more difficult challenges. For instance, spontaneity of *drama games* (i.e. easy and playful tasks) may help the participants to accept unusual challenges and eases one's entry into improvisations. (ibid.)

Summary

Above I illustrated some of the co-design techniques that aim at engaging participants in creative collaboration by acting out future visions. I pointed out the need for building a ritual bridge between ordinary behaviour and co-design gathering, to allow participants draw from their inner experiences and inner feelings alike. I also described six polarities through which we can better understand the governing rules of co-design gatherings. One of these polarities – fixed and free – can be seen as a concrete quality of co-design, a view that will be taken further in the next chapters, whereas the others are more implicit factors of co-design. I will continue with the challenges and strategies for engaging participants in role immersion. First I will be focusing on facilitation and then on design

2.2.3 Facilitating co-design

materials' role in co-design.

Although role-play in its different variations has been regularly used in design during last decades, it has not been used systematically (Seland 2009). Examples are mainly from human-computer interaction and mobile communication domains, but its potential has been considered outside these areas as well, for instance in service design (Holmlid & Evenson 2006). One of the reasons why role-playing hasn't become a common practice could be the stress it puts to the facilitator. According to Seland (ibid.), in a role-play workshop the facilitator has a large influence on the validity of the created scenarios, and thus leadership is a critical factor. Moreover, making participants to act everyday scenes may not be always easy. It is relevant to notice that in all kinds of co-design, the facilitator influences the situation and its results through the tools and rules. Bødker (2009, p 23) states:

> *"We must accept, as it were, that people (or users) are not the transparent 'containers of information' that would be ideally suited for qualitative social research. This does not mean that user involvement is hopeless or value-less as some critics of UCD would argue. It means, however, that we need to understand the dynamics of practical user involvement and the ways in which we as researchers, designers, or practitioners are tacitly-but-tactically shaping the outcome of user involvement by allowing participants to speak or act through a particular set of very different artifacts."*

One specific challenge of role-playing, according to Seland (2009), is creating credible characters instead of overacted stereotypical behaviour. This is critical if participants play roles they are not very familiar with, and it puts pressure on the facilitation. The more distant the theme or role is to the participants' experiences, the more detailed the descriptions of the roles, props and scenario that precedes the acting should be. Seland (ibid.) proposes minimizing the risk of producing stereotypical characters by not letting participants take roles or act scenarios they are not familiar with. This suggestion is based on his observations from several experiments: when the participants played themselves, their improvisation became natural and they were able to base the play on their own everyday experiences instead of relying on stereotypical acting. Stereotypical behaviour emerged when the participants were asked to pretend to be someone else. (ibid.)

However, that is not the whole truth: for instance, contrary to Seland's (ibid.) advice, Diaz-Kommonen et al. (2009) purposefully set the story and role outside the participants' everyday life, in order to release them from the restrictions of their work practices and to allow them to imagine the system from several perspectives. To support role-taking, they utilised assigned roles, costumes and props, a brief with a narrative and some tasks. The nar-

rative was a story about an archaeologist, who finds a piece of ancient pottery and then has a task to create a digital three-dimensional replica of it. The participants were asked to take the role of the archaeologist and envision a way they would reach the goal. According to Diaz-Kommonen et al. (ibid.), performance, supported by the script given in the beginning, forced the participants to take different standpoints. In this case, the unfamiliar roles didn't prevent the participants from creating interesting future visions.

This example shows how drama-inspired co-design mixes reality and fiction in order to produce novel solutions. To improve role-taking, Seland (2009) proposes paying attention to psychologist Yardley-Matwiejczuk's (1997) framework for role-play in which the central principles are *particularization, presencing and personalization*. According to Seland, *particularization* means defining and explicating all objects in the role-play, so that if a prop is used in the play, all those involved would know the meaning for what it is used for. However, my experiences speak to the contrary. As I discussed in relation to "Co-design as embodied practice", when props are utilised in idea generation instead of, for example, evaluation, they may not have predefined meaning – they gain the meaning in action. This happened, for instance, when the meaning of the mood board was attached to postcards, and later when the same postcards were used as material sample in the design dialogue between the participants.

I do agree that new meanings given to the props during the enactment need to be explicated either verbally or through action, so that every participant becomes aware of them. For example in the situation mentioned above, the new meaning attached to postcards is clarified to the design partner by saying: *"this is not different pictures; this is the mood board now"* (Vaajakallio 2009). Brandt (2006) has noticed in design games that ambiguous and open-ended props, game pieces and the game board force the players to be explicit in describing how they understand and interpret them. In co-design, this openness may be considered as strength of the method, since discussion about differing interpretations is part of the building of a common language. I will return to this topic in the section focusing on tangible props.

According to Seland (2009, p 917), *presencing* means emphasizing the present time when guiding the participants to create the scene, for example, by saying *"this is a waiting room, and you are waiting for the physician"* instead of saying *"imagine that this is the waiting room, and act as if you are waiting for the physician"*. *Personalization* is used to improve participants' engagement by letting them to construct and introduce particularized objects into the play (ibid.).

In the Situated Make Tools study users' everyday situations and practices worked as the base for scenarios. The users were the experts and were able to give important insights for concept design (Vaajakallio & Mattelmäki 2007). Particularization, presencing and personalization, as

defined by Seland, happened naturally when the improvisation took place in the users' workplaces – in Seland's case it was more critical to be aware of these principles due to the artificial setting.

However, even though people would play the roles they are familiar with, role immersion may go wrong; participants may overact their roles or put emphasis on secondary issues, as illustrated by Seland (2009). Seland conducted a role play with three nurses, focusing on a meeting among two physicians and a nurse. The aim was to explore information needs, but, instead, the participants ended up demonstrating power relationships between nurses and physicians. Seland (ibid.) speculates the reason to be too open framing, which might have been avoided by being more specific with the roles. In my cases, design games have proved to be useful in keeping discussions and actions relevant for the topic; unwanted focusing can be avoided not only by giving more specific roles but also by guiding the performance through other types of fixed elements.
On one hand, design ideas and scenarios that do not fit to the co-design focus can be seen critically as shortcomings of often ambiguous co-design gatherings. On the other hand, co-design gatherings conducted within design research often purposefully have rather open goals, and then the ideas that lie outside the scope can also be valuable. Westerlund (2009, p 77) points out that all video prototypes created during co-design sessions (scenarios can be considered equal to them), can be meaningful in defining the solution space by pointing out desirable or undesirable directions, or contributing to the understanding of the context, preferences or capacities of the participants. Furthermore, I think that if the discussion and ideas go beyond the initial focus, one may wonder whether the researchers chose to address the right questions/topics at the beginning.

2.2.4 Facilitators' possible roles

Based on the observations from three *future workshops*[13], where card-based method were used to create scenarios of current problems and alternative future situations, Lundberg and Arvola (2007) propose the role of a *creative facilitator*. This proposition derives from the notion that a person who is responsible for the timetable and overall guidance in the session cannot simultaneously concentrate on both the content and running of the workshop, as also pointed out, among others, by Sleeswijk Visser et al. (2005). However, to make scenarios and design proposals that are detailed enough might require guidance, especially when the de-

[11] According to Kensing and Madsen (1991, p 155–168), Future Workshops were developed originally by Robert Jungk and Norbert Müller in 1987 to allow citizen participation in public planning. Kensing and Madsen applied the method to empower users in the design process, and, as they describe (p 156) it, it "is a technique meant to shed light on a common problematic situation, to generate visions about the future, and to discuss how these visions can be realized". The technique consists of three parts: critique, fantasy, and implementation.

sign partners are not professional designers.
When inviting users and experts other than designers in the design process, one must remember that they may not have the abilities of professional designers and, thus, need more support. A good example of this is Lundberg and Arvola's (2007) workshops conducted with both designers and non-designers. During the sessions, they noticed that whereas the designers used the cards given to them as a base for their design moves (i.e. elaborating the scenario or creating alternatives), the non-designers limited themselves within verbal design. This led into two problems: *firstly*, many discussed solutions were left without documentation, since only few were written down; *secondly,* the reflections of the group that didn't utilize cards were weaker than those of the group that used them. These observations contrasted with those made about the designers group, where design moves and documentation became intertwined through the cards. (ibid.)

As mentioned in Chapter 1, documentation is critical for co-design gatherings, to allow learning the reasoning behind resulting artefacts or scenarios. Design games with game boards may be one tactic for documentation, as they proved to be for us in the Eco Game with children. The scenario created from provided material and completed by the kids was the source of some of the knowledge and attitudes revealed during the game. But we also faced challenges since not all the kids could write equally well; writing was left into the hands of only certain kids, leaving some voices unheard.

Elisabeth Sanders (blog post 2002/03/14 @ 01:43AM) describes in her web pages the challenge of involving non-designers in co-design: *"We do not believe that users are designers. We do believe that users are creative and can express their dreams when we give them a chance to do so"*. Her statement underlines the need for some structures and fixed elements to funnel creativity. This was also noted by Johnston (1998/2005, p 25), as discussed earlier. Sanders has proposed visual toolkits as scaffolds for expressing oneself, but as Lundberg and Arvola's (2007) example above demonstrate, without appropriate support it may not be enough. My experiences resemble those of Lundberg and Arvola (ibid.): for example, in the "Situated Make Tools study", without designers' active role in initiating the idea generation and encouraging ageing workers being more precise in their stories, many of the ideas would have stayed too superficial to guide the design (Vaajakallio & Mattelmäki 2007).

As one solution, Lundberg and Arvola suggest (2007) a second facilitator called *creative facilitator*, who, by suggesting alternatives and encouraging the participants to explore the consequences further, would have an active role in the dialogue. This role resembles our double role as designers and researchers in the Situated Make Tools exercises. In that study, our main contribution during the idea generation was to guide users either by encouraging them to perform possible use situations or by asking questions, which forced them to be precise and detailed in their descriptions, as **Figure**

Fig. 16

R1: "If you would now receive a message, what could be the situation?"
W: "Some emergency situation."
R1: "What kind of emergency situation?"
W: "Well e.g. once and a while small children poo into the swimming pool."
R1: "How the tool would work?"
W: "It would peep."
R1: "Let's imagine that now is that situation."
W: "I could receive e.g. the number, then I could contact."
R1: You had the earphone in your tool..."
W: "Yes, it could also come to that, as a call."
R2: "How it happens now?"
W: "Typically they say through loudspeakers that 'cleaner come to cash desk' ...They doesn't say the reason through loudspeakers so that customers won't hear it... The call could come right to me... Then I wouldn't need to go only for checking the situation."

For researchers (R1 and R2) it was important to have detailed descriptions of the reasons and functionalities related to the ideas that were generated through asking specific questions, as the quotations above illustrate.

16 illustrates (e.g. Vaajakallio & Mattelmäki 2007, Ylirisku et al. 2007).
Working in pairs of moderators to improve the quality of drama sessions is also proposed by Johnston (1998/2005). According to him, facilitators may adopt complimentary roles in several ways: sharing the leadership, leading in different skills, assuming different functions, or representing different communities (ibid. p 84). *In the first case*, the facilitator is more active in leading the session, while the rest of the group observe and intervene only when necessary. *Secondly*, the facilitators may bring in complimentary skills, according to which they share the responsibilities. *Thirdly*, there may be one facilitator within the group to pose questions that could be hard for the external facilitator to pose for the group members. In this case, the inside facilitator can also break the ice by demonstrating to the others that it is safe to act. (ibid.)

Co-design could also learn more about facilitation from other related creative approaches, in a way that Johnston (1998/2005) proposes that community drama could. Although community drama is a unique approach, it borrows aspects from several theatre-related traditions. To provide some guidelines in regard to facilitation, Johnston introduces some related professions such as that of theatre director, drama teacher, and actor/teacher. According to him, many theatre directors have lately given more control to the actors in the interpretation of their roles or let the actors to create their own characters from scratch. Both strategies underline the uniqueness of a play based on specific actors; with other groups the play would be different. This view fits nicely with user experience design approaches that highlight the individual's desires and needs

as inspiration and empathic understanding through role immersion.
In educational setting, drama techniques have been harnessed to introduce educational themes and provide understanding of them. A drama teacher may take the role of a character to stimulate and direct the improvisation. This way s/he is able to lead the students on an imaginative journey, which follows pre-structured pedagogical parameters. The actor/teacher, on her turn, leads the students through a series of intellectual challenges by utilizing fictional constructs and taking the performer's role. Thus, the actor/teacher can shift in and out of the theatre time, between reality and fiction, and between subjective and objective modes of engagement. This way drama can become an engaging tool for learning, as illustrated in the following quote from Johnston (Johnston 1998/2005, p 58): *"The learning was not only absorbing but acting on information – testing it, 'living' the events which were the subject of the learning*." (ibid., pp 55–60)

Iacucci et al. (2000b) have utilized role-playing in concept generation, focusing on communication products for children and on future mobile communication from the users' perspective. The authors developed the role-playing method through six sessions in some of which the players were human-factor specialists and designers and in others potential users or a mix of both groups. After the first session, they introduced the *game master* as one of the strategies in facilitation and giving more structure to the game. The idea for the game master came from table-top role-playing games such as Dungeons and Dragons. The task of the game master was to introduce incidents and decide who plays the game, but later the role became mainly that of an observer, who ensures that the rules are followed. In the last session, the facilitation improved when two designers were made to work together with users; the designers focused on maintaining the action, whereas the users were responsible for the storyline. This resembles the role allocation we had in the Situated Make Tools study. To emphasize playful atmosphere and to bring in some surprises, *incident cards* and *a dice* were introduced.

Although co-design facilitation can be enhanced by clearer structure and roles as well as by having more than one person in charge of it, one fundamental challenge remains. This is the overlapping roles design researchers hold. Westerlund (2009, pp 61–62) listed several slightly distinct roles, duties or tasks he encountered during a workshop*: a researcher, a host, a facilitator, a participant, a conductor, a pedagogue, and a designer*. Without going into details about what the different roles stand for, it is clear that designing and organising a successful co-design is dependent on researchers' competence on many levels, including that of orchestrating co-design in a way that enables smooth transition from an ordinary behaviour into a creative workshop mood, thus enabling role-immersion, group dynamics, balancing between fixed and free, etc. One of the researchers' and facilitators' skills is related to crafting and introducing design materials for guid-

ing the co-design, as will be discussed next.

2.3 Tangible props in design dialogue

Visual and tangible representations in general are typical tools to outline alternatives in design. Säde (2001) writes that they put designers into the role of communicator within a multidisciplinary design team. As the theatre and role-play oriented co-design activities discussed above illustrate, tangible artefacts have a special role in performance to support role-taking, acting and imagination. Next I will discuss some of their properties in more detail in regard to facilitating co-design.

To start with, the terminology concerning various artefacts utilised in design may be confusing, as pointed out by Westerlund (2009, pp 45–48), due to the distinct disciplinary domains, the intention of the artefact, and the stage of the design process. In general, *design representation* may be used to describe all types of artefacts: from drawings through tangible mock-ups and demonstration models to working prototypes. In early concept design, tangible and visual representations should be cheap to produce and invite further elaboration (Ehn & Sjögren 1991). They are typically unfinished and rough in nature, aimed, for instance, to evoke new ideas, to trigger memories and feelings, to support negotiation among distinct perspectives, to point out and test alternatives, or to build a common design language for a design team.

As I focus on early concept design, the artefacts should be rather anonymous and open for new interpretations. Therefore, I use mainly the terms *design materials* or *props* to describe them. The concept of props originates in the context of theatre where they refer to artefacts used by the actors to support performance. Similarly, in enacted forms of design, like when acting out scenarios, props together with the surroundings, movement, and verbal expressions convey the central ideas, being tightly connected to the context where they appear. Design material is seen in this dissertation mainly in two ways: 1) as a mock-up to be, referring to the "building blocks" that are used to create a some sort of tangible representation or documentation of participants' discussion during the co-design session; and 2) as design game material representing fragments of user data or to share and explore an individual's insights. Fundamentally, both terms refer to an artefact the meaning and form of which, and what they can do, are not yet fixed, differentiating them from more developed prototypes. Since different types of artefacts can be used for distinct purposes, I will use the original terms when I refer to other authors' work.

2.3.1 Balance between abstract and concrete

One debate related to tangible design representations in co-design concerns the optimal level of abstraction. It has been proposed that these representations should be concrete enough to support communication but abstract enough to allow freedom for creativity (Säde 2001). The concrete – abstract relationship depends on whether they are used as illustrations of designers' ideas to generate feedback, or props to evoke new design pos-

sibilities (Clark 2007, p 3). I would also add that it matters how people explore design representations: alone, in a group, or with a researcher. The position I am developing here considers design representations as triggers for new perspectives during the early design process. Thus I am focusing on props as prompts for imagination and design openings, not as illustra-

Fig.17

In this dissertation, when I discuss design material, mock-ups or props I mean "building blocks" that co-design participants can use to create ideas and visualise their thinking, resembling in that sense more the Make Tools on the left than a more detailed prototype on the right. The right side image is a dummy prototype of a mobile device developed in the Active@work project and is based, among other things, on Situated Make Tools exercises.

tions of the designer's propositions for design solutions (**Figure 17**).

It has been noticed while exploring new possibilities that simple models open up a solution space, whereas more detailed models narrow it down (Brandt & Grunnet 2000). One of the key qualities of ambiguous and open-ended props in co-design is their ability to invite both verbal and bodily responses and evoke new aspects, reflections, comments, and ideas. Moreover, in co-design the unfinished nature can be seen as an advantage, since it distinguishes the artefact from real objects; people understand their meaning as tools in ideation, instead of considering them as representations of the final design (Ehn & Kyng 1991).

Tangible props are also valuable in functioning as *things-to-think-with* when envisioning future opportunities (Brandt 2007). This is essential in co-design, since, as Johansson (2005, p 17) points out, the challenge often faced in co-design is that the *"trained designer may use a pen and a piece of paper to illustrate his ideas while other stakeholders need other kinds of design material to be able to sketch"*. According to Ehn and Kyng (1991), also the simplest mock-ups can provide *hands-on-experiences,* thereby supporting, besides designers' idea generation, users' thinking as well. Consequently, various props are often used in connection with theatre-inspired methods to support creative interplay between the current situation and envisioning of the unknown.

I think Henderson's (1999) notion that sketches and drawings work as a

reference and collaboration ground to unite various forms of knowledge is adaptable to all design representations, from quite rough ones to detailed prototypes. Providing common ground to various participants is essential in co-design, since people look at the design task based on their expertise and experiences about it and on responsibilities and personal concern for good design, and, therefore, designing requires negotiation between different understandings (Bucciarelli 1994). Props and other types of design material can also be considered as *boundary objects*. According to Bowker and Star (1999, p 297), *"Boundary objects are those objects that both inhabit several communities of practice and satisfy the informational requirements of each of them. Boundary objects are thus both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites"*. Artefacts in terms of boundary objects can be understood broadly to cover tools, artefacts, techniques, ideas, stories, and memories (ibid.).

Fig. 18

Different types of visualisations work as reference points, which help in discussing and sharing knowledge and ideas within a team. In the picture, a researcher and professor work with a floor plan, play-mobiles and other visual material in the second co-design gathering during the "Co-designing university" case. (Autumn, 2008)

For instance, Diaz-Kommonen et al. (2009) considered role-playing and props as boundary objects in collaborative scenario development, which aimed at describing new user interface concepts and metaphors. They created a set of various props; some of them – beautiful stones, for example – were selected mainly because of their aesthetic qualities that could trigger inspiration and others because of their forms seemed to afford particular behaviours. The latter category included a piece of elastic rubber that the researchers thought could represent a measuring instrument. Based on their experiences, the props with the story created the context that supported imaginative and creative thinking.

2.3.2 Creating props and design material for co–design

The selection of props is relevant to consider in relation to what can be made out of them, for two reasons at least: *first*, a variety of media allows the participants to find an appropriate style that supports collaboration in a given one-time co-design situation. This is something proposed in (Vaajakallio 2009), based on the experiences derived from the experiments in "Co-design as embodied practice"; *second*, since material arrangements always mediate activities, the design material provided to the participants may travel through the ideation process, determining possible outcomes (Bødker 2009; Kaario et al. 2009).

Bødker (2009) divides artefacts in co-design roughly into three categories: *verbal, institutional,* and *material artefacts. Verbal artefacts* include, among other things, formal instructions, quality of questions being asked, and expectations set up through an invitation. The second class, *institutional artefacts*, refers to implicit values and norms embedded in certain socio-cultural or institutional context, where the co-design happens and where we find the initial motivation and users' previous knowledge on the topic.

Material artefacts consist of various tangible props and of the physical context that influences the relationship between activities, users and designers. According to Bødker (2009, p 21), in co-design the participants *"speak through"* these different types of artefacts, and the above mentioned categories, as well as a combination of them, can direct the participants towards a certain medium. For instance, during one co-design session, the combination of pens and paper with a verbal task of telling a personal story and being in the institutional context directed the participants towards written stories and democratic decision-making process within the group. Bødker (ibid., p 22) concludes that users' ability to give valuable input to design is *"a result of relations mediated through a range of artefacts"*. In general, he seems to share a similar view with Sanders (2006), who has proposed that designers should use their creativity to provide scaffolds for other people's creativity, and Ehn and Kyng (1991, p 177), who proposed already two decades ago that *"new role for the designer is to set the stage and make it possible for designers and users to develop and use a common situated design language game"*.

Agger Eriksen (2009) describes design materials through three characteristics: *basic, predesigned* and *field/project specific*. Basic design material refers to readymade material such as a pen and a paper, clay, disposable cups, etc., which are brought, without a specific meaning attached, to a co-design gathering. Predesigned design material has been specially selected and created for a co-design session and includes printed images, video clips, foam and paper models and mock-ups. Both the basic and particularly the predesigned material can be either general or field/project specific, or, as I have found, sometimes it can be even a combination of all three: i.e. *basic, predesigned* and *field/project specific*. For instance, I have used the same Make Tools kit and

collage material, first created to meet the particular needs of Active@work, in several co-design gatherings. Although they were initially project-specific, their ambiguity allows using them from one project to another (**Figure 19**).

Fig.19

The same Make Tools kit has been utilised for example in "Situated Make Tools", "Co-design among young children" and "Co-design as embodied practise" (The images are in chronological order).

When Iacucci and Kuutti (2002) conducted the *"on the move with the magic thing"* experiments, they used a simple mock-up, *a magic thing*, to support users' thinking and acting. The magic thing is open in nature, and it can do anything the user can imagine, in a manner similar to the dream device in our Situated Make Tools' study. In the study presented by Halse (2008), the mock-up provided had already a certain form and features based on the earlier phases of the design process, whereas in our case the ageing workers built their dream device from scratch. Thus, our approach was closer to the generative methods utilised by Sanders (e.g. 2006).

Fig.20

Ageing workers built their dream devices from the provided Make Tools material instead of receiving mock-ups done by others.

Generative tools include design representations, which are ambiguous to encourage people to express their needs and dreams through building simple mock-ups or visual collages. Thus, Make Tools can vary from visual collages to three-dimensional artefacts, but the basic idea remains: according to Sanders (e.g. 2006), these toolkits work as scaffolds for experiences. By

enhancing the creativity of ordinary people, the resulting representations bring inspiration and insights for the design team (ibid.).

A generative tool box, such as the Make Tools kit, combines the researcher's insights and users' input, equalling Probes in its capability, as was discussed previously. Researchers influence the toolbox in defining what kinds of Make Tools are provided (size, form, amount, etc.), whereas users' insights give the final meaning to them (Vaajakallio & Mattelmäki 2007). Sometimes mock-ups can be initiated by the researchers, but while acting out possible use situations the users are free to modify them, according to their wishes (Halse 2008). Real life objects can also be used as props to search for new possibilities, as in *Interaction Relabelling,* where interaction models are applied and transformed into distinct products (Djajadiningrat et al. 2000).

2.3.3 Design researcher seeking inspiration

In this chapter, I have discussed the shift *from user-centred design, to designing for experiences* with empathic understanding about the users, and *to co-design* where users and other stakeholders are invited directly to bring their experiences and knowledge to the design process. As my experiments through this dissertation indicate, the term user may be challenged, not only because of the way they contribute to the design but also in terms of who they are. Nevertheless, I will use the terms *use*r and *other stakeholders* for reason of simplicity. Co-design has shifted the attention from factual user data towards more creative attitude, where empathic understanding and collaborative explorations are seen central in early design. While there have been increasing emphasis on user experiences, design research approaches have extended beyond product based development projects. I have shown examples of innovative methods that are free from the pressures of production and allow time for dialogue among design researchers, users and other stakeholders. The aim of the direct and indirect user involvement has been to seek information and inspiration to feed the early concept design. Therefore, the focus is put on new opportunities rather than details of design.

In this search, playful, narrative, and performative approaches have been discussed as means for role immersion to open personal discoveries for various participants. Many of the reviewed methods creatively combine insights from different sources while emphasising participants' engagement with the situation and/or user representations. These types of methods, which draw from imagination in addition to information, may have limited value if aiming at factual information and simplified pictures of the user's world. However, many authors have considered them helpful, exactly because they provide ambiguous results, making the unfamiliar familiar and vice versa. Tangible design material and props have found their place in co-design sessions by enhancing participants' engagement, design explorations, and interaction.

Fig. 21 **CO-DESIGN**

Builds on user-centred design but with a stronger emphasis on having an empathic understanding of other people's experiences, and users' and other stakeholders' creative contribution to design.

Aims at information and inspiration for early concept design, where the search for novel design opportunities is not restricted to the material world, but also expands into services.

Utilises direct and indirect user involvement through dialogical and narrative approaches.

Perceives design material as follows: 1) *mock-up to be* or building blocks for creating a tangible representation or documentation of participants' discussion during the co-design; 2) as design game material representing fragments of user data or to share and explore an individual's insights; and as 3) props that convey the idea together with the surroundings, movement and verbal expression in enacted forms of design.

structure facilitation materials

The way co-design is described in this dissertation puts attention on providing boundaries for co-design through structure, facilitation and materials in order to support creative interplay between current practises and future opportunities (role-immersion and empathy).

I have already touched upon design games, explicitly and implicitly, when discussing role-playing, co-constructing personas and scenarios, and facilitation of co-design by giving certain fixed frames for the action through structure, roles, props, narratives, etc. However, the relationship between the topics discussed above and design games and games in general is still quite fuzzy and needs more attention, which is provided in the next chapters addressing the overall questions of: *Are design games rather a tool or a mindset, and what do they share with the games played for fun? Why these same (or at least very similar) methods are sometimes called design games instead of, for instance, drama inspired methods, scenarios or just co-design workshops?* I will start from the origin of design games to make the diversity and fundamental idea of the game metaphor in design better understood, but my main point of reference is in considering design games in relation to aspects of co-design mentioned previously: a) *Design collaboration,* b) *Creative interplay between current practices and future opportunities,* and c) *Design materials as tools in ideation.*

Chapter 3
Diving into games, play and performance

This chapter will look at different uses of the "game metaphor" in the field of design and co-design especially. Through the examples provided, I will try to explicate what makes an activity a design game and what purposes this labelling serves in co-design. In doing so, I will extend my view to cover some of the fundamentals of games, play and performance and their possible relationship with co-design to build an understanding of the core play-qualities of design games. To understand the underlying attributes of seemingly distinct (co-design) practices labelled as design games, I propose that we need to look at both parts, *design* and *games*, separately and in relation to one another. As will be demonstrated, there is lack of framework to discuss, design and analyse design games oriented co-design. Therefore, this chapter forms the start for the development of the Play framework, which will be further elaborated in the following chapters.

3.1 Design games as framework for co–design

The methods reviewed in the previous chapter serve as evidence of an increasing interest in engaging users and other stakeholders, either directly or indirectly, with designers and researchers in early concept design. Regardless of who the design partners are, the objectives include supporting collaborative explorations of future opportunities in relaxed and inspiring atmosphere. In this discourse, design games has become a popular concept that has been widely adopted to describe several design activities, which at first sight do not necessarily share many similarities with each other. Thus, the concept of design games often leads to confusion about what is actually meant by it: i.e. *is it mainly a metaphor, an attitude or a way of structuring co-design activities and interaction among several parties?* This section tries to clarify the core qualities of design games as a means of shedding light on that question.

3.1.1 Variety of design games

Next, I will introduce some activities from the field of design that the authors call "games" or "design games". Because they all take place within the context of design (research), although they vary depending on whether they are used for research, teaching, participatory design or co-design, hence having distinct objectives and participants, I will call them *design games*. After introducing them, I will return to the question of what, besides the application context, makes something a design game. I have grouped the following examples generally into four categories based on their overall purpose. The first concentrates on dialogue and new insights among researchers in academic research context, the second builds on the first approach but for educational purposes and along with the last two seeks to contribute to actual design projects. The four categories are not in a chronological order, but roughly in relation to each other and their general contribution context.

Design games:

Design games as a research tool 1

Habraken and Gross (1987) are perhaps the first well-known researchers, who adapted the game metaphor into the field of design, inspired by Wittgenstein's concept of language-game. They saw the potential of games as a research tool in the context of architecture. According to them, design games allow studying design actions in a manipulable and well-bounded environment that gives rise to design situations resembling those in real-life; in both, players' moves are limited by the existing rules, conventions and principles.

The authors refer to their approach as *concept design games,* since the aim is to improve researchers' understanding of the concepts that designers (i.e. architects) have. The overall research question is: *"How do designers negotiate, come to agreements and follow conventions"*. The players were fellow researchers from MIT, and the games involved always more than one player, to stress the social aspects of design. Concept design games are board games, meaning that game pieces are moved on a flat surface according to specific rules. The focus is on the moves people make on the board while playing the game. The moves are then analysed in the discussion that follows. In most concept design games, verbal communication is not allowed until the game is over. (ibid.)

One well-known concept design game is the *Silent Game*, which is played by two players and an observer. As is typical of concept design games, the Silent Game pieces are objects, such as nails or Lego bricks, without specific play or design related connotations. The first player comes up with some design idea or strategy and starts to make moves accordingly. The second player tries to understand the rules and the goal the first has implicitly set and makes moves correspondingly. The game is over when the observer feels that there is no progress. (ibid.)

The players are not allowed to talk during the game, but a discussion follows; the observer starts reflecting on what has happened during the play, followed by the comments from the second player, and last from the first player. To support this reflective conversation, Habraken and Gross (1987) developed a specific vocabulary related to concept design games. Consequently, designing games with specific concepts was considered as a particular form of research in itself. (ibid.)

2 Design games for building design competence

Iversen and Buur (2002) build on Habraken's and Gross' concept design games presented above but apply the idea in an educational setting in the course organised around the notion of "*design is a game*". They propose that creating, playing and reflecting game playing can be an effective way of learning how to establish social interaction between stakeholders in the participatory design process. According to them *"game frame encourages participants to pay attention to the social and communicative processes of design"* which is essential in participatory design to create and maintain collaboration between participants.

Students learn the vocabulary for talking about collaborative design practice by first playing *the Silent Game* (Habraken & Gross 1987) and then developing a game of their own. As described earlier, the Silent Game was originally not meant for teaching, but instead aimed at creating a better understanding of designing. However, Iversen and Buur have noticed that the game works well in reflecting communicative and social aspects of design process; as talking is not allowed while playing, it forces the players to develop a shared action-oriented game vocabulary and rules to enable collaboration. At the same time, it sensitises students for turn-taking, implicit rules, diverse roles within a team, and several negotiation strategies.

3 Design games for empowering users

Around the same time as Habraken and Gross, Ehn and Sjögren (1991) worked with design projects aimed at supporting the democratization of workplaces. Active user participation was seen as a key factor and design games as a potential approach for that by allowing a productive dialogue, where users could articulate their demands and wishes in a concrete way. The need for a new approach came after noticing that users did not understand the system descriptions made by the designers. Design games, along with various mock-ups, provided hands-on tools for establishing a common language between designers and users, and involved users in the discussions on existing and future work and technology. (ibid.) Illustratively, Ehn and Sjögren call their approach *designing-by-playing* and the developed methods as *organizational games*.

The players of the organizational games are typically workers in the organization that is undergoing some sort of change. The designers mainly watched the users as they were playing but were prepared to intervene if the participants were not going to be able to reach an agreement on something. According to Ehn and Sjögren (1991, p 252), playing the organizational game is a learning experience for all the participants. The approach emphasizes the users' and the designer's changed roles while serving as a platform for co-operation between designers and *designing users* (ibid., p 177).

Like concept design games organizational games are usually board games and include rules and game pieces that facilitate discussions and alternative solutions. Instead of using abstract game pieces, the organisational games in question utilised predesigned and context-specific game materials. The role of design artefacts, such as playing cards, was to evoke memories. It is not that artefacts should be correct representations of the reality; it is more important that they should make sense to all participants. The way the organisational games were built up shows one way how to create a shared design language: when creating a game related to desktop publishing, the designers introduced labels for the playing cards utilised in the game. But if the workers didn't find the proposed label such as "investigation" correct for a given purpose, it could be changed into "gathering of facts", for example. In this manner, common vocabulary was created gradually. (Ehn & Sjögren 1991)

To argue for their approach, Ehn and Sjögren (ibid., p 247) refer to Russell Ackoff's article published in 1994 about successful participation in design: it should make a difference for the participants, implementations of the results should be likely, and it should be *"liberating and fun"* to participate. As they remark the first two issues concern the political side and the driving force of PD, whereas the third focuses on the atmosphere of playing a design game viz-á-viz the atmosphere in regular meetings. From this background they claim that the basic idea behind design games is to provide an engaging and pleasurable experience, in which the participants› concerns are taken seriously. Although they state that, at best, design games are cheap to produce, they also acknowledge that some of them are resource-consuming because they require a lot of preparation and because it takes several days to play the game to the end.

There are several case-specific organisational games (ibid., pp 242–263), some of them building on the results from the previous one, some working separately. These include *The Layout Kit Game; the Carpentry-poly; The Specification Game; The Organisational Kit;* and *the Desktop Publishing Game*. Because of the limited space I will not describe all of them; instead, here is an example from one:

> The Organisational Kit was developed in the project called UTOPIA. The first version of the game was utilized in the newspaper production domain. The aim was to support discussions on current and future work, as well as technology, and to enable testing alternative solutions. The designers created the game material by defining 40 functions (e.g. "editing"), 15 artefacts (e.g. "scanner") and 5 types of materials (e.g. "article") of the newspaper production flow and built a card, for each of these items, with icons and colour codes that illustrated different types of cards. To simplify, designers made a description of the existing situation, which was

subsequently discussed in the game. The game pieces facilitated the dialogue between the users and the designers and directed the development of alternative future visions.

4 Design games for engaging multiple stakeholders

The fourth category is not clearly focusing on one type of design games, but includes rather a versatile group of them. Whereas in concept design games the researchers represented users, i.e. architects they were interested in, the organisational games facilitated direct user involvement. The design games in this last category include direct and indirect user involvement, depending on the specific purpose. They may be board games, resembling generative tools, or building on embodied design through enacted scenarios (Brandt 2006). A common denominator is that they provide a framework to engage multiple stakeholders to express, negotiate, and generate a shared understanding of users, use context and technology in early concept design (Brandt & Messeter 2004).

I will illustrate this category through three examples: the first example concerns *video card game* (Buur & Søndergaard 2000) as a means to engage the design team to draw their own conclusions from user data; the second discusses *field data as collaborative sketching material* in co-design sessions (Johansson 2005); the third example introduces the notion of *exploratory design games* (Brandt 2006) building on similarities between design and games, both being *"social enterprises [that] evolve over time and are based on a set of rules. [...] The design assignment, the resources, the participant's roles and responsibilities and the ways of working establish the boundaries for the work* (Brandt & Messeter 2004, p 122)." The last two examples concern largely the same case studies, but where Johansson (2005) sees them through a narrower perspective and from an ethnographical viewpoint, Brandt (2006) creates a more comprehensive overview. In practise, these three examples are somewhat overlapping.

Engaging design team through a video card game

It is not always reasonable, or even possible, to organise face-to-face encounters between users and all the people who need to become insightful about and inspired by users' experiences. In many cases, the world of users' experiences is brought to the design in a form of different visualisation types also discussed in the previous chapter. Video recordings have become one of the tools for documenting user activities, workshops and usability tests. However, analysing videos is often done by people specialized in video analyses, leaving some of the design team members outside. As discussed throughout this dissertation, it is essential that people who should be utilising user insights later on are actively involved in making sense of the data. Accordingly, Buur and Søndergaard

(2000) have proposed a technique called *Video Card Game* to engage the whole design team to watch videos and outline their own understanding and conclusions from the videos.

They suggest that the Video Card Game would enable *"turning video into tangible arguments"*, allowing also people who are novices in video analyses to work with it. It also enables going through video material in rather a short time compared with, for example, interaction analyses. Video snippets from the field are transformed into playing cards with still photos indicating a segment, an empty space for notes, and the time code, to ensure that the actual video clip will be seen. Hence, the video clips become tangible artefacts that can be referred to in discussions by pointing, touching and moving. The game combines individual work moments such as watching videos, writing notes and clustering them, and collaborative negotiations like explaining the clusters and one favourite theme for others, creating shared card families, and so forth.

During several video card games, Buur and Søndergaard have explored different physical arrangements and their influence to the dynamics and outcome of the analyses. Based on some experiments, they use three metaphors for distinct physical arrangements: *the meeting room, the cinema,* and *the design desk*. According to their observations, none of these worked perfectly; thus, the general advice they give is to consider how the players can be seated within the reach of the cards and the monitor. After their initial experiments, the use context of the video card game has increased beyond their research group to include a multidisciplinary group of people as well as users and other stakeholders (e.g. Ylirisku & Buur 2007, pp 105–117).

From collaborative sketching material to exploratory design games

Johansson's (2005, p 62) interests in ethnography has guided him to utilise video cards in several design games to introduce field data as collaborative sketching material. In his experiments, video cards are created from the field material almost the way it is done with video card games. The difference is in the ways of utilising these cards as design material for creating stories of users and describing their experiences about existing and envisioned technology. One source of inspiration, when designing the rules for the game, was the Scrabble cross-word game; a similar structure and game board were adopted, for example, in the *Portrait game* (ibid. pp 65–68) later developed into the *User game* (Brandt & Messeter 2004).

The User game aims to develop a shared image of the users based on the field data (video clips of users). The purpose of the

game is either to gain deeper understanding of a single user or to develop a number of fictive users depending on the case. The task is to generate stories related to the user and connect a new story always with the previous one. (Brandt & Messeter 2004) Different versions of the same game have been developed in several projects, for example the *Trend game* builds on the *Portrait game* (Johansson 2005, p 77). The variations and versatility highlight the flexibility of the design games' format.

The role of the game pieces has evolved from one game to another. For instance, after the first experiments, the authors introduced game-boards to force the participants to be more precise and explicit in reasoning of their choices. At the same they noticed that game boards were critical in transforming the atmosphere from a normal meeting into a game playing one. Johansson (2005, p 81) argues that board game look and rules are qualities that everyone can understand through the games they play for fun, thus they feel comfortable with that setting. The game boards they have used have varied from conceptual ones, for which the participants have to invent a meaning, to concrete ones such as office layouts. The focus has moved between understanding current practices and envisioning future, or both. (ibid.) The rules of the design games are the driving forces in the dialogue among participants (Brandt & Messeter 2004).

In order to provide some sort of framework that combines different types of design games, also the ones discussed by Johansson in his doctoral dissertation referred above, Brandt (2006) has proposed the concept of *exploratory design games*. These are not a specific set of games but rather guiding principles or a particular genre, to help organising co-design. They cover a wide range of participatory activities from future workshops to acting out scenarios (ibid.), which originally were not called design games.

According to Brandt, all of the examples presented above are exploratory in nature; in other words, they are tools for exploring. Hence, they can be described as *exploratory design games;* they do not represent a strict categorization as such, but, rather, pinpoint various aspects of designing that Brandt separates into different categories: 1) *the games to conceptualise design,* 2) *exchange-perspective design games,* 3) *negotiation and work-flow oriented design games,* and 4) *scenario-oriented design games.* The first includes, for example, the above-mentioned *concept design games* by Habraken and Gross (1987), which, like other methods in this category, builds on highly abstracted and conceptual "game universes" to study design practice (Brandt 2006, p 58). The second refers to the surrealist movement in 1920s, which gained inspiration from the subconscious mind, chance, surprise and playful techniques. The

methods for this category typically involve elements of chance, which may come, for example, by combining things that at first sight do not seem to fit together; for example, when building user scenarios from fragmented bits and pieces of user data. The surprises may open up new ways of seeing and experiencing, resulting in a changed perspective. The third title highlights negotiation and simulations of current situations and Ehn and Sjögren's (1991) organisational games belong under that title.

As the name indicates, the fourth category includes scenario-based design approaches, such as experience prototyping, body storming and drama inspired methods discussed earlier (e.g. Buchenau & Fulton Suri 2000; Brandt & Grunnet 2000; Sato & Salvador 1999). The stories and constructed images of users typically evolve during several games. This approach encourages developing series of design games which may be played separately but are ideally played in sequence, for example as part of an event-driven project model presented in (Brandt 2001). Brandt (2010, p 132) describes the connection between facts and imagination in exploratory design games as follows: *"When the game materials are very fragmented, the participants use their imagination to 'fill the gaps'"*.

One of the exploratory design games is *the Landscape Game*, the intention of which is to create a context for the persons created in *the User Game*. The game focuses on bringing physical surroundings to the stories. The discussion and development of stories is guided through a conceptual *game-board, moment cards* and *trace cards*, which introduce elements from the physical surroundings identified during the field studies. Other example, *the Technology Game,* aims to make the technological aspects explicit early in the design process. In terms of game pieces, it presents technological functions deconstructed into a list of generic functions, which are written on Lego bricks, set of foam shapes, and material from the video observations and probes studies. They aim to evoke ideas, support arguments, and work as boundary objects. (Brandt & Messeter 2004)

Some of the exploratory design games utilise drama-inspired methods discussed in the previous chapter. For example, *the Scenario Game* connects the outcomes from the previous games together as scenarios that describe the user, context, situation, and technological functions. It aims at developing empathy towards the users and the use situations, as well as to elaborate concepts by acting them out in a physical environment. The game material comes from the previous games, and the stage for the performance is the possible use context. The players are actors instead of players in the meaning of board games. Who will act as users can vary, but preferably the users themselves are involved (Brandt & Messeter 2004).

Although explorative design games come in many varieties, good design games seem to share some characteristics. According to Brandt (2006), these include but are not limited to the following: they have open tasks that allow the participants make their own interpretations and find meaningful focus; are engaging; create relaxed and informal atmosphere that increases creativity; utilise various senses; include ambiguous and open ended props that force the players to be explicit in describing how they understand and interpret them: and they provide a shared design language.

3.1.2 Purposes of design games in general and in co–design particularly

The variety of design games illustrates the flexible character attached to them that allows a wide application area. Whereas Habraken and Gross (1987) found concept design games useful research tools for understanding designers' concepts in academic context, Iversen and Buur found their value in teaching design students to become sensitive towards social aspects of Participatory Design. Ehn and Sjögren's (1991) organizational design games, for their part, focused on empowering users to express their insights to designers, while Buur and Søndergaard (2000), Johansson (2005) and Brandt (2006) looked beyond users to open the design process to several stakeholders. All of these authors referred to their approaches or methods as a game or a design game. Does this then mean that they share some attributes or elements, even though they seem distinctive from the outset?

Firstly, Habraken and Gross (1987), as well as Ehn and Sjögren (1991), state that they were inspired by Wittgenstein's language-game, and since the other authors build on them, we can say that the above-mentioned methods all share the same base. Brandt (2006, p 57) describes the general idea of the language-game in the following way: *"On a general level the philosopher Wittgenstein*[12] *sees the notion of language-games as constituting human practices. Rather than individuals formulating exact statements, the intertwining of different voices in specific situations shapes language and herby the practice."* For their part, Ehn and Kyng (1987, pp 169–195) state that the purpose of the organizational games is to create a language-game common to both designers and users. Despite this starting point, they remind us that there is more to design games than just a language; namely, design games use tangible elements, mock-ups, to provide users with hands-on experiences.

Secondly, the authors share a similar view on the design. According to Habraken and Gross (1987), *"Designing is a social activity that takes place among people who negotiate, make proposals, set rules for their conduct and for the work to be done, and follow such rules. In short, to a large extent,*

[12] Wittgenstien, L. (1953). Filosofiska undersökningar (in Swedish). Philosophical Investigations. Stockholm, Thales

designing involves agreement-making and rule making." Although they have worked within the context of architecture, the same description of designing fits design in general and co-design in particular. Brandt and Messeter (2004, p 122) share a similar view on design, which they connect to games by describing playing games and designing both as *"social enterprises, [that] evolve over time and are based on a set of rules"*. Also, Iversen and Buur (2002) make a straightforward connection between design and games by posing that *"design is a game"*, since the challenges related to the social and communicative processes in (participatory) design are easy to underline through the game setting, and thus enable researchers and designers to become aware of them and build strategies for them.

Thirdly, they all share some objectives when it comes to utilizing the game at the material level, meaning that they all use some tangible *game pieces* – e.g. transforming video clips or other user data into playing cards, Lego bricks or a set of foam shapes, which are then used together with concrete or conceptual game boards – that aim to make the activities, knowledge and roles of the participating people explicit – whether this involves understanding how architects work or creating a picture of the users' world. Furthermore, they all emphasize creating a shared vocabulary and rules for facilitating dialogue as central objectives of these methods. In addition, those design games that have been used in co-design emphasise a relaxing atmosphere that can be created via the game setting.

The shared characteristics can hardly be seen as a definition of design games; instead, they show that from the outset, activities that may look different do share commonalities that justify using the title design games (**Table 2**).

Design games in co-design

The reason I chose to map the design games differently (**Table 2**) than the four categories for exploratory design games suggested by Brandt (2006) results from the fact that I find certain problems in her model. As I see, her grouping shows – not four different categories of design games – but four central attributes and underlying qualities of design games. Hence, classifying games under these labels can be challenging. Where I find Brandt's model valuable, is in illustrating the core qualities of exploratory design games, which may be confusing for those who are less experienced with design games, because of the overlaps between them. Often, design games imply more than one of the four characteristics, as the examples presented above have illustrated, and it may be challenging to identify the most dominant one. For example, one of the motivations for utilising scenarios is to exchange perspectives, either the participants' or the researchers'. Furthermore, negotiation seems to be central for all design games, especially in co-design, which builds on several viewpoints, opinions and skills.

The four labels I presented are broader than the ones given by Brandt and may exist partly overlapping in practice as well. They do not say much

	DESIGN GAMES AS A RE-SEARCH TOOL	DESIGN GAMES FOR BUILD-ING DESIGN COMPETENCE	DESIGN GAMES TO EMPOWER USERS	DESIGN GAMES FOR ENGAGING MULTIPLE STAKEHOLDERS
RESEARCHERS / RESEARCH GROUP	Habraken & Gross	Iversen & Buur (and their students)	Ehn & Sjögren	Buur & Söndergaard; Brandt and Messeter; Johansson
FOCUS	Studying design processes and designers' concepts	Emphasis on the social interaction in PD	Empowering users in PD	Engaging multiple stakeholders in co-design
CONTEXT	Architecture/design research	(interaction) design education	Workplace design/ computer supported work	Roots in interaction design (nowadays wide design domains)
PLAYERS	Design researchers	Design students (with company partners)	Users	Stakeholders and users
EXAMPLES	CONCEPT DESIGN GAMES: Silent game	"DESIGN IS A GAME" -COURSE: Students create their own design games	ORGANIZATIONAL GAMES: Layout Kit Game Carpentrypoly Specification Game Organizational Kit Desktop Publishing Game	EXPLORATORY DESIGN GAMES: Video card game User game Landscape game Technology game Scenario game
BASE / INSPIRATION	Austrian philosopher Wittgenstein's (1953) language-game.			
VIEW ON DESIGN	Design as a social activity happening within certain time limits and guided by negotiation and a set of rules.			
MATERIALITY	Tangible, predesigned, context-specific or abstract game pieces to make the activities, knowledge and roles of the participating people explicit and to make it possible for participants to exchange perspectives, conceptualise design and negotiate between various viewpoints, for example by creating and acting out scenarios.			

Table 2 The table sums up the contexts, main aims and characters of various design games to point out their diverse purposes and application areas while presenting some commonalities related to the inspiration, views on design and materiality common to the different games.

about qualities, but instead focus on the overall context and purpose which they are applied for. There is no intention to offer a replacement for Brandt's model but to point out more general purposes and application areas of design games. The need for this type of mapping occurred when I was teaching master students in industrial design. It should be noticed, though, that there are several design games or alike that are not included in my classification. These include *simulation games* utilised in organizational development, which I will soon touch upon shortly.

To sum up, based on the existing literature and my own experiments so far, design games in co-design have three main qualities in common: 1) they create a common design language, 2) they promote a creative and explorative attitude, and 3) they facilitate the players in envisioning and enacting what could be. *The first* emphasizes a common design language (Ehn & Sjögren 1991); *the second* has similarities with generative tools (Sanders & Dandavate 1999); and *the third* builds on the game metaphor as liberating within its own universe, protected from "ordinary laws" (Brandt 2010).

Creating a common design language

Firstly, design games provide a common language for researchers, designers, users and other stakeholders through ambiguous and fragmented game material that A) helps participants to be explicit in their choices and understanding, and B) gives space for personal insights, comments and ideas, hence supporting shared understanding of the topic. Immersing players into users' practices, for instance through a video card game, may enhance empathic understanding of potential users (Mark Larsen 2010, pp 227–237). As Johansson (2005) has stated, design games bring into discussion new categories and fresh standpoints besides passing knowledge.

Promoting creative and explorative attitude

Secondly, design games are generative, sensitive, visual and playful tools aiming at sensitising the imagination and facilitating exploration in co-design settings. Tangible game material promote explorative and creative attitude. The material and rules invite both verbal and non-verbal reactions and support various means of expressing one's thoughts, dreams and knowledge, for example acting out scenarios or having tangible props evoke different insights. Therefore, design games encourage moving between intuitive and rational thinking, being spontaneous and using imagination, but in the end to consider alternatives to the consequences they may have. In addition, board game look and rules are qualities that everyone can relate to the games they play for fun, thus feeling comfortable with that setting; relaxed and informal atmosphere tend to increase creativity (Johansson 2005, p 81; Brandt 2010, p 132).

Facilitating envisioning and enacting what could be

Thirdly, design games facilitate creative interplay between what is and what could be; for example, creating scenarios based on game material that represents users' experiences help to ground future alternatives with current practices. Thus it focuses on finding design opportunities rather than explaining a phenomenon in detail. An open task allows several interpretations and negotiating a meaningful focus (Brandt 2006). Furthermore, games create a story-telling mode for participants (Johansson 2005). Several stories of what is known, interpreted, and envisioned are intertwined, to fill in the gaps left open by the fragmented game material and to create more consistent scenarios. On one hand, design games emphasise participants' everyday knowledge and, on the other hand, open up the game world with theatre inspired role-taking and performances.

Although I have identified several aims and qualities for different types of design games, I still think there is a need to clarify the essence of design games by quickly taking a look at a few examples of other types of games and assessing some additional studies on games, play and performance.

3.1.3 Variations of the game metaphor

Learning what has been done in other areas close to design games is relevant as design approaches increasingly spread outside product design, opening new areas for design. Therefore, the aim of this section is to give an overview of some application contexts of the games with brief examples. *Simulation games* developed in the area of organizational management are given a bit more space since they stress many aspects that are similar with co-design, such as facilitating collaborative sense making, however approaching them from different theoretical and practical backgrounds, thus allowing new insights to draw from.

From brainstorming tools to marketing and innovation games

There is increasing interest in design games type approaches in the widening design domain. For example, Kultima et al. (2008) have utilised similar tools, known as *idea generation games,* to improve innovative solutions when designing casual mobile multiplayer games. These games are meant to be played by groups of game designers to come up with new and innovative game ideas and features. In comparison with many other design games, they put even more emphasis on lateral thinking and brainstorming (de Bono 1985/1999).

In the human-computer interaction (HCI) domain, Garreta-Domingo et al. (2007) have employed the design game approach to demonstrate some of the key UCD methods, their relation to each other and the possible outcomes. They promote the game framework as a platform for learning-by-doing in enjoyable and informal setting. Muller et al. (1994) have

utilized card based approaches in software development processes, to let participants discuss each other's needs within relatively egalitarian atmosphere. Games have also been used increasingly in relation to education, either in forms of computer games and video games, or in more traditional forms of board games. As an example, Warmerdam et al. (2007) have been developing a serious game, *SimPort*, which is an extensive management game for building an international port. In regard to computer games, the authors recall considering players' computer skills: whereas many children are "native" computer users, many adults may still be considered as digital immigrants and may need simple and intuitive user interfaces (ibid.).

A more marketing-oriented perspective has been taken by Hohman (2007) in his book *Innovation Games – creating breakthrough products through collaborative play,* in which he presents several easy-to-adopt game-like methods, which, according to him, make meetings more productive, innovative, and fun. The games he discusses employ playful attitude, but instead of game pieces they use pen and paper to create design representations; thus these are easy and cheap to produce. The focus is on envisioning customers' needs and preferences and on guiding roadmap creation, strategy decisions, etc., accordingly. A similar approach is taken by Gray et al. (2010) in their book *Gamestorming – A Playbook for Innovators, Rulebreakers, and Changemakers*, where they give hands-on examples how to create own innovation games. Like Hohman, they also utilise post-its and line drawings as their main medium, unlike design games that mainly trust on fine-tuned predesigned game material.

Schrage's (2000) book *Serious Play: How the World's Best Companies Simulate to Innovate* looks at innovation and also highlights the importance of various prototypes, models and simulations to lure people into *what if* considerations and to allow them to step outside their every-day roles. Hence, it has some similarities with the qualities of design games, although in his book serious play merely denotes a *"philosophy of innovation",* which sees playing with prototypes as a central factor for successful innovation, but one that is not connected to games. Schrage's (ibid.) argumentation and examples are in line with the tradition of industrial design, where mock-ups and prototypes have been utilised, among other things, to make mental models explicit and invite people to play with the alternatives without specific rules or other game-like characteristics.

The above examples aim at giving an overview of various game applications to broaden the perception of the different uses and interpretations of games. One approach in which I find a possible source for improving understanding of the particularity of design games are *simulations games*, which have a rather long history in the organizational change context. I will next give some brief examples of their descriptions, and compare them with design games.

Simulation games

Simulation games have been utilized in different change processes at companies, for instance, to simulate various work practices and to communicate organizational values, as the examples below illustrate. Forsén and Haho (2003) describe simulation games as participative tools, where employees play their own roles to explain tasks and problems. It builds on role immersion, but compared to role-playing exercises in co-design, simulation games entail a clearer structure and, rather than evoking empathy, focus on interaction and dialogue.

Resulting from the organizational setting, simulation games typically involve between 30 to 50 people, which is a rather large group of participants compared to most design games which typically have six to twenty participants. Although simulation games and design games have many similar goals, they differ in the setting and progression: in simulation games there are usually two distinct groups, players and observers, while in design games these roles are more intertwined. In simulation games the facilitator supports the dialogue but does not participate in the role-playing. Both design games and simulation games emphasize fresh viewpoints and a creative mindset by encouraging envisioning future alternatives while demonstrating current practices. In addition, the process of performing both types of games often includes some sort of pre-study, such as interviews, to plan the activities.

Forsén and Haho (ibid.) discuss the facilitator's roles and tasks when leading organizational change process through simulation games. Even though in organizational change processes the facilitator's role is more critical and includes greater responsibilities than in one-off co-design gatherings, they have some common denominators, especially with Participatory Design processes in general. For example, typical of both is that collaborative activities should enable goal setting and goal achievement through a process of communication; they should bind together individual's tacit and explicit knowledge and enhance individual and organizational learning.

According to Forsén and Haho (ibid.), tacit knowledge includes know-how, beliefs and mental models, which all are hard to capture, as have been noticed also in co-design. The authors call attention to the facilitator as one who should get others to question conventional assumptions and help people out of their conceptual ruts. In this process the facilitator's tasks can be divided into three main ones: *project management, process facilitation, and technical support*.

As was pointed out earlier in relation to community drama, in simulation games it is also typical to involve more than one person to take care of the different roles and related tasks that facilitation demands. For instance, documenting the discussions, ideas and decisions are responsibilities of the *second facilitator*, who can be either from the company or from outside, depending on the case. Forsén and Haho (2003) recommend: working

with someone who is employed by the company and has a good knowledge of that organization and its employees; being clear with the goals – whether it is to train the organization, develop it, or just collect a data; communicating the goals to the participants; and considering strategies to increase communication, collect ideas from the participants, enhance the group dynamics, and solve possible problems during the session.

Ikävalko and Martinsuo (2000; Martinsuo & Ikävalko 2000) have been working with organizational values and have developed game-like approaches and promoted them within an organization. According to them, simulation games are interactive, experiential exercises that combine the features of simulation with those of a game. They discuss experiences gained from a case study where an electronics industry firm wanted to communicate its values to a large number of employees in different departments, to support ongoing organizational development. The simulation game that was developed was specific in its company-related content while being general enough to be adopted across the organizational units and groups.

Like with many design games, the aim was to allow individual sense making and collective learning through discussions, as well as identifying gaps between the reality and the desired situation. As there were no correct answers, the organisation's values were interpreted in a dialogue. Ikävalko and Martinsuo (2000) describe that in order to maintain a link with participants' everyday practices the *"Trump Card Game"*, as they call it, dealt with real-life work issues such as "*decisions*" and "*problems*". In addition, the game was designed as a board game, utilising elements associated with games played merely for recreation without any work-related goals, for example dice and two sets of playing cards: task and fact.

Similarly to, for example, organizational design games (Ehn & Sjögren 1991), the simulation games of Martinsuo and Ikävalko (2000) utilized the game format as inviting for workers to participate, and as means to provide fun playing experiences with visual stimuli. They highlight the significant role of the facilitator for influencing the nature of interaction during each game. Based on their experiences, they propose simulation games as an optional tool, with certain strengths and limitations, to promote organizational values. The positive qualities included the way organizational values were brought into discussion, but yet allowed room for individual and collective interpretations. Furthermore, the game enabled grounding the discussions to organization's reality while taking advantage of imaginary aspects.

The critical observations mainly concern the extensive efforts and resources needed to ensure pre-study that informs the game development, and as in participatory design, the need to a follow-up for reactions to indentified issues (ibid.). There is certainly much more to learn from various simulation games, as well as from other contexts and projects utilising the game metaphor. However, the purpose of the examples was not to present extensively other application areas but instead to briefly draw attention

to the popularity of the use of games and point out some similarities and differences that can help in developing the play framework. The above examples provided, among other things, insights to facilitation, to the importance of preparations and aftermath, and to the significance of the game-like approach in combining serious issues with playful attitude, as well as grounding imagination to current situations. One difference when comparing simulation games to design games seems to be the larger amount of attention the latter puts on visual qualities of the game material.

3.1.4 Play framework: step one

I will next look at design games and their characteristics in regard to the three topics discussed in the previous chapters: *design collaboration, creative interplay between current practices and future opportunities,* and *design materials as tools in ideation*. In the previous chapter I proposed that structure, facilitation and materials are central in planning and conducting co-design gatherings. Next I will look design games' relation to them from the perspective of the three above mentioned themes.

Design collaboration

For Brandt and Messeter (2004, p 121), the overall purpose for utilising design games is *"to help facilitate a user-centred design process for cross-disciplinary design groups early in the design process"*. According to the authors, design games improve idea generation and communication between designers and various stakeholders, and the rules downplay possible power-relations and contradictions between interests (ibid.), hence improving the collaboration.

Whereas collaboration during co-design and design games is addressed, there is less debate on collaboration before and after the session. Brandt (2001) has studied the mechanisms for creating continuity in large projects where many people are involved in event-driven product development process, and Sleeswijk Visser et al. (2005) recall the need for sensitising tasks before the actual co-design session to make participants aware of their experiences and wishes related to the topic under study.

However, in regard to design games, involvement in designing the game mainly concerns activities of adjusting it while playing the game, for instance by letting the participants to choose or modify the game board and playing cards and having rules that allow reinterpretations. Even this type of minor involvement in adjusting and modifying the game pieces, has proven to increase engagement (Johansson 2005, p 87). In that sense, design games are always partly designed by the participants on-the-fly, but major decisions what to include into the game, where to focus, how to proceed etc. are typically done beforehand, and the collaboration concerning that phase is less researched.

As Johansson (2005, p 80) declares, sometimes the game format itself forces you to do certain kind of game piece adjustments, for instance the

size and amount of video-cards can be limited to enable better playing experience. Or, as was indicated by the Video Card Game (Buur & Søndergaard 2000), table and seating arrangement can affect group dynamics either positively or negatively. I propose that these decisions, as well as how they form part of design collaboration, deserve more attention for two main reasons: *1) designing a design game establishes what can be made out of it while playing the game, thus influencing the rest of the project and its outcomes; 2) a lot of important learning, which takes place during the design phase, cannot be gained without being involved,* as we noticed in "Co-designing the University".

Creative interplay between current practices and future opportunities

As the examples indicate, a typical way of introducing field data to the wider audience is to transform them into game materials, thus to trigger discussion and allow drawing conclusions and personal notions from them. Personal interpretations are encouraged rather than avoided to enable emotional responses and design empathy. In the "Co-designing University", we provided statements from the participants (i.e. users) written on the playing cards. Together with a more conceptual task of considering the values of the Design Factory, illustrated through cards with images of well-known real and fictive persons, directed discussion to the content: i.e. why the statements made sense in a certain context, and how those wishes could be communicated through a certain set of values. Whereas those statements included both views on current situation and reflections on possible future, the cards with images of characters introduced more ambiguous material for creating and articulating future visions.

One of the strengths of co-design, if organized properly, is its quality to create an understanding of the users and use context simultaneously with novel design concepts. When experimenting with design games, I have noticed that there is an overlap between conducting and interpreting user studies and concept design as such, and in many cases they cannot be looked at in isolation from each other. Based on my experience, a well-prepared co-design gathering can provide plenty of information, inspiration, and design openings within couple of hours. However, one should keep in mind that in early concept design the outcomes are not final designs but rather seeds for them.

Tangible game pieces and design material help in drawing from current situations and people's daily practices to reach future visions. The authors who were referred to earlier emphasise the relaxing atmosphere created by the design games, making it sound almost magical. Figuring out how to reach that mood may not be that easy, though; it very much depends on the researcher and the way of using the game as a metaphor (label) and activity (with tangible game pieces) for guiding co-design. It should be noticed

that *"constructing design games is design work in itself"* and *"design game designer sets the rules and frames for the design work"*, as stated by Johansson (2005, p 81). Thus the researchers' influence cannot be left outside when discussing how design games direct the interplay between *what is* and *what could be*. I find the notion of *design game designer* useful because it points out the creative process of designing design games.

The role of the facilitator was already discussed in regard to scenario-based co-design, and there is not much that design games add to that, besides one particularity, that is *game rules*. Johansson (2005, p 79) claims that the facilitator's task becomes easier when design games are utilized as a framework for collaboration, since the structure and way of acting originate from the rules of the game. According to him, people are more willing to follow the game rules than have the facilitator as a guide. He also claims that it is easy for the participants to grasp the design sessions, when there are the game rules to follow. (ibid.) I find this notion interesting: potentially it means better predictability for the results, assuming that the rules have been thoroughly considered and piloted beforehand.

Design materials as tools in ideation

According to Johansson (2005, p 87), creating design material and a structure for the workshops *"requires an understanding of and sensitivity to what will work and what will affect the participants"*. As was shown by the examples above, design representations are used in design games both to evoke memories and to prompt new perspectives and responses. Tangible and visual game material is often built based on a user study, to focus the discussion on user perspectives and experiences. The authors referred to above underline the importance of common language among participants and propose the tangible game pieces as a vehicle for that. The idea is to employ various skills and expertise that are represented in the situation and *"jointly explore various design possibilities within a game setting (Brandt 2006, p 58)"*. I would add to that a tentative claim that reaching a common language during the game may provide a feeling of mutual understanding and thus also positively influence the social experience, and not only productively affect the work itself.

Visual design and tangible forms encourage hands-on experiences while also aiming at attracting participation. However, surprisingly little discussion touch upon the visual qualities and the aesthetics of design games and the influence of these properties to the motivation, dialogue and outcomes. In terms of *Design Probes*, it has been suggested that the aesthetic design should fit to users' world to motivate participation and to indicate researchers' commitment and interest towards users (Mattelmäki 2006, pp 71–86). Most discussion concerning design games focus on functional properties; the size of the game and the pieces should allow easy handling, the amount of material should give a feeling of sufficiency

but not be overwhelming, and so forth, but discussions on aesthetics are rarely touched upon. When we (Vaajakallio et al. 2010a) compared our experiences from the "Co-design among young children" and also from studies conducted with adults, we noticed that kids were mainly inspired by simple symbolic images, whereas adults can be set off by more abstract images and photos as well (**Figure 22**).

Fig.22

The left side images illustrate feelings and atmospheres, and they are often used as part of generative tools to invite users to describe their experiences. We gave to children the same set of images with various symbols seen in the image on the right. None of the kids utilized or showed interest in the feeling images. Instead, they utilized symbols to describe their ideas.

Traditionally, aesthetics has been associated with art objects, like painting or sculpture, and objects in nature, such as a beautiful stone. When studying the aesthetics of these objects, the discussions have focused on their properties, qualities, features, form and order. (Berleant 1999, p 13) In regard to design games, this would then include the game pieces and other props brought into and created during the co-design gathering. Investigation of the aesthetic qualities should be done in relation to other characteristics addressed as relevant in co-design: are they tempting or repulsive?; are they perceived as engaging and playful or dull?; do they encourage out-of-box thinking or do they support stereotypical images?

In "Situated Make Tools study", we observed that if we displayed the Make Tools kit before introducing the task, the participants would start playing with the material instantly, without paying attention to our guidelines (e.g. Vaajakallio & Mattelmäki 2007). This observation reminds us that in co-design, different game pieces and design material should not be studied in isolation, but as a unit, influenced by several dynamic factors, including the order in which the activities are introduced to the participants.

When evaluating design material in co-design, we should acknowledge the fact that aesthetic value is context based and connected to the functional properties. In design games, the aesthetics should support conveying the message but not to steal the attention from the content. In the Eco Game we concentrated on the visual outlook to make it tempting for the children in cost of getting to know how well they would be

able to play, abiding to the rules that required writing and conversation within the peer group. We found that the game provided focus and support for discussion in some groups but was of limited value in others. (Vaajakallio et al. 2010a)

What comes to designing game pieces, I agree with Brandt (2007, p 191) that appropriate models should be carefully chosen, depending on the intentions. However, based on my own experiences such as co-design among kids and the existing literature on probes (Mattelmäki 2006), I propose that the aesthetics of the design games should resemble the content and appeal to the special user group to which it is targeted. Already, the literature on probes and various mock-ups presented in Chapter 2 indicated that co-design material should not look too polished, although it should look inviting and be motivating to work with. When reflecting upon my own experiences, the inspiring outlook is not there just for the participants' sake but for the design researcher as well: properly considered and well-designed material gives confidence needed in facilitation.

Fig. 23

Design material used as tools in ideation may vary and include many readymade materials, such as nails, play-mobiles and colourful papers cut into different shapes; the important thing is that they can be manipulated, revised and combined with other materials to allow idea generation and discussion in groups. The first image on the left is from a concept design game. The image in the middle and the one on the right are from the "Co-designing university" case.

Table 3 summarises the identified design game qualities in relation to aspects of co-design. One of the titles I initially used, "*Design materials as tools in ideation*", turned out to be limiting, describing quite poorly the dynamic roles materials may have in design games. Therefore, to broaden the view and to place it within design games, I have changed it into "*Roles of design game materials*". So far the other two titles seem to be appropriate.

	 **DESIGN COLLABORATION**	 **CREATIVE INTERPLAY BETWEEN CURRENT PRACTICES AND FUTURE OPPORTUNITIES**	 **ROLES OF DESIGN GAME MATERIALS**
COMMON QUALITIES FOR ALL DESIGN GAMES WHEN APPLIED IN CO-DESIGN GATHERINGS	For empowering users, gaining several perspectives, evoking new associations and increasing understanding of the phenomenon under scrutiny To support empathic understanding through immersion into user data and personal interpretations Asks for sensitivity towards others' moves > engagement with the situation, and awareness of others' point-of-references	Fragmented user data is completed by imagination, experiences and empathy to create more consistent stories Allows telling stories based on past experiences, makes interpretations of current practices creating narratives of future visions Relaxed atmosphere supports creativity and collaboration Guided interplay between spontaneous and considerate actions utilising intuitive and rational thinking	To function as boundary objects; provides a common design language To be open for several interpretations; requires taking an explicit stance and allows finding a meaningful focus To provoke several senses and forms of expression (verbal and bodily); evokes memories, associations, and ideas
CONTEXT-SPECIFIC QUALITIES	Direct or indirect user involvement, among researchers and design team and/or other stakeholders		Conceptual (detached from its normal context, e.g. nails as game pieces) or concrete game material

Table 3 Design game qualities that were identified in regard to the three previously discussed aspects of co-design.

3.1.5 Design games as a tool

Keinonen (2009) has proposed that design methods can be perceived as *an instrument, a competence, or an agenda*. Since different framing means different purposes and thus a distinct validation criteria, we should be precise with the primary purposes we attach to the method. The first, *instrument*, emphasizes method as a formalized tool that can be generalized over case-specific needs without large modifications. The second, *competence*, highlights method as part of a designer's/design researcher's skills and is heavily dependent on the person applying it and on the particular circumstances of its application. As an example, Empathic Probes (Mattelmäki 2006) builds on the idea of reinterpreting the tasks case specifically, and using researchers'/designers' insights to guide the process. The third framing, *agenda*, demands taking some standpoint to the objectives of design, for instance the mission of participatory design was to empower users in shaping their environments, and the process itself was prioritized over the results.

As I have shown in this chapter, during last decades all these perceptions have been attached to design games – somewhat intertwined, however. Although I describe here design games as *tools,* it does not take away the need for personal competence and context-specific applications. Rather, it means that design games provide the means for meeting particular challenges of co-design, such as *organising dialogue, supporting empathic understanding, and gaining several contributions to design*, if organised properly. For instance, design games support *dialogue,* one of the cornerstones of co-design gatherings, in at least three ways:

First of all, design games work as boundary objects among participants, providing concreteness into the abstract phase of early design. Through design games, the topic under inquiry can appear differently based on a chosen viewpoint, opening up new questions and allowing several interpretations that are not excluding but complementing. Several focusing options support finding consensus within a diverse group of players while leaving freedom for individual discoveries.

Secondly, game materials and rules open up a fresh approach for familiar things, thus evoking creative thinking and empathic understanding both in direct and indirect user involvement with the design team. Furthermore, although concept design games, for instance, didn't aim at designing alternative futures but to help understanding architects' latent concepts, they required sensitiveness towards other player's moves in order to respond correspondingly. Then, through analysis of the play, new associations and discoveries emerged.

Thirdly, the dialogue may be mediated through game pieces, which promotes action-oriented language use besides verbal communication. A multidisciplinary group of people, ranging from users to other stakeholders and designers, is allowed to contribute in the construction of a variety of representations about the user's world in verbal, visual and acted-out formats, in order to make personal connections to the data through which new insights

or revelations may emerge. These insights direct the argumentations over interesting topics and design drivers for further exploration.

Providing a particular vocabulary for the Play framework

The examples have explicitly pointed out certain underlying reasons for the game metaphor in design but given only few clues of what the relaxed play atmosphere the metaphor seems to denote could mean. They leave open questions such as: *How is the atmosphere generated? Is the concept of games that everyone is, familiar with enough for that, as many authors propose?* So far, it seems that design games and games in, for example, Salen and Zimmerman's (2004) terms, are similar but in many central ways not identical, thus potentially confusing the participants instead of guiding them into the "right" mood. Therefore, I find the roots of the play atmosphere, and thus the play-qualities, worth further study, to learn how they could be materialized in co-design.

By using metaphors, researchers can direct peoples' attention towards the things they want to underline. For example, a theatre metaphor invites comments on scenery, wings, props, lights, costumes, actors, instructor, audience, experience, performance, applause, show, etc. (Darsø 2004, p 80). Moreover, it *"sparks a different tone, ambience and visual image than would a war metaphor"* (ibid.). The same goes with the game metaphor in co-design: it evokes a certain image and certain expectations for the participants already before the game has started. Therefore, I find it important to draw more attention to the concepts we use. As was indicated through the examples above, confusion over what is meant by the design games may arise since the term is used in connection with several activities which, in the first glance, seem to be quite distinct from each other. I have come across this especially when teaching MA industrial design students at the Aalto University School of Arts, Design and Architecture.

One reason for the fuzzy terminology is the lack of frameworks that would clearly address the underlying *play-qualities* that are embedded in the activities labelled design games. To understand what actually makes a design game, we need to explicate the core identity of them. For the purposes mentioned above, I will continue developing *the Play framework* in the next sections based on what already has been discussed, adding ideas from selected studies on games, play and performances. The objective is to pinpoint the relationship between the *play-qualities* and *design* as they emerge in the design games that aim at supporting early concept design and dialogue between several actors.

3.2 Games, play and performance

Despite of some 30 years evolution of design games, there is a lack of framework that would help to discuss, design and analyse them systematically. In the design research domain, Habraken and Gross (1987) have developed a special language to describe concept design games. However, it barely resonates with the co-design practice, since it has been developed in a distinct application area and for different purposes, thus leaving outside several core game and play qualities relevant in co-design. I have faced the challenge of lacking common concepts in several case studies as well as in teaching when explaining the design game activities to the participants and students. The activity and its nature is hard to capture and verbalize without an appropriate and more specific vocabulary or framework that would describe the concepts extensively but compactly. The common question is: *What makes some co-design activity a game?*

When we applied a vocabulary from role-playing games the way Iacucci et al. (2000b) did, we noticed that it only made sense in the role-playing game context and did not open up easily to designers and other professions not aware of role-playing games (Kaario et al. 2009). The role-playing game based vocabulary concealed the practical context of the method, the user-inspired co-design practice. Therefore, for building a framework, I will look more deeply at the intersection of *design* and *games* in order to understand better the meanings of the "games" in co-design.

Accordingly, I find it important to broaden the view and look into play, games, and performance, to find out what they can add to the development of the Play framework in **Table 3** (page 110) that is now rather one-sided building on literature that deals with design games. There are some social aspects in co-design gatherings that influence the way of designing and addressing design games and of which one should be aware. I will deal with these issues in more detail below. The general question is: *Based on the previous discussion, what characteristics of play and games could be worth considering in co-design?*

3.2.1 Co-design gatherings as social encounters

Co-design gatherings are highly social occasions, where people who do not necessarily know each other should work together to reach a given goal. The participants' preconceptions, expectations and social norms in the given situation will influence the interaction and consequently the outcomes of the co-design gathering. Apart from the metaphors used, people seek information from others present to know how to behave and what to expect from them and from the situation. According to Goffman (1959), there are many sources of information pertaining to behaviour and appearance, and people tend to act in a certain way to give a particular impression. (ibid. p 17) Co-design sessions aim at being inspirational and driven by a playful mindset, the facilitators work quite hard to give a proper impression of themselves and the surroundings and to get the participants act correctly, for instance by dressing in a certain way, memoriz-

ing the introduction speech, considering beforehand how to set the stage, and designing the game to have all the elements support conveying the message that is found important (**Figure 24**).

Fig.24

In one co-design gathering, dealing with a wedding theme, the stage was set with balloons, roses and heart-shaped chocolate to put the participants in the right mood. Roses became utilised also as design games material in one of the groups' work (picture on right side).

Most often, participants do not have previous experience about design games, and they do not know what to expect. Sometimes they may have the false idea of coming to a regular meeting lead by a chairman, instead of arriving in a gathering where everyone is invited to "stick one's neck out". We can try to influence these expectations by sending an invitation formulated in a certain way or a sensitising assignment before the co-design gathering. In one-off design games, it may be enough if participants behave *as if* they would have got the particular impression we wanted them to get, and act accordingly. However, in long-term collaborative processes this may not be enough to enable the establishment of trust and a common goal among participants.

Considering some act as proper or improper depends on the behaviour model of the specific social group, of the space and the event. In order to behave properly and to *"fit in"* one must *"keep the spirit or ethos of the situation (Goffman 1959, p 11)"*. The fitting-in leads to a common sense notion that what is proper in some situation may not be proper in another (ibid., pp 5–12). Since co-design typically gathers together a group of people with distinct professional cultures, there may be different behaviour models that are approved in one community while considered improper in another, which should be acknowledged when planning the gathering.

Design games usually promote new perspectives into certain phenomena by encouraging people to take new standpoints, for example by acting out, storytelling, or role-taking. As these activities are out of normal work practices, some people may regard them as improper in the work context. This highlights the need to give a correct explanation of the purpose of the game and the activities in it to indicate the co-design

gathering as worthwhile from the business or personal perspectives. It becomes important to figure out strategies regarding how to ensure that the co-design gathering shows genuine relevance and possibly has impacts afterwards.

If we recognize possible false presumptions and social norms embedded in a co-design gathering, we may be better in reacting to these next times when designing the setting and the activities in it. Design games in general have been said to improve informal and equal work context, but there has also been less successful experiences, such as the Eco Game for children, where we were not sensitive enough for the context-specific demands.

In addition, the arrangement of the people and design material becomes crucial. In co-design settings, people typically work close to each other and design material to allow equal collaboration, which was dealt with by Buur and Søndergaard (2000) in regard to Video Card Games. However, sometimes the setting does not adequately support participation, as was observed in the case study conducted with children; they sat in a group of four, but the tables were so big that when the design material or design game was put to the centre of the table, it was hard to reach (Vaajakallio et al. 2010a). Also, if people sit around a table, not every one of them is able to see the design material (for instance, a written text) in its correct orientation, and thus there are some who may feel being left outside. There are culturally varied spatial conventions, especially about how close or far participants can be from each other and still feel comfortable (Goffman 1963), an issue that need to be considered in co-design settings as well.

Another consideration in regard to communication is *unfocused interaction* versus *focused interaction* (ibid., p 24). The first is momentary when, for instance, one glances at another person when passing by. The second is the kind of interaction that design games aim at; persons gather close to each other for collaboration, have the same focus for attention, and typically take turns in talking. Each person is obliged to *come into play* and stay *in play* while in that situation. Every facilitator knows how it feels when someone does not play according to the rules and be alive to the current situation. Thus, signalling one's presence show respect to others, and is extremely important in co-design gatherings.

Summary

Co-design gatherings are influenced by several implicit conventions the participants abide with. Being aware of them helps designing the gatherings appropriately, which, in turn, helps in conveying the intended message through the invitations and materials in the setting. Sometimes we cannot do much about a situation, but at least we will be better prepared if we are not ignorant of the social norms governing the interaction. Next I will look some characteristics of games, play and performance.

> "*In one case games are systematically viewed as a kind of degradation of adult activities that are transformed into meaningless distractions when they are no longer taken seriously. In the other case, the spirit of play is the source of the fertile conventions that permit the evolution of culture. It stimulates ingenuity, refinement, and invention. [...] I believe that it is possible to resolve the contradiction. The spirit of play is essential to culture, but games and toys are historically residues of culture*." (Caillois 1961, p 58)

Introduction to games, play and performance

Earlier I argued that design games are not games in terms of games played merely for pleasure without any work-related goals. When we consider what makes something a game, the common answer tends to be related to *rules, competition, chance* and *skills*. But there are several games with very distinct characteristics. Think about football, chess and solitaire. They differ in form, the number of players, playground, game pieces, dominance of skills and chance etc. but still they share some conventions of what makes them games. Game designers Salen and Zimmerman (2004) compared different attempts to define games, and they came to a conclusion that definitions are always related to a particular reason in a specific context and hence cannot cover all existing games. For instance, games can be divided into *board games, games of skills, lottery games* or *card games* (Gobet et al. 2004, p 2). Gobet et al. (Ibid.) define board games according to their two main characteristics: rules and a board with pieces on it. According to them, *"board games are games with a fixed set of rules that limit the number of pieces on a board, the number of positions for the pieces, and the number of possible moves. [...] moves or placement of pieces may influence the situation on a board and pieces relate to each other on a board."* Although this description fits some design games, especially those utilising rules for action, I find this definition limited in terms of design games, which may entail all or none of the above-mentioned characteristics instead of being defined clearly as board games or card games, for instance.

One challenge for definitions comes from the close relationship between *game* and *play*, and their connotations to language. A Dutch historian Johan Huizinga (1950, pp 28–45), has pinpointed how the concept of play is expressed in distinct languages; the general connotations the word has and the origin of it in different languages capture the essence of play in unequal definiteness. For example, the English word *play* may be translated into Finnish at least in three ways: *leikki, peli,* and *näytelmä*. They all have similarities but highlight different aspects of the word. *Leikki* refers to more childish activity like playing with dolls, whereas *peli* means game or gaming and thus has typically contest embedded in it, and *näytelmä* has to do mainly with theatrical performances and emphasizes the qualities of pretending and acting-out. One word, which we have in Finnish

and which I found missing in the English vocabulary is *pelillisyys*. The word is related to those earlier three words and means something like *"gameness"*. Accordingly, I will not only look at games, but rather at the intersections of games, play and performance.

Salen and Zimmerman (2004, pp 72–73) suggest two ways of understanding the relation between games and play: games as a subset of play and play as a component/element of game. Instead of going deeper into the terminological discussion, I will follow Huizinga's (1950, p 9) description of play as a quality of action, which is different from "ordinary" because of certain sub-qualities assigned to it. Thus, I will look at what differentiates them from ordinary in order to better understand the main qualities governing design games, not to find a universal definition of games or play. I will start from the concepts of play and games and then expand the perspective into performing and the performance process.

Play as a cultural factor in life

Huizinga (1950, p 2) addresses the question *"what actually is the fun of playing?"* a relevant matter to design games as well. This question directs us to look at the nature of play, the attitude it promotes and the qualities that are embedded in play. I propose that mapping out the play qualities that give rise to an intensive play experience is helpful in designing engaging design games as well. If we take Huizinga's claim that people have an implicit desire for play and identify the central influencing factors behind that desire, we may extend the notions with certain hesitation to cover design games too.

According to Huizinga (ibid. p 4), play is a cultural factor which has existed before culture itself, accompanying it and pervading it. Play is a fundamental quality of life (human and animal), without other purpose than the play itself. His perspective highlights the play as experience of fun and enjoyment without serious goals, in contrast to explaining the play as related to, for example, biological purposes. Schechner does not agree with that, but instead proposes that play has several biological functions which are related to primate play behaviour, such as hunting (1988/2003, pp 100–110). For Huizinga (1950, p 3) it is the *fun element* in itself that characterizes the essence of play and resists all logical interpretations. As he describes (ibid. p 1) *"In play there is something "at play" which transcends the immediate needs of life and imparts meaning to the action"*. In addition, he places two other qualities, or moods, in the heart of play: *intensity* and *absorption*.

Both Huizinga and Caillois agree on one fundamental quality of play and games: *non-seriousness*. But even though they claim that the play is not serious, they remind us that it can be performed in the most perfect seriousness, as typical to children's plays and rituals. The ritual, for instance, may be taken very seriously by the participants and community,

but it still has all the essential characteristics of play, particularly *"the ability to transport the participants to another world"* (Huizinga 1950, p 18). Schechner's' view (1988/2003, p 107) differs from that of Huizinga and Caillois, who sees seriousness as essential to play and vice versa, for example when he states that *"... when the play elements are taken out of work, work becomes drudgery and less efficient [...] and when the seriousness is taken away from play, then playing grows sloppy and dull, not fun."*

Playgrounds as temporary worlds within ordinary world

One of the main characters of play Huizinga mentions is *"limitedness"* (1950, p 9). According to him, *"Play is distinct from "ordinary" life both as to locality and duration. It is "played out" within certain limits of time and place. It contains its own course and meaning."* Hence, play can be considered as a temporary sphere of activity in which the laws of ordinary life no longer count (ibid. p 12). One aspect of limitedness is special playgrounds which are marked off beforehand either materially or ideally. These temporary worlds within the ordinary world are also called *"magic circles"* (ibid. p 19) or referred to, in regard to exploratory design games, as a *"game universe"* (Brandt 2010, p 132). In regard to performances, limitedness may also refer to rituals or initiation rites with steps of separation, liminal phase and reintegration. *"During initiations, persons leave their ordinary lives behind (separation), undergo ordeals by means of which old behaviors are erased and new behaviors and knowledge learned (liminal phase), and emerge reborn as new or at least profoundly changed beings ready to rejoin their society but with new identity and at a new level of responsibility (reintegration) (Schechner 2006, pp 236)."*

One quality related to the magic circle is the varieties of performance time adapted to the event that, according to Schechner (1988/2003, pp 8–10), includes: *event time*, meaning that all the steps of the activity need to be accomplished no matter how long it takes, for example, rituals or scripted performances; *set time* that gives the boundaries in which the activities need to fit in, i.e. the gathering should start at a given time and it also should end at a given time no matter whether all the planned activities are accomplished or not; *symbolic time* where the span of activity represented may be shorter or longer than the simultaneously elapsed real time.

Since in magic circle the laws of everyday practices do not count, it needs rules that determine what holds in the temporary play world, rules that tell what players can or cannot do. Schechner (1988/2003, pp 15–19) thinks games are closer to the theatre performance than play in the sense of child's play with dolls, or rituals based on the rules directing them: as he sees it, play is *"free activity"* in which the player makes his/her own rules. In rituals the rules are given from *"outside"*, and games, sports and theatre mediate between these two extremes, since in those activities rules exist as *"frames"*. The frames give boundaries to the performance/

game; the first frame concerns physical space, the second comes from the conventions of the epoch, the third frame is the drama, and the fourth are the instructions given by the director. Each inner frame contains the rules of the frames further out, and the looser the outer frame, the tighter the inner frame and the converse.

The frames are not static but may change within a performance: for example, the performance may take place in several locations, thus having a loose frame concerning the space. Schechner's concept of frames is somewhat similar with Caillois' (1961) proposition that games which rely on improvisation and role-playing do not necessarily have well-defined rules since the improvisation and *as if* take the role of rules. This is typical for games belonging to a class labelled "*mimicry*" (ibid.). According to Schechner (2006, pp 42–43) performances are either *make-believe* or *make-belief*; in the first the distinction between what's real and what's pretended is kept clear whereas in the second these boundaries are intentionally blurred.

Caillois (1961) criticizes Huizinga for leaving *chance* outside the scope of his study on play. That is true: Huizinga does not explicitly include chance as a fundamental character of play, but chance is embodied in other factors he mentions, such as *tension,* or in the examples he gives about gambling. According to Huizinga, *tension* is one of the central characters of play (Huizinga 1950, pp 10–11), entailing the elements of chance and a desire to succeed in the play.

Caillois (1961, p 7) emphasises the *uncertainty* more than Huizinga does; according to Caillois, doubt is fundamental to the nature of play and hence doubt must remain until the end. In this respect, the concept of winning is also closely related to the games and play. Rather than referring to the material aspects, *winning* may refer simply to being superior to others in the outcome of the game (Huizinga 1950, pp 50–52), or it may derive from the challenges faced in the game. From the game design perspective, Salen and Zimmerman (2004) speak of *unpredictability* instead of doubt: if the outcome is predetermined there is no sense in playing. In design games, unpredictability has to do with the motivation and explicating the purposes of the game, as well as with the consequences of the decisions made in the game. It matters who are involved and what are the outcomes.

Summary of the main characteristics of games, play and performance

To summarize, according to the studies referred to above, play is something *voluntary, non-serious, intensive, immersive* and conducted because of the pure pleasure it gives. It *proceeds within its own proper boundaries of time and space*, according to *fixed rules* and in an orderly manner. One of the most important play characteristics is spatial and mental separation from ordinary, i.e. marked place, *a magic circle*, in which the play proceeds.

According to Caillois (1961, p 5), play and games do not include material interest or profits: *"Property is exchanged, but no goods are produced. This exchange affects only the players."* He excludes the professionals who earn their living by playing by considering them as *workers* instead of *players*. As I see it, this is not self-evident in all games; for instance, if you think about gambling, which is inherent in many games, a great part of the tension comes from the exchange of profits or material artefacts. Based on my own experiences playing many sort of games, I would say that, whereas there are different reasons for playing, depending on the particular game and the player, the tension, whether it comes from competition, surprise, learning, or some other means, is often a bigger driving force than any possible material gain.

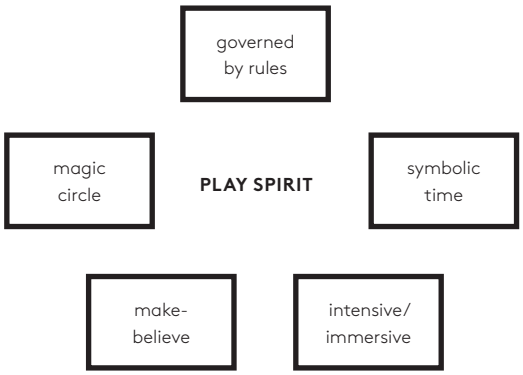
Caillois (ibid. pp 9–10) builds on Huizinga's work but proposes an alternative way of organizing the main play-qualities: according to him, play is *free, separate, uncertain, unproductive, governed by rules, and make-believe*. The important contribution by Caillois, in terms of design games, is his classification of games into four categories depending on which the most dominant characteristic is (ibid. p 12) *competition (agôn), chance (alea), simulation (mimicry), or vertigo (ilinx)*. Thus, whereas Huizinga (1950) proposed two main functions for play, contest and display, Caillois (1961) identified four main functions from which simulation, or in other words mimicry, is perhaps closest to most of the design games. The four classes of games differ fundamentally in terms of the driving force but they all share some play-qualities, hence belonging to a *play category (ibid.)*.

From the co-design perspective, there are some characteristics of play, games and performance, as they were described above, that could describe design games as well: they are bounded with regard to time and space, they proceed according to explicit rules, are typically intensive and they utilize the magic circle of play, the *make-believe*. All of these play-qualities together create a special play spirit (**Figure 25**). These qualities are further elaborated in the next sections, where I broaden the view from language to bodily engagement by looking at co-design gatherings through the lens of performance.

3.2.3 Co–design gatherings as performance

The way play and games are described above show them as structures with particular play-qualities and rules for action. Moreover, they focus on characteristics that create a special play spirit. I already discussed some of the play-qualities in relation to performances, however, in this section I will extend this view by considering *co-design gatherings as performances*. I will utilise the performance theory, as outlined by Schechner, to widen the perspective into the unfolding of performance process. Schechner builds on, among others, Johan Huizinga (1950) and Roger Caillois (1961), underlying the notions of play and games, but shifting the focus on performance process as it emerges in theatrical performances but also in rituals

Fig.25



Central attributes of games, play and performance which are of interest to design games as well and together create special play spirit.

and several everyday performances. Here he follows the direction pointed out by Canadian-born sociologist Erving Goffman (1922–1982) and British cultural anthropologist Victor Turner (1920–1983).

> "*Performance must be construed as a "broad spectrum" or "continuum" of human actions ranging from ritual, play, sports, popular entertainments, the performing arts (theatre, dance, music), and everyday life performances to the enactment of social, professional, gender, race, and class roles, [...], the media, and the internet.*" (Schechner 2006, p 2)

Performance is an inclusive term, as described in the quotation above. Goffman (1963, p 26) defines performance as *"all the activity of a given participant on a given occasion which serves to influence in any way any of the other participants"*. To put it other way, according to Goffman, all social interaction is staged. This is obviously a very wide view on performances. What interests me here is how this rather broad view on performances affects other professional domains bordering to theatre one way or another. For instance, artistic and theatre terms such as *setting the stage, improvising, jamming, orchestrating, rehearsing, and performing* have recently been adopted to the vocabularies of professional domains other than theatre, among these the management. (Darsø 2004, p 42)

Also in user-centred design, especially in the service design domain, theatre metaphors have been found useful in describing different aspects that need to be considered during the design, for example *back-stage* and *front-stage* are widely used to indicate what is visible or invisible to the users. Concurrently, organizations have been willing to utilize artistic approaches along with their everyday practices, especially to increase creativity. Darsø (2004, p 44) calls these encounters with artistic orientation

as *artistic events,* many of them sharing features with aesthetic theatre. As was discussed earlier, the use of metaphors can guide people's thinking and expectations; thus, it is important to consider the concepts that describe the activity to evoke right kind of images. In the co-design domain, the vocabulary should hence describe the play-qualities but also fit in design-specific perceptions.

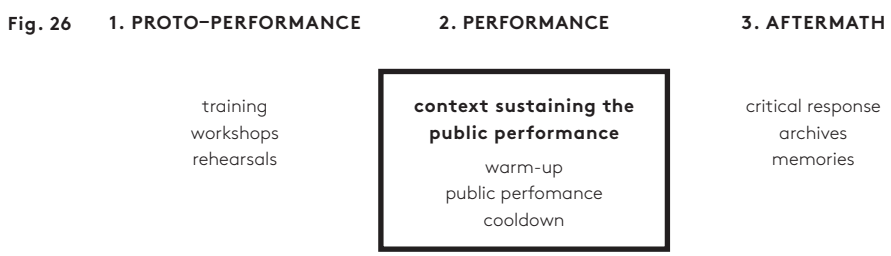
As was discussed in the second chapter, there are various types of scenarios, storyboards and user representations in the designers' toolbox. Whereas one purpose behind utilising stories and enacted scenarios in design has been empathy with the experiences of someone else whom we try to understand, as underlined for example in *experience prototyping* (Buchenau & Fulton Suri 2000), the other purpose could be to understand co-design through them.

Performance as window to analyse design processes

One recent example of taking performance as a lens for understanding co-design concerns the process of establishing and maintaining a design research project between the Umeå Institute of Design and the Umeå Municipality in Sweden that appeared in Clark (2007) as *social drama* in Turner's terms[13]. In his analyses, Clark (ibid.) pointed out the need for involving decision-makers in the co-design processes, in addition to end users and other stakeholders. Besides taking Turner's notion on social drama, he adapted Schechner's initial seven-step performance process, since, as Clark (ibid. p 42) puts it: *"The concept of performance is useful for its 1) processual connotation, 2) transformational qualities, and 3) for how it incorporates the preparation and use of the physical space, artefacts, performers and audience, and 4) the impact the activity has on all those involved".*

The processual nature is well described in the performance process model initially introduced in (Schechner 1985), later revised into a more detailed process with ten elements (Schechner 2006) as shown in **Figure 26**. According to Schechner (ibid., p 225), through the time-space sequence we may better understand the way performances are generated, staged in a focused manner, nested within larger events, as well as the short and long-term effects of the performances. The same applies to co-design gatherings if we consider them as performances of a certain type of work life or performances of future opportunities. As other types of performances, also co-design gatherings have short-term and long-term impacts; they leave traces in the bodies of both performers and audiences.

[13] Clark refers to the concept of social drama introduced by Turner, V. 1966 in Ritual Aspects of Conflict Control in African Micropolitics. In Political Anthropology. M.J. Swartz, V.W. Turner, and A. Tuden, eds. pp 239–253. Chicago: Aldine Publishing Company



Schechner's performance process (adapted from 2006, p 225) describes the three main steps which are then further divided into several actions or elements.

According to Schechner (2006, p 226), many professions (besides those in the performing arts and sports, e.g. lawyer, doctor, carpenter, and teacher) share similar process. One of his examples concerns car design (ibid. p 234): *"In auto manufacturing, new car prototypes are conceived, designed, and built by teams pooling resources in an atmosphere of workshop. [...] The process goes from workshop (concept car) to rehearsal (prototype) to production (performance)."*

In addition to using performance process as an analytical foci to understand co-design process and the nature of activities during it, the ritual aspects of performance have opened new ways to approach co-design activities. According to Schechner (2006, p 236), workshops participants follow a path similar to that in rituals by isolating themselves from their ordinary lives, learning new behaviour and knowledge and becoming reborn as a new or a changed being to reintegrate the society on a new level of responsibility, status etc. In his dissertation *Design Anthropology: Borderland Experiments with Participation, Performance and Situated Intervention*, Halse (2008) has viewed co-design sessions, whether taking place in-situ or in a more artificial workshop environment, as *rituals*. According to him, it is the practice under investigation that is transformed in co-design instead of the people. As he (ibid. p 83) describes: *"The design workshop is enacted in ways similar to the rite of passage: as a momentary suspension of the everyday order, as betwixt and between, in order to prepare the subject for transformation. In the design workshop it is not a social individual that is to undergo transformation – it is practice as it meets technological artifacts."*

Even though an interesting illustration of the way co-design gatherings can be perceived as rituals, Halse's view limits the impact on individual level outside. While I am sympathetic to this proposal, I will expand it to cover the mutual change that happens through personal discoveries on the subject, thus impacting the personal level – an issue that I will return to later on in my analysis. His (Halse 2008, p 121) following statement is illustrative of my research as well: *"The subject matter of the design workshop, mobility in maintenance for example is momentarily rendered open for*

re-invention: betwixt and between. It is neither maintenance work as usual, neither is it future maintenance work enhanced by mobile IT, yet it is both."

The purpose of the performance in co-design is to take it as a tool to envision a *what if* world, to create future scenarios in order to reach novel design opportunities, not to perform a piece of art work in front of an audience. The participants in co-design hardly think of themselves as performers in any theatrical sense, nevertheless, there are certain similarities in the emphasis on exploration and production of the new, which makes the comparison worthwhile (Halse 2008, p 84). In theatre, the workshops promote experimental mood with prototyping and exploring alternative ways of working; they may aim at finding material for the public performance, but as well, to build a creative team, or to bring together people to exchange techniques, ideas and approaches (Schechner 2006, pp 233–239). The same qualities and goals drive co-design gatherings and the performances within. In addition to process and ritual aspects or performance, Schechner has described four roles for people involved in performance process (2006, pp 225–255). These can inform co-design and design games as well.

Actors in performance: in-between several roles

Design collaboration has been addressed several times during this dissertation, and variations of it have been continuously displayed. Within the performance process, Schechner (2006, pp 225–255) proposes different roles according to the various levels of engagement in the different phases of the process. I find these helpful in relation to co-design gatherings when discussing the level of interaction and immersion of *a performer* and *an audience*. If we consider co-design gathering as performance, we need to understand interaction as a continuum: at one end people are just observers and at the other they are full participants. Hence, during a co-design gathering who is *performer* and who is *audience* is not fixed. These changes are based on the evolving activities, thus the degree of participation also varies constantly.

By adapting Schechner's (ibid., p 225) categorization of performance roles (**Table 4**), we can give more accurate terms for the changing roles and level of involvement participants have in co-design, including: *Sourcers* (authors, choreographers, composers, dramaturges, etc.), *Producers* (directors, designers, business staff, etc.), *Performers* and *Partakers* (spectators, fans, juries, public, etc.). In co-design, these roles are very much mixed because of the fuzzy boundaries between workshops, rehearsals and performance; design games provide boundaries within which everyone can bring in new information for the performance, thus playing the role of *sourcer*. The core activity of the performance in co-design is collectively creating the performance based on the game rules, instead of performing a finished performance. Therefore, in design games, as in some other performances, *the sourcing, performing, producing* and *partaking* are achieved at least partly collectively. I will look at these roles in detail in Chapter 5.

Table 4

SOURCERS
Authors, choreographers, composers, dramaturges, etc.
"Sources find, compose, device, or invent the actions to be performed."

PRODUCERS
Directors, designers, technicians, business staff, etc.
"Producers work with the performers and sources to transform the sources into publicly performed events".

PERFORMERS
People who play the actions.

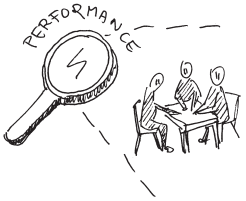
PARTAKERS
Spectators, fans, congregations, juries, the public, etc.
"Partakers receive the actions and sometimes participate in them. [...] Partakers usually take part in the process after much of the preparatory work has already been done."

Four performance roles as adapted from Schechner (2006, p 225).

What to draw from performance

In this section, I have described how performance theory, as discussed by Richard Schechner, can be helpful in providing concepts and models for describing and analysing co-design gatherings. As discussed by him, performance studies bring two theories together: Goffman's concepts of social drama and frame analysis which shed light on the theatrics of everyday social interaction and Turner's ritual process that focuses on transformational qualities of performances. By building on this theoretical background it is possible to produce a holistic image of co-design process, the actors and activities in it as shown by, for instance, Clark (2007) and Halse (2008). Next I will summarise what has been learned from design games and similar approaches in terms of co-design, with notions concerning play, games and performances.

Fig. 27



VOCABULARY
PROCESS
ROLES / ACTORS
RITUAL ASPECTS OF CO-DESIGN

Besides the game metaphor, performance studies provide a window for understanding co-design through a particular vocabulary, process, ritual aspects, and roles.

It could be claimed that the notions and definitions presented above, especially those on play and games that highlight freedom and pure enjoyment, have nothing to do with the design games that demand rational thinking, have "serious" impacts (guide design solutions) and take often place in actual work domain with work related (sometimes even boring) tasks. However, even though design games are serious in regard to their context, purpose and results, the spirit and attitude they employ are separated from ordinary work practice by specific time, place and people and follow play-qualities by their playful, fun and experimental attitudes: in their best, design games are intensive and immersive experiences to the players.

Design games, as discussed in this dissertation, differ from the games in general in many ways because of the application area – co-design in early design process. By building the links and showing the gaps between two of the kind, games and design games, is not to compare them as equals but to use the history of play and games to build a framework and identify the qualities that describe the particularity of design games compared with other types of co-design activities. This is where the particular meaning of *design games* emerges when design and games are brought together.

Rules of design games – balancing between fixed and free

Huizinga claims that one main quality of play is its being *irrational*, which on one hand, can hardly be regarded as a positive quality of design games. On the other hand, irrationality may refer to the magic circle, emphasizing games as activities situated outside everyday practices. Or it may refer to Johnston's (1998/2005) proposition of letting oneself act 'foolishly' in a drama session. What is relevant to consider in relation to design games is that even though it should be fun to participate it should also make sense to all participants or they will lose their interest and motivation to play.

Whereas typically the rules of a game are *"absolutely binding and allow no doubt"* (Huizinga 1950, p 11) in design games the rules are free for reinterpretations. Reinterpretations are even encouraged to allow the participants to find a meaningful focus. As a result, the rules of design games are typically open-ended and ambiguous. As has been noticed, vague rules and props force the players to actively work on the topic and to be explicit in describing how they understand and interpret them. This helps to build a common design language that makes sense to all the participants. Finding a balance between ambiguous rules and easily understandable rules is important in order to allow participants to make reinterpretations but avoid situations where meaningful ways to progress cannot be found, as Salen and Zimmerman (2004) pointed out.

In Caillois' (1961, p 8) categorisation, some games are dominated by improvisation, i.e. pleasure is obtained through playing a role. In these kinds of games, explicit rules are not necessary but improvisation and "as if" work the way rules do in other games. Many design games which rely

on acting-out and pretending to be someone else resemble these types of games and thus are characterized by the attitude of simulation, or mimicry. By seeing the rules more openly, we can also see them as conventions – as guidelines that tell what to do or not to do for all those who are involved in the performance, leaving less or more room for spontaneity and improvisation (Schechner 2006, pp 249–250).

Depending on the specific type of a design game, the rules can be either well-defined, as the rules that come with board games are, or have more open-ended boundaries set by improvisation. However, most often they are in between these two, as claimed by Schechner (1988/2003, p 15), who proposes that in games, sport and theatre rules exist as *frames*, which gives boundaries for the performance. Hence, rules are comparable with *fixed elements* discussed in the previous chapter.

Huizinga (1950) calls people who trespass against the rules or ignore them *spoil-sports*. Sometimes it is hard to say whether the spoil-sport acts that way because s/he dares not enter the play or because is not allowed to. Since design games are out of ordinary work practice but still take place in the work context, people may feel unsecure to play according to the rules, especially if they push their limits. This may be the case especially when design games draw from drama or role-playing where getting rid of audience in us, as Johnston (1998/2005) pointed out, is necessary but may be hard to realize. I think, that to come up with strategies to help people to enter into a play is important in order not to spoil the whole design game and hence the co-design gathering.

To summarise, it is important to have some sort of rules to create a balance between complexity needed in a meaningful play and restrictions to support the feeling of freedom with what can and cannot be done within the game. The balance depends on the type of design game. Its purposes have been indicated by the earlier examples and will be explained further by the specific design games described in the following chapters.

Between fiction and fact

In design games the imagined and real goes often hand-in-hand. The special design game setting serves as a stage in which performance takes place, thus performances in co-design are make-believe; it is clear what is real and what is pretended. In ideal co-design setting, the magic circle invites participants to think beyond ordinary and real (the current) and envision alternative solutions which do not exist yet. Thus, as its best, I think design games can work as test beds where experimentation is allowed and consequences of different decisions can be played out in bounded and safe circumstances. This is relevant in going beyond the obvious solutions and to take risks as one is encouraged to take in the concept design. However, how to promote the magic circle for the participants may be tricky and needs careful considerations, as will be discussed later.

The critique that Ehn and Sjögren (1991), for example, direct at themselves and design games they have developed, concerns mainly the playground, which they claim allows conservatism that may support the traditional production-flow oriented view of work and technology, the context where they developed their design games. This goes back to the need for finding a balance between the fixed and the free, as well as promoting the opportunities of design games as a magic circle with its own laws and time outside the "ordinary" life. To establish and maintain the magic circle intact, it is important to realize how fragile space/state of mind it actually is (Salen & Zimmerman 2004, p 98). What should be acknowledged, though, is that while creating boundaries for action we necessarily narrow the focus of the participants' perspective and limit certain opportunities outside the design space.

Ritual aspects of design games

Play sphere or *magic circle*, besides being a special venue to games and performances, also resembles *the liminal state of rituals*; hence co-design gatherings which are separated from the ordinary life can also be considered as rituals, like Halse (2008) does. Schechner claims that what distinguishes performance from rituals is the purpose: unlike a performance which intends mainly to entertain, a performance which results in change may be considered a ritual. Since most design games aim at change, either in the minds of the participants by providing new perspectives that create different consequences (=learning) or in the actual design solution in the form of a reframed task or focus, i.e. design drivers, they can be viewed in some terms as *liminal rituals* (if the change is permanent) or *liminoid rituals* (if the participants are able to change their perspective during the session but cannot bring new insights with them to their daily practices).

While liminal rituals transform the participants permanently, liminoid rituals have a temporary effect – they transport the participants for the time of experience and then return them back. In the liminal phase of the ritual process, people are freed from the demands of daily life. Halse (2008, pp 117–118) proposes that *"as into the workshop preparations for the design workshop [...] the process of abstraction prepares the establishment of the liminality of the design ritual by destabilizing conventional classifications..."*

One reason to look co-design gatherings as rituals is to look where transitions and transformations occur, and what marks those moments. Schechner (2006, p 72) describes how simple actions, such as changing clothes and cleaning the floor, transport the performers to a different place, both mentally and emotionally, when they enter into the workshop space. This highlights the meaning of gradually taking the participants into the magic circle through the actions that start the gathering or even precede it. Halse (2008, p 118) proposes rearranging the space to transform it into a performance space, for example by positioning the chairs as in a theatre to create a stage for action.

The feeling of accomplishment

From game design perspective (Salen & Zimmerman 2004), games need to have a proper, clearly recognisable end since that is the whole meaning of playing. In most design games the outcome is not as important as the path or means to reach it. The dialogue during the design game interests me most: players' concerns, wishes, experiences and expertise which they bring into the discussion and the negotiation among several points of views about what is the proper goal. In the case of "Stories as source of inspiration", where we used stories for marketing and design intentions, it was essential to have time to accomplish both the individual and the collaborative phase of the game and to generate some design ideas to reach the feeling of accomplishment.

In *the Value Game* played out in "Co-designing University", it was enough if the group was able to negotiate the core values for the Design Factory through the given characters and go through some of the statement cards containing differing opinions and expectations on Design Factory. But it was not necessary to go through all the cards; instead, marking of the proper end was revealed in the beginning by stating *"the game ends when the time is up"*. It remained the moderator's task to decide when the goal had been reached and the game could be stopped. In most cases, the facilitator needs to be also an expert in the content, to know what is relevant for the purpose of the design and what's not.

Salen and Zimmerman (2004, p 258) stress that a clear goal is needed to create a meaningful play. If the players cannot see how their actions in a game could bring them closer to the goal, it is hard to find reasons for the play. In co-design, to motivate the participants to play, this becomes essential since playing a game is not meaningful as such. The game should be clearly linked with the design goal. Participants expect that playing a design game will lead them to increasing knowledge, inspiration or novel ideas. If that cannot be communicated or shown clearly enough, the play easily becomes irrelevant to the player. Thus, when designing a design game, it is important to consider not only the goal but also how the player's actions in the game configure a meaningful path to that goal.

Repetitiveness of design games

In game design generally, a designer needs to consider how to invite the players to play a game repeatedly. Repetition may be a positive quality of design games as well, as was suggested in the section on "Stories as source of inspiration", where the design game structure and material made it possible for three different people to organise three different co-design gatherings. However, design games are rarely played out twice by the same people. Most design games discussed in this dissertation have been played out more than once, but only the facilitators have

remained the same, the players have changed. Moreover, the content has either changed or at least become modified from one game to another, according to the contextual needs.

Hence, repeatability in design games is viewed from the operational rules' (Salen & Zimmerman, p 130) perspective rather than the perspective of players', i.e. rules should be flexible enough to be used in several contexts, ways and purposes, but an individual player does not need to be engaged more than once. Part of the reason for that is that design games are set in co-design gatherings with their own boundaries of time and space. With clear structure taking place in particular couple of hours set time is hence meaningful from repetitiveness point of view. However, more interesting for design games is the possibility to utilise symbolic time that invites moving between past – current and future.

3.2.5 Play framework: step two – drawing from games, play and performance

The experiences discussed above suggest that design games are, besides being a tool, also playful and explorative mindset. According to Huizinga (1950), play spirit is essential to dare take risks and bear uncertainty – abilities needed in early co-design that explores still non-existing future alternatives. Having examined the existing literature on games, play and performance, I have identified three main play-qualities that create a special *play sprit:* 1) proceeding within the proper boundaries of time and space, 2) a magic circle as a physical and ideal playground, and 3) a balance between fixed and free – action governed by rules (**Figure 28**).

Previously I proposed that design games can be thought of as tools in designing and conducting co-design, due to the way they meet the challenges of structure, facilitation and design materials while supporting design collaboration, creative interplay between understanding current practices and future opportunities, and as a source of provoking and inspiring design games material. According to the literature on design games, one of the stronger aims of using "game" as a label and a structure is a playful atmosphere, which I think refers to the same thing that Huizinga calls *play spirit*. Based on studies on play, games and performance, and comparing them with what was said about design games, I argue that a play spirit is manifested through the three play-qualities listed above. By placing play spirit at the core of design games, I claim that design games may also be perceived as a mindset and not just as a tool.

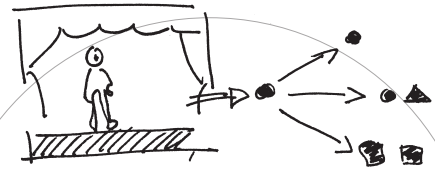
Conclusions

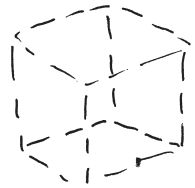
So far, I have described the context of this research, co-design and empathic design, presented various reasons and ways for adapting the game metaphor in (co-)design, and looked into play, games and performance in order to better understand design games. *Design game* is used as a metaphor, i.e. title/name, to guide participants' thinking in a co-design gathering or a practical setting that is structured around rules and tangible game

PLAY-QUALITIES = CHARACTERISTICS OF DESIGN GAMES THAT CREATE THE PLAY SPIRIT TO DARE TAKE RISK AND BEAR UNCERTAINTY

DESIGN GAMES FUNCTION BOTH AS A TOOL AS WELL AS AN ATTITUDE IN CO-DESIGN GATHERINGS.

PLAY SPIRIT





Proceeding within its own proper boundaries of time and space

Space is arranged for design games occasionally not se steady basis thus highlighting the temporal nature of co-desig gatherings and evolving game structure.

Utilizing event time, set time, and symbolic time enables moving between past , current and future.

Magic circle as physical and ideal playground

The separation from "ordinary" supports explorations and enables visioning non-existing future alternatives.

Free from customs of ordinary life.

Works as test bed to play with consequences of alternatives.

Encourages for theinterplay between real and imagined.

Balance between fixed and free – action governed by rules

Rules guides the overall streucture for the interaction and guides turn-taking.

Rules may be well defined or looser frames or fixed elements.

Fig. 28 The image summarises the chapter and illustrates three core qualities of design games drawn from games, play and performance.

Play-qualities = characteristics of design games that create the *play-spirit* to dare take risk and bear uncer-

materials. As such, design game is a flexible term that resists clear definitions; however, the term encompasses several qualities that allow one to control and manipulate the three aspects of co-design that I have been interested in from the beginning; design collaboration, the creative interplay between current practices and future opportunities, and the roles of design game materials, and which are presented in **Table 3** (page 110).

The **table 3** on page 110 describes design games rooted in co-design practise, focusing on the *design* part of the term – the practice context – without being overly concerning with the *game* part. After extending the research into play, games and performance, I am convinced that, whereas *design* is the practical application context, the *game* part of the term refers to the desired mindset and attitude, the play spirit, in addition to the physical properties it entails. The play spirit consists of mental images, e.g. being in a magic circle, and physical things, for instance setting, rules or fixed elements, and overlaps somewhat with the design context and the tangible materials in it.

Accordingly, I have started to perceive design games as a tool and a mindset for organising co-design gatherings with a special play spirit, one that supports taking risks and bearing uncertainty. The question of how these two perceptions, which include all of the above-mentioned qualities, can be utilised in practice when organising co-design projects and designing design games will be explored in the next chapters.

The Play framework has been developed and discussed in light of literature and five short-term co-design cases. In showing the value of co-design gatherings as stages to momentarily engage people to contribute to the design process, they were rather independent from larger contextual structures. In order to develop the Play framework further, I will look into a full-scale design research project, where the collaboration was orchestrated around design games from the beginning. While the cases discussed so far had their design intentions connected to physical objects and surroundings, the next chapters will broaden this view into service design with stronger orientation on immaterial design opportunities.

Chapter 4
Experimenting with design games driven co-design

This chapter discusses how the Play framework was utilised in a two-year design research project called *Extreme Design "Developing Extreme Service Design Methods"* (1st June 2008–31st May 2010). The project focused on method development in the service design context, looking especially at the intersection of design games and drama-inspired methods. As the development of the Play framework illustrated in the previous chapters, design games may include performative qualities, for example by employing enacted forms of design and/or through narrative structure with vivid characters. Special attention was paid on the magic circle promoted by play and performance and new insights it fosters. This chapter follows a chronological order to give a sense of the process together with the specific activities undertaken.

4.1 Extreme Design project

The Extreme Design project continued the tradition of design research at the Aalto University School of Arts, Design and Architecture (formerly the University of Art and Design Helsinki) that has addressed the practical relevance of the design research by performing it in close partnership with companies and different research units. The project was initiated in 2008 by researchers from the School of Arts, Design and Architecture (Department of Industrial Design), Helsinki Institute for Information Technology (HIIT), and School of Technology (Software Business and Engineering Institute SoberIT). Besides the three research units, the project was carried out in collaboration with TEKES – the Finnish Funding Agency for Technology and Innovation, and four companies: KONE, OPK, Palmu Inc. and Idean. These companies operate within distinct business sectors but share interests in service design and methods of co-design. While the first three of them had their own case studies in the project, the role of fourth company, Idean, was slightly different.

Idean is one of the leading consultancies in Finland focusing on user-centred design, and thus their practical experience from working in user research in the industry was considered valuable in pushing the method development beyond regular approaches and towards "extreme". Accordingly, the title Extreme Design reflects the experimental attitude adopted in the method development, that is, organizing collaboration beyond traditional design teams by applying creative methods which highlight out-of-box thinking. The *extreme*[14] highlights companies' perspective rather than very revolutionary methods for design research as the project name could also indicate.

[14] While interviewing design agencies we learned that an encounter was considered extreme if a company invited several parties of interest to the same event conducted in a creative and explorative manner, since most times users, designers, clients and other stakeholders met in separate sessions.

The three cases: seeking for new design opportunities

The Extreme Design project was constructed through three distinct case studies: *the first* concentrated on people flow in senior houses; *the second* looked at user-centred service models in banks; and *the third* searched for service opportunities within social media. The empathic design perspective directed the way design games were utilised during the case studies to allow multidisciplinary group of people, from users to other stakeholders and designers, to co-construct a variety of representations about user's world. The aim was to make personal connections to the users' experiences through which new insights or revelations may emerge. These insights then informed the argumentation for interesting topics and acted as design drivers for further exploration during the case study.

The main application phase can be generally described in terms of *concept search*, which precedes the actual concept design and definition of a precise design brief (Koskinen & Battarbee 2003). Thus *design* does not concern designing in regard to final design but rather aims at laying out the ground for it. It points out design possibilities grounded to the user insights that can be taken as starting points for a further research if considered interesting and perhaps eventually leading into an actualized design solution. The case studies also contributed to partnering companies' on-going design projects, either directly or indirectly. (**Figure 29**)

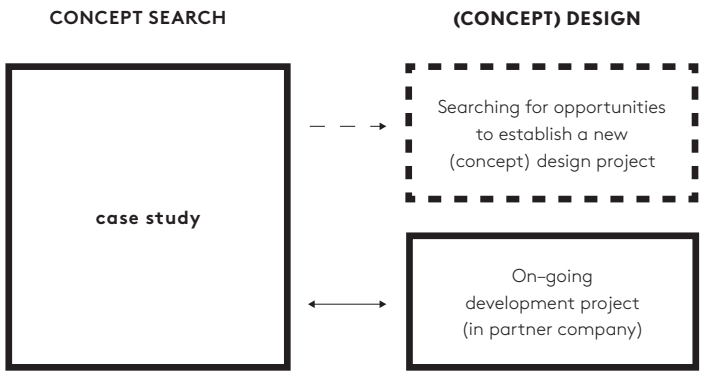


Fig. 29

The case studies conducted in Extreme Design contributed to the partnering companies in two ways as illustrated in the picture.

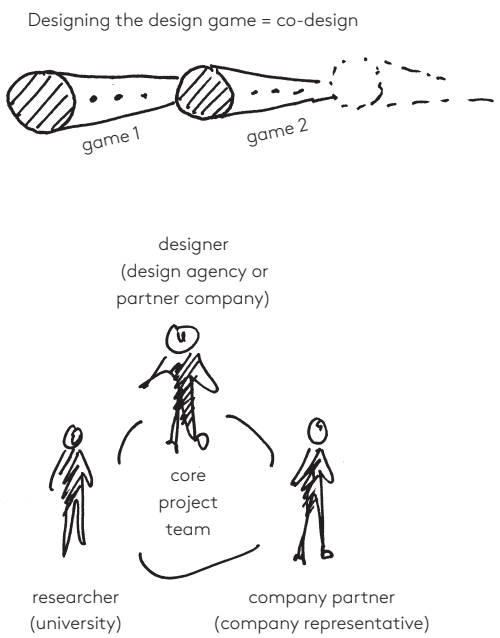
One particularity of the implementation of design games in Extreme Design was the relationship between them as separate one-off gatherings and as a package of several design games that had been developed as a progression from one to another. However, the relation between the design games is not about using material produced in the first game in the following as in Brandt's and Johansson's *User Game* and *Scenario Game*

(discussed in pages 94–96); in that matter they are separate units without apparent connection to each. However, they can be considered as a continuum in two ways: *first*, every design game introduces a new aspect of the Play framework that increases our understanding of its practical and theoretical implications for co-design; *second*, single design games are parts of a bigger entity and together with other activities formulate the design games driven approach in which design collaboration in general and co-design gatherings in particular are arranged around set of design games.

4.2 The process: organizing co-design through design games

The emphasis given to the co-design gatherings has parallels with Brandt's (2001) event-driven product development model, which builds on short-term gatherings but with a stronger focus on design games. Furthermore, the service design context differs from product development by tackling more open-ended projects without necessarily a clear object to focus on or aim at. Furthermore, design games are utilized to create collaboration among several stakeholders or organizations instead of focusing on in-house activities of one organisation.

Fig. 30



A design games driven approach resembles the event-driven process, but the boundaries and concrete points-of-references are given to the participants through the design games instead of mock-ups. During the process, design games aim at creating collaboration among several stakeholders and/or organizations. During this process, co-design happens in two ways: when designing design games and when applying them at co-design gatherings.

Due to the strong focus on design games, the three case studies became formulated around them. The focus came from the research questions addressed in the project concerning how to apply design games and drama-inspired methods in service design and from my research interest on design games. However, as demonstrated in this and the next chapter, this design games driven approach worked well and it has been applied later on, to establish other design research projects. I will describe it next in a more general level, and then in next sections I will move on towards empirical examples.

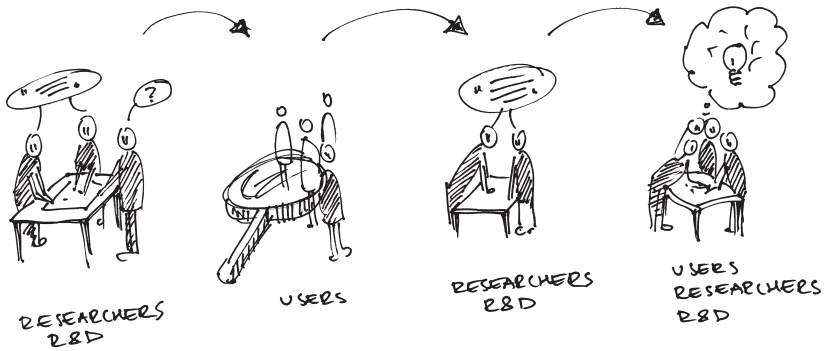
In design games driven co-design, several design games facilitate a collaborative knowledge creation process that pays attention to user insights, company representatives' personal insights and competence and researchers' views. In the development process of the "Co-designing University" case discussed earlier we were the potential users with other participants but we also worked as external consultants. Since those persons who continued the development project from that point on were not part of designing the design games, but only took part in playing them, it brought up the challenges of communicating/delivering insights gained outside the actual co-design gatherings. To face this challenge the design games driven approach engages partners all the way from creating a project vision to designing and playing a design game (**Figure 30**). Thus, co-design among the core team who works in the case study is not limited to co-design gatherings, which, however, can be seen as *milestones* or *culmination points* in the process.

Design games may be arranged more than once, and there may also be several different design game gatherings depending on the resources and needs of the particular project. We aimed to start co-design from the very beginning by creating a common vision for the coming activities by playing the first design game (Project Planning Game) with the core project team (**Figure 30**).

The general process can be divided into four main steps: 1) *Design game for establishing the project vision with the core development team and with the project manager from the partnering company;* 2) *Preparations for co-design through user studies;* 3) *Designing a design game with members of the core development team;* 4) *A design game driven co-design gathering for diverse participants* (**Figure 31**). In the beginning of the project the wanted direction/path is partly unknown like is typical of concept design, where an explicit need, problem, or technology is not necessarily addressed. Instead the focus, with more specific design problems and questions, is found gradually in the reflective process of experimentation, user study and co-design.

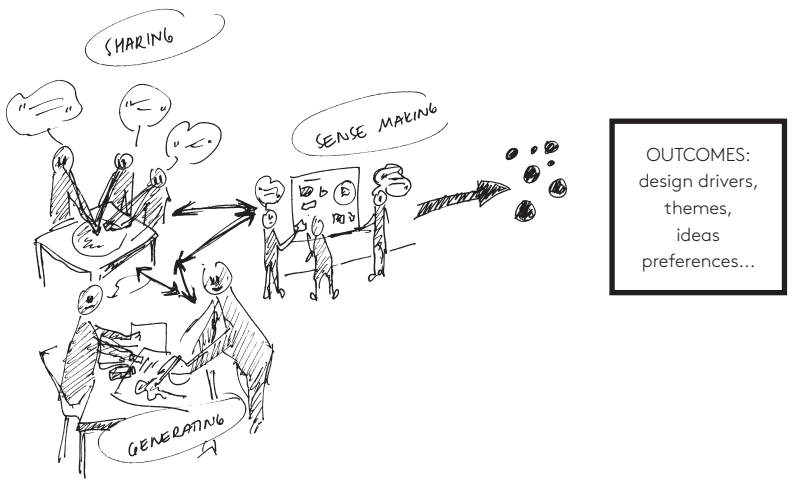
Although some level of ambiguity is an essential part of co-design process that is guided through iterative learning, the first game, which focuses on visioning the coming process, sets some initial boundaries for the next steps. Because of the activities built on the previous phases, the process is

Fig. 31



The phases are partly overlapping, building on the insights from the previous phases. Depending on the new knowledge gained, sometimes different phases are repeated with different questions or a different focus.

Fig. 32



Knowledge creation and design process in co-design gatherings combines activities of sharing user insights/own experiences, reflecting and making sense of the fragmented material and generating new scenarios, new ideas and different representations.

continuously redirected due to new insights, and thereby it demands some level of flexibility. This characteristic also requires someone who leads the process from inside, in other words, a project manager or a responsible researcher who is actively involved throughout the project to allow dynamic and continuous readjustment of the process without losing the main project vision created together.

Since knowledge and design ideas are not generated by the researchers alone, the commitment and resource allocation, i.e. human resources rather than a financial investment, from the company's side becomes essential. The reason for tight collaboration throughout the project is to

ensure relevance for company partners and researchers alike. The third fundamental contribution for the co-design comes from potential end users, either through direct or indirect involvement. Consequently, co-design gatherings build on different perspectives to serve multiple purposes; *gathering and introducing user insights, allowing participants to make their own interpretations of them and guiding idea generation accordingly* (**Figure 32**). These three are intertwined rather than well-defined, separate activities. It is also important to realise that new ideas appear throughout the project, not only during the appointed times of co-design gatherings.

4.2.1 Objectives of co–design

When considering overall purposes for the companies to be part of Extreme Design project, we can consider it as a *concept design project* without a direct connection to the production demands (Keinonen & Takala 2006, pp 19–28). During the project, the following aims were identified although they were not all explicit from the beginning but became such during the case studies:

Learning from a specific user group, situation, or problem.	1
Enhancing participants' creativity by rehearsing out-of-box thinking.	2
Finding new collaboration opportunities and strategic B2B networks.	3
Communicating organisation's innovativeness and interest to be forerunner by participating design research projects.	4

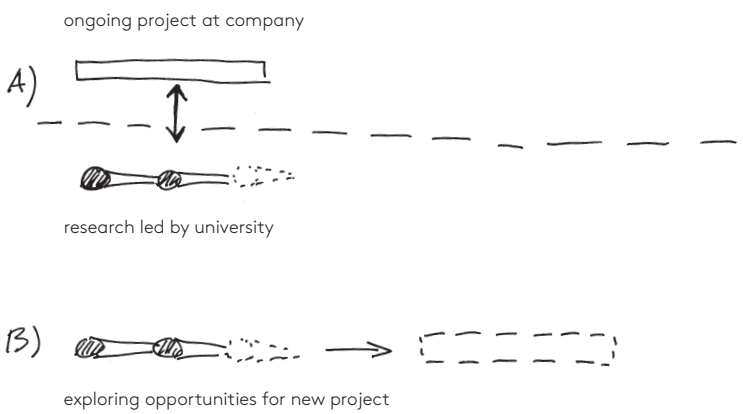


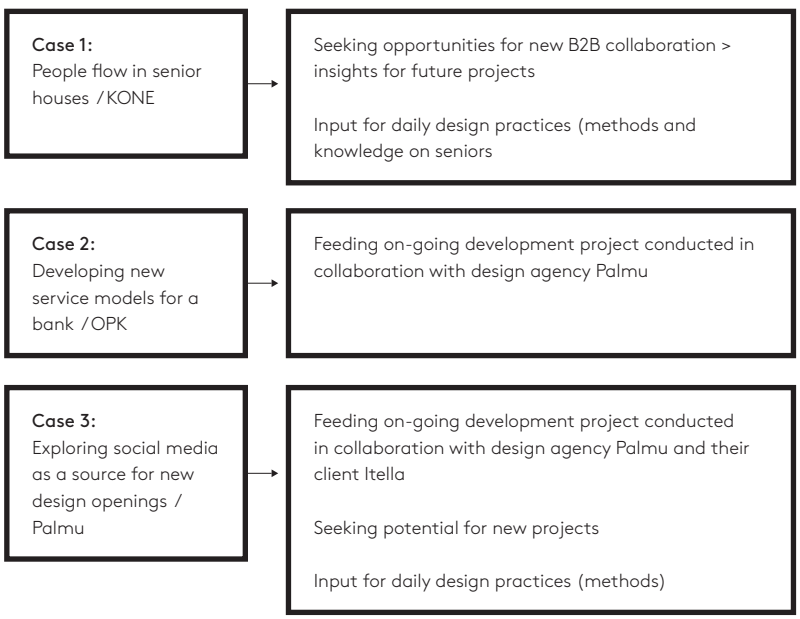
Fig. 33

The Extreme Design project's case studies, although being individual projects from the management perspective, are examples of how design research can be conducted in close connection with a partner company's on-going development projects or taken as a strategic tool to inform decisions about the future projects.

Since the approach emphasis on design games, provoking fresh points of reference, discussion and reflection while forming a base for new design ideas, it can be perceived as an *artistic approach*, which has increasingly gained ground in business as means to reach innovative solutions (Darsø 2004). Darsø states (ibid.): *"Most groups prefer to work in the safe and certain field of knowledge, but unfortunately this alone does not create innovation [...] arts can invite people into the unknown, into improvising, into questioning the habitual and ordinary and into the process of creation. [...] ... conflict can be generative for innovation, but only when it takes the form of a creative tension, not a clash. Creative tension can be generated by new perspectives, odd questions and intriguing provocations, and this happens to coincide with the key competencies of the arts (ibid., pp 52–53)."*

In other words, although there were clearer design intentions in the Extreme Design case studies than in some of the short-term cases discussed in the previous chapters, in many ways the project and the case studies looked beyond immediate design results – to develop organisation's innovativeness among other objectives. **Figure 34** illustrates the case studies in relation to their indented design outcomes from the companies' perspective related to their on-going or coming development projects. The main research interest concerned method development with the elaboration of the Play framework.

Fig. 34



The relations between the Extreme Design project's case studies and the other development projects at the partnering companies.

In addition, to learn more about the service design domain, the research questions concerned the particularities of the three case studies; the first case dealt with service networks, the second highlighted the time perspective in customer relationship, and the third dealt with social media as novel service platform. Therefore, the case studies, which represented different areas from senior houses to bank services and social media, collectively constituted a stream of experiments within service design and design games, increasing both the researchers' and the partner companies' understanding of the Play framework and service design.

Instead of addressing any technology, the focus was put on interaction among people, their environment and tangible touch-points related to a specific service landscape. Moreover, the early application phase of the design games brings knowledge concerning whether to establish a detailed (concept) design project or not to companies' decision-making. Therefore the case studies and activities during them contribute to the level of knowledge where discussion is still rather abstract. It does not reach the stage where discussions become transformed into concrete and informative mock-ups and working prototypes. This can be seen as a challenge in the early service design, since it is harder to show the progress of the design process, especially for those who only visit the co-design gatherings. This influences the participants' motivation, and hence the challenges of communicating the relevance of the participation to the diverse design partners. Halse (2008) has proposed that the task of making the project interesting for the users to participate takes a lot of work in itself and should not be trivialized.

Several design games were developed during the three case studies with diverse goals, rules and participants. To illustrate the design games driven approach and to discuss the Play framework, I will introduce three design games: *Project Planning Game, Character Game*, and *Storytelling Game*. My role in relation to the design games and the Extreme Design project varied: a *researcher* who is interested in exploring different play-qualities in co-design, *a designer* who searches for novel design opportunities with other team members and visiting participants, *a design game designer* whose duty is to design the playful activities, *a facilitator* who guides the dialogue during the co-design gatherings, and *a project manager* who is responsible for achieving the project objectives and making the partners satisfied. I was active in all five roles while being part of a team of researchers where others had similar responsibilities to mine or to some of them. Consequently, I have constructed my analyses employing several perspectives.

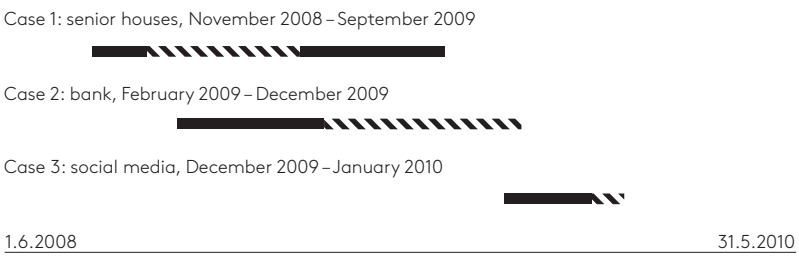
I will first examine how the case studies evolved through the three design games. This will be followed by a more detailed description of playing in them. The above described project model was followed throughout the three cases introduced below, with some context-specific modifications.

4.3 The three cases: Seeking for new design opportunities

The timeframe for the Extreme Design project was two years, and each case study lasted from one month to half a year. While the case studies were partly overlapping, the most active phases for collaboration were actualised in different times to ensure resources for all the cases (**Figure 35**).

The set of design games was designed to facilitate creative collaboration among several parties focusing on short-term gatherings between researchers, users, and development team members in various forms. Besides working as an introduction to the actual cases, the case studies demonstrate alternative processes for user orientation.

Fig. 35



The striped areas indicate the active phases of the case studies.

4.3.1 Case KONE: People flow in senior houses

The first case study was conducted in collaboration with KONE, a global company in the elevator and escalator industry. According to their website, KONE *"has been committed to understanding the needs of its customers for the past century, providing industry-leading elevators, escalators and automatic building doors as well as innovative solutions for modernization and maintenance. The company's objective is to offer the best People Flow experience by developing and delivering solutions that enable people to move smoothly, safely, comfortably and without waiting in buildings in an increasingly urbanizing environment (KONE web pages 14.09.2010)".*[15]

When setting up the case study, the representatives from KONE stated their interest in finding new business partnerships with the Finnish housing industry and proposed senior houses as a suitable context for that. Therefore, the *first objective* became to explore design and collaboration opportunities in connection to senior houses in Finland. For that, two companies related to senior housing, a construction company and a housing company, were contacted by the project manager from KONE, and one half-day co-design gathering among the three companies was arranged.

[15] KONE was founded in 1910. In 2009 it had annual net sales of EUR 4.7 billion and approximately 34,000 employees. www.kone.com

At the time of establishing our collaboration, KONE had just recently introduced the *People Flow* slogan, indicating a shift from a product-oriented business model towards more service-oriented thinking. People flow also highlights the moving of the focus towards more holistic understanding about people traffic in and between the buildings. The *second objective* was to spread awareness of the new slogan and to convey the message within the company's R&D department in Finland. Besides promoting the slogan, the aim was to provide empathic understanding about seniors to enable their needs and wishes to get sufficient attention in daily design practice.

The *third objective* for KONE, which became the main focus during the case study, was learning new ways of organising creative collaboration within its departments as well as with its stakeholders. To reach the methodological aims, the four people involved from their side (Jukka, Hannu, Reetta and Eeva) took actively part in the case study, and one specifically appointed person was responsible to work alongside the researchers.

To summarize, there were three distinct but related objectives in the first case study:

1 To promote *People Flow* thinking and give new insights related to seniors within KONE's R&D.

2 To utilize senior houses as the boundary object for new strategic B2B partnership.

3 To gain empirical experience of innovative user-inspired co-design methods.

Explicating personal views and wishes concerning the case studies

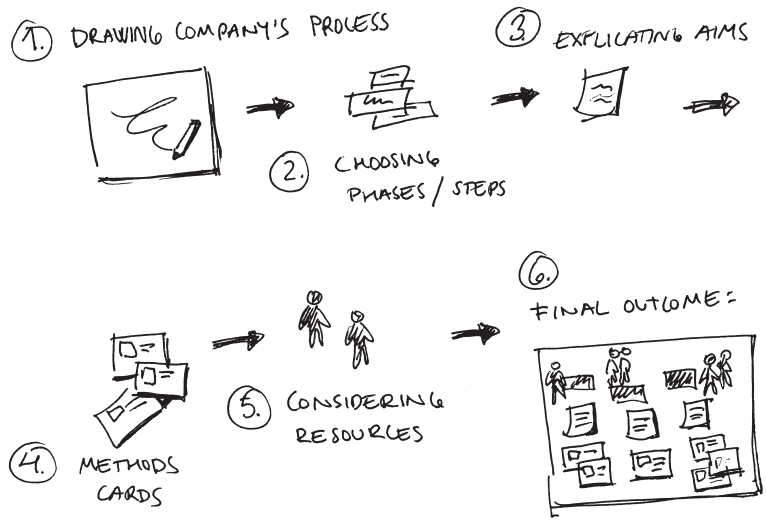
The *first design game* emerged from the need to avoid misinterpretations concerning the expectations about the case, as sometimes is the situation at universities – company collaboration, where academy and practical knowledge and interests confront each other (e.g. Vaajakallio et al. 2008). It has been proposed that to build up successful co-design gatherings and the project as a whole, it is essential to explicate stakeholders' concerns early enough to accommodate various interests (Halse 2008, p 127). Earlier studies have also shown the need for building a common language for the participants to establish and maintain collaborative projects.

Besides possible differences in professional vocabularies between researchers and company representatives, the research collaboration was built on multidisciplinary competence, including industrial design, engineering, theatre, and ethnography. Hence, the research team needed to develop a common vocabulary and understanding of the concepts and

methods as well. In the *Project Planning Game* (PPG), we decided to test the suitability of design games for identified challenges because of their prominence in creating a play spirit where a shared language is actively being constructed through design game materials.

Furthermore, the *Project Planning Game* intended to understand KONE's expectations about the senior case, as well as their resource allocation and schedule for the case study. It can be seen as a rehearsal of the coming process if we go through it step by step (**Figure 36**), explicating the phases, goals and deliverables as well as alternative ways, i.e. methods, of reaching them. This point of view was inspired by the *process mock-up workshop* developed by Mattelmäki et al. (2009). We regarded the gathering also as an opportunity to demonstrate the design games approach to our partners through a hands-on experience. Consequently, the participants in the PPG were four core team members from KONE and the researchers – those people who would work together during the case study.

Fig. 36



The Project Planning Game can be seen as a rehearsal for the coming case by creating a step-by-step vision for it. Creating a common vision progressed gradually, and in the end two alternative propositions were compared and discussed to agree on the final vision.

The participants were divided into two groups to construct alternative project plan proposals, which were then presented, compared and discussed at the end of the gathering. To explore the possibilities of the design games approach, we guided the discussion with the help of several items which formed part of the *design game materials*, from the playing cards to the game board and the game rules (**Figure 37**). The discussions and resulted project visions showed the importance of this type of tangible exercise where the game materials assist constructing a shared representation of the matter

under discussion already when initiating the collaboration. It pinpointed the differences in people's expectations, and it was those differences that needed to be negotiated to satisfy all the participants, as I will be demonstrating in the next chapter. Moreover, it demonstrated how the design process could evolve over a stream of design games and other innovative methods, thus also inviting diverse perspectives to their initial development.

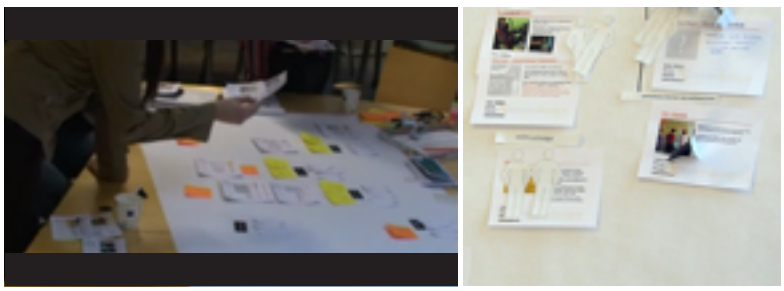


Fig. 37

A usability expert for KONE uses *method playing cards* (in her hand) to explain other group members the method combination she would like to see utilised in the senior case study. On the right, there is a picture of method cards.

The resulting project plan was not meant to be fixed but to be adjusted based on the learning that occurs during the evolving process. The case study was divided into five phases; sensitizing, user study, interpretation and idea generation, concept development one, and concept development two. The third phase, *interpretation and idea generation*, was to incorporate the main contribution from our side, and the last phase was considered as KONE's internal activities. (**Figure 38**) In practice phases three and four became intertwined in the co-design gathering.

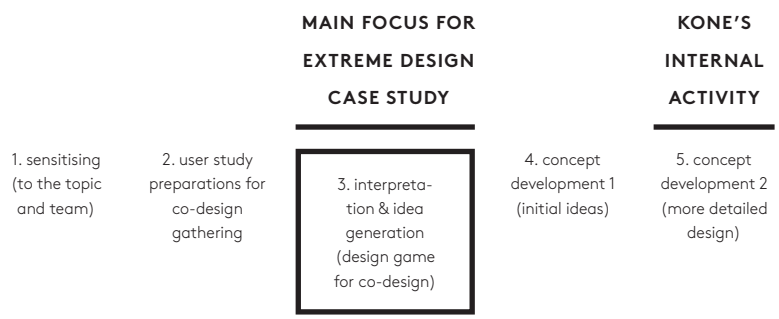


Fig. 38

The action steps or phases that were decided, as the basis for the game, to let guide the case study further on. At this point, the focus for collaboration was placed on interpretation and idea generation that would be performed through some sort of a design game.

The methods placed under different phases were considered, rather than techniques to be applied as such, merely as an inspiration for the design game development. They functioned as a means to discuss and envision alternatives, in order to understand people's personal and professional interests in the project, and to create a common understanding of their meaning. Although the methods were not implemented as such, they directed the development of subsequent design games by drawing attention on certain issues. For example, the chosen project vision portrayed two approaches; *persona descriptions with moments-of-truths* and *idea generation grounded to user data,* which stimulated the design game design later on.

During the Project Planning Game, it was agreed that the actual user study would be conducted by usability experts from KONE, as was originally discussed. The user study explored reasons for living in the senior houses, as well as identifying meaningful things, services and solutions from the seniors' perspective. In order to identify design possibilities, it also examined how well the current services met seniors' needs and wishes. It included 28 interviews of people living in seven different senior houses owned by SATO and situated in Helsinki, Finland. The service level of the houses varied a lot: some of them were almost like ordinary apartments while some shared the space with a nursing home and thus had staff in them around the clock. Also, the physical health of the residents varied, as did their need for services; there were people from those unable to move unassisted to active and healthy seniors. The interviews were done as contextual inquiries, which were taped and later transcribed into a 40-page long document that we received as the main material on which to build the following design game.

The user study was conducted during January and February of 2009, which left us approximately one month to transform the data into a design game format played out in the co-design gathering in March 2009. Our research question addressed at this stage was: *Can the researchers who have not been involved in the data collection receive the raw user data and transform it into a design game that allows collaborative interpretation?* This question relates to the previous discussions of the user representations as incomplete and incoherent images of the users' world.

As was mentioned earlier, there had been suggestions that the user study reports handed over to the designers by the user research consultants, did not transform the insights well enough to be realized in the actual design practice. This is obvious in light of the view that it is not the polished user representations that pass on the knowledge but the activity of creating them*, the reflective and iterative process of deconstruction and reconstruction* (addressed below). Consequently, the Extreme Design researchers focused on the exploration of ways to process the field data on seniors and senior housing in an empathic and inspirational way with those people who should be influenced by the user insights. The *second design game* was designed to meet these objectives.

The way of seeing user data in the case studies

A few words about the use(r) representations are in order to recall what was said earlier about their nature. Let me highlight the special interests of user-centred design on individuals' personal experiences and distinctive qualities. This standpoint evidently denies the possibility for complete use(r) representations. We need to accept that the representations we create in design are somewhat incoherent, dynamic and fragmented parts of what is there (e.g. Mattelmäki et al. 2011; Halse et al. 2010).

As discussed earlier, this does not mean that creating them would be waste of time, quite contrary. When working with incomplete and sometimes unrelated fragments, many opportunities of *what could be there* are opened. As Halse (2008, p 101) has put it: *"Piecing together a narrative on the basis of fragmented and under-narrated video clips requires so many gaps to be filled on the part of participants, that they are forced to actively rethink the issues in question."* Other way to illustrate the same thing is given by Turner (1987, pp 73–74) in regard to anthropological representations: *"Within anthropology, there was tendency to represent social reality as stable and immutable, a harmonious configuration governed by mutually compatible and logically interrelated principles. [...] I came to see a social system or "field" rather as a set of loosely integrated processes, with some patterned aspects, some persistences of form, but controlled by discrepant principles of action expressed in rules of custom that are often situationally incompatible with one another."*

To summarise, by having to actively search and build possible links between existing and future opportunities, participants are made to use their creativity and practice out-of-box thinking, which may open up new ways of seeing the topic under focus. The representations are always unique, since as much as they are representations of what is there, they are representations of the particular participants' views and interests and the situation on which they were built.

Guiding the interaction through role-playing

The Character Game introduced new elements for the interaction and idea generation through role-playing. The inspiration for utilising role immersion came from two sources. *First*, experience prototyping underlines stepping into a user's shoes in order to get an empathic understanding of other people's experiences, something that has been considered useful in several design cases (e.g. the book Empathic Design edited by Koskinen et al. 2003); *second*, since we were interested in examining the intersection of design games and theatre methods, the role-playing games seemed to embody that area intriguingly. The decision was also influenced by the fact that we had hired an industrial design master student, Peter, to work in the project as part of his master's thesis focusing on design games. Peter brought in his personal experiences about engagement in role-playing for fun in several years.

The difficulties in encouraging participants to act reported for example by Seland (2009) and Iacucci et al. (2000b) and discussed in Chapter 2 guided us towards *tabletop role-playing games*. Tabletop role-playing games do not demand as much bodily engagement as live role-playing, which has a resemblance to the enacting scenarios in user-centred design. In the Character Game, the players sit around a table, and the story is acted out verbally from certain users' or characters' perspective; hence the emphasis is on role immersion (**Figure 39**). Role-taking and improvisation is supported by several game materials, including *character templates*, *weekly schedule of the senior houses, photos and quotations* (**Figure 39**), as well as through a gradually evolving situation that moves from easier tasks towards role-playing. (Further details in Vaajakallio et al. 2010b)

The users were involved indirectly as the characters of the role-playing game that the players acted out during the performance. As the main purpose of the co-design gathering was to seek potential for new strategic business partnerships between the three involved companies instead of improving existing senior houses, seniors had not been invited. The people from the tree companies who participated had been invited because of their expertise in the domain of senior houses that were seen as a base for shared interests and future collaboration. Thereby, senior house can be considered as much a boundary object as a design context. The aim was to provide empathic understanding through role-playing mixed with participant's personal experiences of senior houses.

Fig.39

On left side: In tabletop role-playing games, performance is verbal and the participants sit around the table. On right side: Predesigned design game material opened up the seniors' world for discussion and stimulated participants' personal experiences and opinions. Material also gave boundaries for role-taking and scenario building.

Altogether 17 people besides the facilitators, i.e. the researchers, participated in the co-design gathering; six from KONE's R&D department, nine from the housing company and two from the construction company. They were divided into four groups so that people from different organizations would form a group of approximately four players in order to utilise the wide knowledge base they represented. The aim of processing user data

through role-play and co-constructing design opportunities in mixed groups was to create an atmosphere for personal discoveries for the participants. In the beginning, creating the overall scenario, in terms of the role-playing game *framing the scene* that is an activity to set the boundaries for the scenario by introducing the theme, people, and time, was found challenging. But participants soon seemed to get a grasp on the basic idea and acted out interesting stories related to senior houses and people flow.

In relation to understanding other cultures through anthropology, Victor and Edie Turner (1987, p 139) claim that: *"While it may be possible for a gifted researcher to demonstrate the coherence among the 'parts' of a culture, the models he presents remain cognitive. Cognizing the connections, we fail to form a satisfactory impression of how another culture's members 'experience' one another."* Consequently, they experimented with a performance of ethnography with anthropology students *"to aid students' understanding of how people in other cultures experience the richness of their social existence, what the moral pressures are upon them, what kinds of pleasures they expect to receive as a reward for following certain patterns of action, and how they express joy, grief, defense, and affection, in accordance with cultural expectations (p 140)."*

Turners (ibid.) used strips of ethnographical accounts illustrating other culture and asked students to make *playscripts* from them. Then they set workshops or *playshops*, in which the idea was to gain kinetic understanding of those cultural groups. The aim was not to produce theatre as public entertainment but to put the students more fully inside the cultures they had been reading about. The Character Game shares a similar overall view: that is, through playing a role, participants reach other kind of knowledge, "the inside view" rather than the cognitive one. This personal experience about others may open up novel opportunities for design and enhance our understanding of the topic of seniors more holistically.

Inviting personal discoveries

Compared to the Project Planning Game, in the Character Game participants had more power to guide the events during the game. With more freedom, the participants were forced to work their way through the data by constructing scenarios from the fragmented field data connected to their own experiences. This way the design game facilitated the emergence of personal discoveries. The game resulted in several themes that were prioritized as important in regard to senior houses and some possible *design drivers* (Wikberg & Keinonen 2000, pp 193-206) that could direct the design further. Instead of concentrating on, for example, to the tasks the elderly would have been conducting with the elevators, the holistic view on senior houses improved the understanding of service ecology. This perspective was important for possible touch-points where the companies' interests and competences could meet in the future.

Some of the personal discoveries made explicit in the design game highlighted seniors as individuals with very distinct needs and values resulting from their long histories as well as their physical conditions. Notions like this are not spectacular in their novelty value but fundamental in terms of framing the design brief and acknowledging users' needs in daily design practise. The discussion that followed this notion led the participants to consider, among other things, modular and personalized service solutions in senior houses.

Moreover, the role-playing approach that demanded interaction among the players directed the discussion to social contacts in seniors' lives. With regard to social interaction, the following questions and some ideas related to them were prompted: How do the seniors find a like-minded company? How do we allow several service providers to utilise the same space at different times? How do we organise the collaboration between several buildings to make the services more affordable by an increased number of users? One theme that got attention was rather unattractive accessibility solutions in the apartments. This triggered ideas related to integrated solutions and modern technology.

Based on the above findings, which are further discussed in the next chapter, the Character Game can be considered successful in promoting the human perspective. The business view was considered from the service network point of view: new ways for collaboration were thought up without yet paying too much attention to possible challenges that could restrict early idea generation. One of our research interest concerned whether it would be reasonable to transform user study materials collected by someone else into a design game that would allow and inspire collaborative interpretation and idea generation. This study shows that it is possible, although this would not be the most effective way in time allocation since design game designers need to familiarize with the data, which would not be necessary had they been involved already in producing it (see more Kaario et al. 2009).

In terms of empathic understanding, promoting the people flow slogan and experimenting with a novel approach for team work, the Character Game was considered beneficial. It was then conducted second time, focusing on these themes within KONE's R&D. I won't describe the second experiment here (see more Vaajakallio et al. 2010b), since it didn't bring up any fundamentally new knowledge on the Play framework or the design games driven approach. There were also follow-up co-design gatherings, but they do not come within the scope of this dissertation.

Following the first Character Game, the materials from the four groups who simultaneously played the game were interpreted, and four main topics of concern were formulated; *feeling safe, aesthetic accessibility, me and others, and moving around.* These four themes were exhibited later for a month in the *Senior Expo* that was held in the company's R&D

department (**Figure 40**). To concretize the different attitudes and daily challenges seniors faced, the Expo included several touch-points from an image of an elevator to a real garbage can connected to descriptive quotations. The aim was to spread the observations from the user study and role-playing game in a way that would invite new interpretations and thus inspire personal discoveries (Mattelmäki et al. 2011).

Fig. 40

The exhibition displayed provocative and stereotypical notions, such as the text *Who am I?* painted on a mirror that people are asked to look at while wearing a mask of an older man (the image in the middle).

4.3.2 Case OPK: Developing new service models for banks

The second case study was conducted in collaboration with two companies. Our initial partner was the OP-Pohjola Group Central Cooperative (OPK) that is Finland's largest financial services group offering banking, investment and insurance services. It is made up of 218 member cooperative banks and the OP-Pohjola Group Central Cooperative (OPK website, 14th September 2010)[16]. Fairly soon in the collaboration negotiations between the Extreme Design project and OPK it became evident that there was a need for a third party: a design agency that would be responsible for the actual service design would be needed. The researchers' role would be more supportive, focusing on user insights. This resulted from OPK's wish for a new service model that could be implemented already during 2010.

The decision-making process at OPK was slow, due to the company's hierarchical nature including several steering groups, committees etc. where things need to be agreed, which we learned later on. To keep up with the Extreme Design project schedule, we decided to proceed with the case before the design agency was hired. The *Project Planning Game* was organized to create a common project vision for the second case study. The game rules and material remained mainly the same, but

[16] The Group has three business segments: Banking and Investment Services, Life Insurance and Non-life Insurance. The Group's earnings before tax were EUR 464 million in 2009. www.op.fi

whereas in the first time the method cards included colour coding, illustrating how challenging a method would be to perform, with OPK this extra information was left out. This resulted from the observation that colour coding made playing the game more complicated without evident benefits. Arguments over whether some methods would be hard or easy to apply were left for verbal negotiation among the players.

The game helped to discuss the upcoming collaboration, resources, goals etc. but would also have benefited from the presence of the designers, besides the researchers and representatives from OPK. The overall vision, including a timeline and methods, was settled, and the feeling of progress was felt even though the design research process couldn't take the leap before the design agency was chosen.

The Project Planning Game showed the importance of getting familiar with different partners' development processes when initializing collaboration: on one hand, it increased the researchers' knowledge on the decision-making process at OPK and its influence to practical activities; on the other hand, it introduced the user-centred design process and methods to the OPK partners, who were not familiar with them beforehand. Thus the design game worked as a sort of semi-structured interview but with bidirectional learning. In this case, distinct professional backgrounds were more in evidence than with KONE, where most members of the core team had had experience with user-centred design. Thus, going through the set of methods and discussing what they could denote was an essential step in creating a shared vision of the case study.

In the end there were two distinct but overlapping projects going on, as is illustrated in **Figure 34** (page 141): the Extreme Design case study, and the service design project initiated between OPK and the Palmu design agency. The two related projects had their own timetables, recourses and responsibilities. In order to have a dialogue between these two, collaboration between all three parties was necessary, and several meetings involving the key people were organized to ensure sharing of information and heading to the same direction. The collaboration was culminated in co-design gatherings that always involved people also from outside the core team.

In this case study, the co-design gatherings can be divided into two different types of encounters: those involving users i.e. bank customers, and those with bank personnel i.e. people working at bank offices, whose work practices were to be changed through new service models. The co-design gatherings with bank personnel are left outside the scope of this dissertation, and I will focus on user involvement.

The researchers drove the design games development, but the core team members from Palmu and OPK were involved in guiding the activities towards a common goal; the co-design gatherings informed designers' work and vice versa. From the researchers' perspective, the involvement of the design agency provided a realistic design project to which to contribute,

but it also had some challenges, mainly caused by some confidential issues. For the researchers, it was important to have an open process that could be presented for several audiences to get feedback and reflections, while the design agency considered, understandably, the process and methods as part of their competence that should not become too widely known.

Inviting users for storytelling

The next design game was the *Storytelling Game* that aimed at inviting users, i.e. the bank customers, to get together with the service designers and developers from Palmu and OPK to allow mutual learning through collaborative storytelling. The name of the method was initially the *Storytelling Group* (Kankainen et al. 2011) to indicate it as a creative version of the traditional Focus Group sessions. However, unlike in the Focus Group, the discussion is not guided through pre-determined themes; instead, the participants introduce topics and incidents they find meaningful in regard to the overall focus of the gathering. Moreover, the interaction evolves through storytelling, i.e. the players propose events to the story that is created collectively to describe customer journeys of long duration. The narrative structure that underlines imagination on par with facts promotes the play spirit and *being in a magic circle*, central elements of design games and thus I have renamed the method: the Storytelling Game.

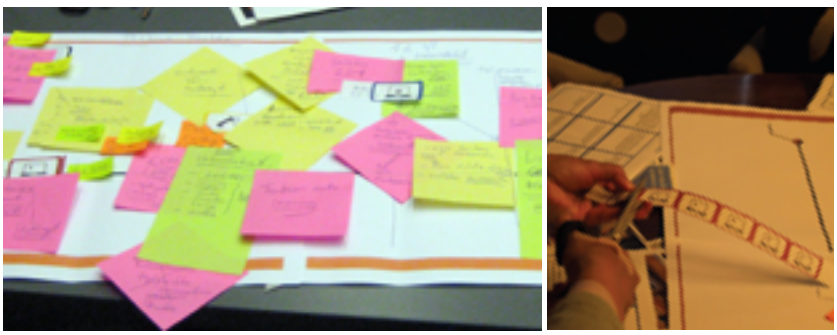
The main idea was to create a fictional story, *a scenario of a particular customer's journey* about what happens in a specific time period for a particular user/character defined by the participants. Since using service is a process (e.g. Vargo & Lusch 2008) not a single use situation or task focusing on a longer time perspective was seen fruitful and being able to function as a novel focus for idea generation with users. In regard to bank and insurance services provided by OPK, the time span covered around 30 years during which users' life situations may change drastically and influence their needs accordingly.

The story was told from a fictional character's point of view specified by the participants. Hence, the Storytelling Game continued in the direction pointed by the Character Game; the participants were given more responsibility about creating the content, compared to the Project Planning Game, which relied heavily on predesigned design game materials introduced by the researchers. In the Storytelling Game, the starting point was more open than in the previous games, inviting the users freely to introduce topics they found relevant within the given context. The game relied on direct user involvement and although the main responsibility concerning the storyline was given to the users, the team members from OPK and Palmu could also propose incidents or themes to invite responses.

So far the design games, both the ones discussed in the previous chapters and those developed during the Extreme Design project, had explored several tangible elements to support participants' creativity and

out-of-box thinking in co-design. In the Storytelling Game we reduced the materials to paper with a timeline, some quotations from bank customers collected during the preparation phase, and symbols that illustrated some touch-points for the scenario (**Figure 41**). Instead of a number of predesigned design game materials, the boundaries for the story came from three *fixed elements* resembling Johnston's (1998/2005, p 25) examples of how to funnel participants' creativity – the subject that was discussed earlier on.

Fg. 41



Game material included symbols that illustrate possible touch-points and channels, such as computer and mobile phone, for reaching the service during a customer journey. In addition, there were statements from customers that were printed on A4 paper. They aimed at triggering discussion in case the users had trouble with generating the storyline, but they were rarely used in a game.

In the Storytelling Game that focused on new service models for the OPK bank, fixed elements included the *titles* which gave the overall *theme* for the story such as bank loan or insurance, the given design *context* that was a bank and the *objective* to create a story from a defined character's point of view over a 30-year time span. The overall question to be addressed to the players was: *How could the OPK bank improve their current services/ service portfolio from customers' point of view?* This got the participants to think about an ideal situation: i.e., how could the bank change their practices to provide better services?

The game was organised twice during the bank case in two cities in Finland in the summer of 2009, to recognise possible local differences in the attitudes and needs of the users, which were not identified though. Altogether 12 users participated in the design games. While developing the storyline, the participants suggested a variety of events and ways of handling different situations prompted by their experiences and presented their opinions and wishes in relation to the bank services. The stories created brought up varying needs due to changing life situations. These included ideas on how to care and reward long customer relationships. In

addition, the stories described situations and incidents where alternative ways of acting could be introduced by OPK, for example by taking a more proactive stance when considering people's changing needs over time.

Since the core team from OPK and Palmu took part in the co-design gathering, mutual learning was immediate. Stories and ideas were written down after the session to enable their recall later on. One concern stated by the designers from Palmu was the way the OPK development team members seemed to take the user insights as *truth* without a need for interpretation about what provoked those stories and consideration over how they could – or should – be incorporated to the future services.

Strong commitment and emotional responses are often seen as the strength of face-to-face meetings with users. However, for those to whom user-centred design is new, the complexity of user studies and their meaning beyond factual information may be confusing or unclear. As has been pointed out, the design games discussed in this dissertation build on the idea of user data as fragmented glimpses of the users' world that needs to be reconstructed into new representations, to make sense of it in a particular context and design process. Even if indirect and direct user involvement is used to bring in the users' perspectives, they are not the whole truth to be followed without questioning. The stance taken by the OPK development team and the designers from Palmu may have resulted from shortcomings in explaining the meanings of user insights gained through such an innovative method. Hence, I propose that in further studies more attention should be given to explaining the attitude and aims embedded in particular design games.

4.3.3 Case Palmu: Exploring social media as source of novel design openings

The third case study was shorter than the two previous ones: the active collaboration lasted only a couple of weeks. That indicates that there are opportunities for utilizing co-design gatherings as source of inspiration and information also in short-term projects. The main partner was Palmu Inc., the same design consultancy that was working for OPK in our previous case study. Palmu Inc. is "*a service design agency which creates innovate new services and improves the current ones.*" (Palmu Inc. web pages 14.09.2010).[17]

Being the last of the three cases, the focus for the actual case was left open in the beginning of the Extreme Design project. The idea was to let the knowledge from the previous cases influence its direction. This resulted also from the fact that Palmu did not know their clients and their needs when the Extreme Design project began. At the start of the case study, Palmu had a project in progress with Itella, a company that delivers mail

[17] Palmu Inc. was established in the beginning of 2009. www.palmuinc.fi

services. The Extreme Design case study was integrated into that project, which looked at social media as source of novel design openings, to bring user perspective into the on-going design process (**Figure 34**, p 141).

Other peculiarity, besides that of deciding the focus for collaboration after Extreme Design had gone on for almost 1 ½ year, concerned the collaboration with Palmu that had started already before their case study. Since Palmu was the design consultancy working for OPK during the second case, the Extreme Design project, its researchers, and methods utilised in it were familiar to the designers at Palmu at the time of their own case. This allowed an immediate start for the collaboration, thus enabling a short project span. Therefore, the Project Planning Game was not, exceptionally, played with Palmu; instead, the focus was clarified in a regular meeting where the timetable and preferred methods were also decided.

Based on good experiences from the *Storytelling Game*, the same method was chosen to be applied also in the third case. To contextualise the design game, a brief *probe study* concerning the use and attitudes related to social media was conducted in Facebook[18]. This provided a basic understanding for the researchers to facilitate the Storytelling Game utilised in one three-hour co-design gathering in December 2009. The criteria for inviting participants was quite open, and people of different ages, skills and habits in social media were invited. Altogether 11 users, three facilitators both from Extreme Design and Palmu, and one representative from Itella participated in the Storytelling Game. The structure and game material were the same as in the previous Storytelling Games, expect that the quotations from customers were left out since they had proved to be of little use. This decision also simplified the game further on.

This time design focus was more open than in the bank case as it aimed at resulting *novel service design opportunities within social media* instead of improving existing services. The overall question addressed to the players was: *What novel service opportunities within a social media could there be for Itella?* Hence, this time the attention was directed to the situations and activities in people's life where social media could be involved and consideration was given to how Itella could be involved in those situations. Storytelling showed opportunities to expand Itella's current services within social media, and some novel service ideas were constructed during the storytelling. For instance, issues such as delivering information to an exclusive audience, making corrections to the information and collective managing of image, videos, texts, evoked opinions, and one's own experiences and ideas.

[18]Our Facebook probing was inspired by the empathic and mobile probes approaches in (Mattelmäki 2006) but was conducted over the Facebook to underline the context of the study: social media. Altogether 12 people participated in the study over a period of five days.

The role of storytelling was to utilize dramaturgical structure as a means to point out unexpected situations which could show the way to potential novel services. This was done by placing the participants into the magic circle of play and performance aimed at supporting imagining the non-existing future. As in the first Storytelling Games conducted in relation to a bank, the storyline was supported by few fixed elements, such as *title for the story*, which came from the Facebook probing, *social media as the service platform,* and *the particular service provider.* Although the titles such as *"good humoured surprise"* (in Finnish "sydämellinen yllätys") or *"saviour of the day"* (in Finnish päivän pelastaja) guided the storyline, they were open for many interpretations.

Since the open design focus demanded active participation from the players, a second facilitator, so-called *creative secretary*, was added to every group to support the players. This more specified role was given to the service designers from Palmu to ensure that the participants' personal stories are listened if they seem to be relevant and interesting for the overall design task. As was pointed out by Lundberg and Arvola (2007), in drama-inspired workshops the main facilitator's attention is dedicated to the overall guiding, and hence the facilitator does not have time to give much thought to the actual content. Thus, whereas the researchers were the main facilitators, the service designers from Palmu Inc. were given the role of a creative secretary, who provokes participation by asking clarifying questions and guiding the discussion to topics found to be meaningful to the designer's work.

In the two case studies, the Storytelling Game produced different types of information and concept ideas as described below:

1 *The collaboratively created fictional story* presents topics found interesting by the participants. This is the most visible and easily documented information produced during the gathering. By envisioning the *what if* world or dream situations, a continuous interplay between the imagination and facts is created.

2 *Experiences embedded in the story*, for example themes that reflect the participants' own experiences, values, needs etc. By introducing new elements and themes to the story, the participants have an opportunity to bring in their own insights and experiences without revealing their origin. This may promote personal topics otherwise hard to share in a face-to-face interaction with unfamiliar people.

3 *Experiences that the participants share with each other* in the side of the collaborative story. To grasp on interesting topics and to find out more about them is the responsibility of the creative secretary who should be sensitive towards possible design openings.

4 *Design openings and novel design concepts* which are envisioned while the story evolves.

4.3.4 Prototyping design game designers skills by exploring play–qualities

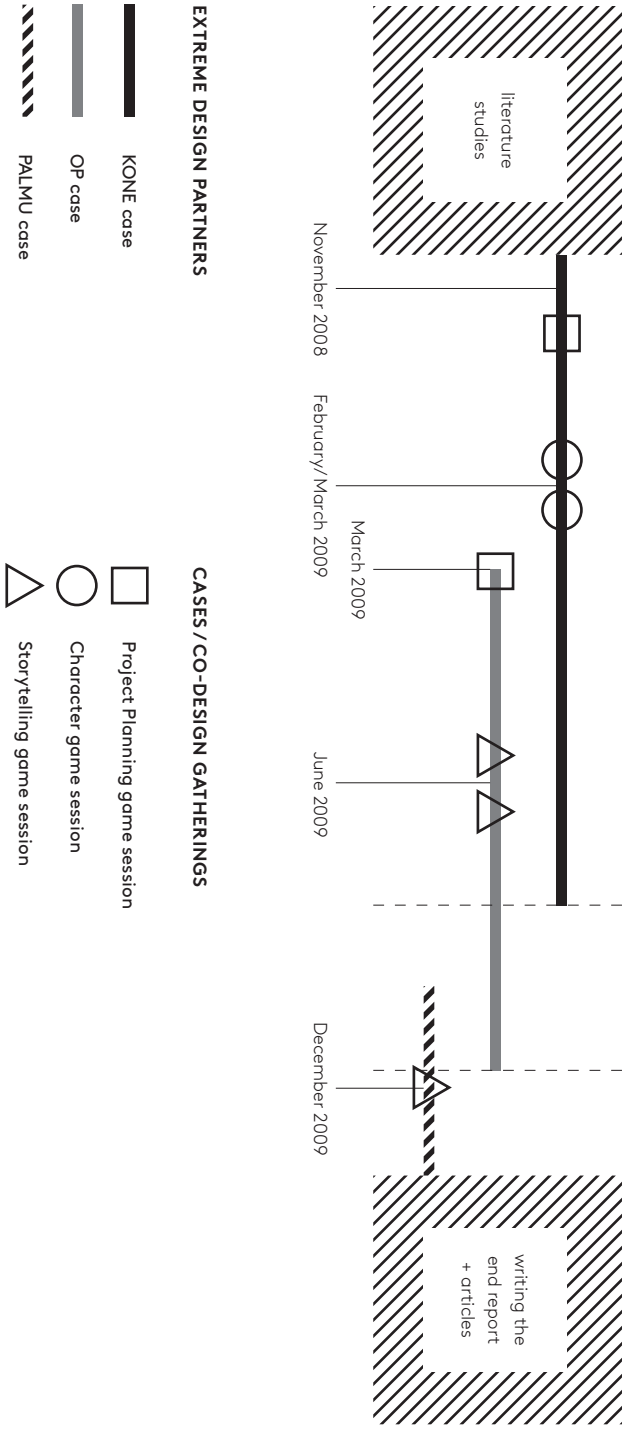
Figure 42 below illustrates the timeline of the design games developed to guide the collaboration and constructing possibilities within the three case studies. The process architecture centred on collaboration in two levels: *firstly*, tight collaborative relationship between researchers and key partners from the companies guided the process through a continuous dialogue; *secondly*, short-term co-design gatherings with distinct goals and participants culminated the co-design process by inviting relevant resources together to understand the wide solution space instead of seeking a shortcut to the final design, thus often widening the problem area rather than focusing it. None of the cases ended up with one well-defined design concept but instead provided seeds for further development projects.

To summarise, *the first case* provided many insights on seniors although it didn't prompt any continuing development project as far as we know[19]. *The second case* was established at the same time with the development project between OPK and their sub-contractor, Palmu Inc. The parallel projects fed each other so that the case study provided user insights to the service designers, but the main objectives remained separate. *The third case* was parallel to the on-going development project between Palmu Inc. and their client Itella, providing user insights to their design process. In addition, potential for further development was seen in ideas generated during the Storytelling Game. This gave rise to a new project at Itella.

The third case study with Palmu and Itella thus showed a case where a collaborative design research project can lead to promising outcomes that can be taken as starting points for the next project. In other words, concept search may be used to prompt new development projects once their unrealized potential is recognised.

[19] Since the concept development was eventually left outside the scope of the case study, we were not able to follow possible concept design activities at KONE. Even though we tried to find out whether any of the concepts were taken further at KONE, it remained unclear for us. We interpreted the silence and vague answers we got meaning either that there were no follow-up project or they didn't share them with us because of their non-disclosure policy.

Fig. 42



Extreme Design project and the three design games.

As was illustrated, the development of the design games was guided by the particular needs found in the case studies, but this was also due to the observations from the earlier cases and experiments, as reported in the previous chapters. Therefore the earlier experiments can also be considered as prototypes, which gradually prepared my skills as a design game designer to consider play-qualities and game materials in co-design gatherings, as will be elaborated further on the next chapter. Furthermore, the Extreme Design project with three case studies facilitated through design games showed that design games may also be a *process* to drive the collaboration in longer-term case studies. Differences between a short term collaboration focused on in the first part of the dissertation and a full-scale design research project with external partners are reflected in Chapter 6.

The case studies also demonstrated different ways of considering user insights in the early service design project. They completed the empirical examples discussed in Chapters 1 to 3 by introducing new play- qualities in indirect and direct user involvement. A narrative structure where participants are creating scenarios in the storytelling mode and in role-playing was explored as a base for binding together different perspectives from researchers, designers and users to interpret user insights and generate design ideas. While games generally differ in form, amount of players, playground, game pieces, and dominance between skills and chance etc., design games differ in the amount and variety of play-qualities and game material they employ. The main qualities of the three games are summarised below (**Table 5**) and further discussed in the next chapters.

In this chapter so far I have given an overview of the unfolding of the Extreme Design project with the three case studies. Next I will present three design games in more detail to give a background for the following chapter, where I will discuss some of their play-qualities in more detail.

	PROJECT PLANNING GAME (CASE 1 & CASE 2)	CHARACTER GAME (CASE 1)	STORYTELLING GAME (CASE2 & CASE 3)
OBJECTIVES	Establish a vision for a collaborative project. Develop initial ideas for extreme design games. Provide hands-on experience on design games.	Promote new perspectives. Co-construct design opportunities. Explore user group as base for strategic B2B partnerships.	Gain insights about the topics and incidents found meaningful by the users in regard to the design context. Co-construct design opportunities about improved or novel services.
FOCUS/APPROACH	Utilize the play framework for bidirectional learning, supported by tangible game-elements illustrating UCD process and methods.	Process the field data in an empathic and inspirational way through role-playing.	Bring potential users, service developers (both from service providers' side and consultants) together to allow mutual learning through collaborative storytelling.
PLAYERS	Case study partners as main performers, the researcher as the facilitator and equal player.	Development team members from the companies as main performers; the researcher as the facilitator.	Users as main performers, the researcher as the facilitator, and the service developer/designer as the creative secretary.
MATERIAL	Two papers; one for the partners' development process and second as game board. Resource figure paper dolls, post-its, two sets of playing cards: 1) labels that describes the phases of the design process, and 2) method cards.	Photos and quotations from the user study, paper for game world description, post-its, character templates, photos to illustrate the role characters, weekly timetable, the first scenario.	Paper with a timeline and symbols that illustrate possible touch-points, post-its, and fixed elements: 1) titles to give the overall theme for the story, 2) the context, and 3) the objective of creating a story from a defined character's point of view.
OUTCOMES	Visual representation (or a couple of alternatives) for the project plan with a proposition of timetable, methods, recourses, and responsibilities.	Filled character templates as descriptions of the role characters, several scenarios, reframed design tasks, possible design drivers, and themes of interests.	Story about a fictitious character in relation to a long-term customer journey about a specified context (e.g. bank or social media).

Table 5

Three Extreme Design games discussed in this dissertation and the variables in them.

4.4 The fun of playing

Fig. 43 Design games' visual outcomes varied; common to all is making intangibles tangible through some sort of game material.

4.4.1 Project planning game: setting a common vision

The overall aim was to become aware of potential contradictions early enough and reach a jointly created and agreed project plan for the case study. The players were project stakeholders (potential users were not involved), and the number of participants varied from three to four in one group. Before actually proceeding with the game, as warming-up activity the participants from the partnering company were asked to describe their typical development process by drawing and explaining the phases, telling who were involved and at which points different decisions were made, etc.

The unfolding of the game can be roughly described by the four phases: 1) the game starts by choosing the labels that illustrate the main activities in the design process; 2) the goals are specified for each phase and written down on post-it notes; 3) possible methods are presented, proposed and negotiated so that they meet the addressed goals; and 4) resources are allocated accordingly. The warm-up activity and the game last around two hours, after which the created project plans are discussed through. If there are competing proposals, they are presented and compared to formulate a final agreement on the plan for the case study. Below there is an example from a Project Planning Game played out in the second case study organised in collaboration with the OPK bank.

Fig. 44

Predesigned game materials utilised in the Project Planning Game.

Describing typical development process

Four people – Kirsikka (me), other researcher Vilma, and Hannu and Nina from the bank – are standing around a table on which there is a large paper and some pens. Kirsikka has previously described the aim of the gathering and provided a brief step-by-step description of the unfolding of the game. Nina takes a leading position by telling about a typical project model at OPK. She turns occasionally towards Hannu and asks "Isn't it like this?" Kirsikka presents clarifying questions to ensure she is following Nina's explanation, and sometimes Hannu adds something about practical experiences in the previous projects. Vilma remains mainly a silent observer standing away from others.

Playing the game

When Nina and Hannu agree that they have managed to give an appropriate description, they move on towards the game. Kirsikka places a plain paper to the centre of the table and distributes black title cards that illustrate several stages of the UCD process – such as familiarizing, deepening, and user study – while explaining them to Nina and Hannu. Soon everyone is engaged in the conversation about what the distinct phases should contain in the case study. The lively discussion and sorting out of cards takes around fifteen minutes, after which there is agreement of six titles from a total of nine as the main phases that would be nice to have in the case study. Following that, Kirsikka provides new game materials that are used to settle the goals and allocate resources accordingly. When that is done everyone receives a set of method cards that are used to envision the line of activities in the case; each explains in turns what methods or a combination of those methods they would like to try out, for what purposes and in what phases of the process.

Comparing the propositions

After two hours, they have a common vision about the coming project with certain phases, methods and resources. It is compared to a similar plan created by the other group simultaneously. (Project Planning Game with OPK, March 2009, translated from Finnish)

Fig. 45

A sequence of the game: Nina draws the typical development process they follow at OPK, a discussion on it with Kirsikka and Hannu, considering methods according to the explicated aims (yellow post-it), allocating resources for the phases, and, in the end, comparing the project plan proposals with the other group's outcome.

4.4.2 Character game: empathy and inspiration through role immersion

The Character Game was developed and played out twice in the KONE case with different people and distinct focuses. The number of the players in a group varied from four to six plus the facilitator, who started the game and supported its unfolding without participating in the role-play. To *tune-in* the participants to the topic and other players, the first step was to share a personal story connected to seniors, followed by collectively building the game world – an imagined senior house where the role-play was situated. When the game world was complete and named, everyone picked one character template and filled it out.

The character templates included several specifications – mainly quotes from the interviews which indicated personalities and disabilities but left room for personal interpretations. Things excluded from the templates were gender, careers, family ties and other personal information. That was left to the participants to decide at the beginning of the game. There was a place for a picture and, underneath, a brief text that described a character and his/her motivations in life.

Fig. 46

Left side: One of the groups is building a game world utilizing predesigned material (images and quotations from seniors' interviews) and post-it notes. Right side: Part of the mind-map type of illustration of the imagined senior house, the game world.

Setting the stage for the game

Peter, who facilitates one of the group's role-play, sets the stage by describing a beautiful spring evening in 2012, a symbolic time for the play's events. Then he introduces the alternative role characters, from which everyone should choose one. When he reads aloud the description about one of the role characters who thinks that it's her responsibility to notify if rules in the senior house are ignored, Sirkka interrupts him and states that she could take that role. Everyone laughs while she takes the character template from Peter.

Peter encourages others to pick a role as well, and once everyone have chosen an appropriate role, they complete the templates and present them in turns. For instance, Henna's role character is Pirkko-Liisa Silvennoinen who has recently retired even though she didn't want to leave work life yet, because she still felt energetic. Henna portrays Pirkko-Liisa's history, hobbies and mindset followed by other players' introductions, after which the performance will start.

Creating the scenario: from framing the scene to role–play

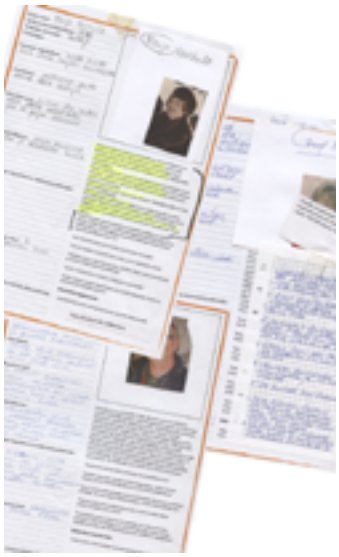
Peter gives the first scenario about a fire accident at the senior house as an example of what is meant by framing a scene. After performing the first scenario, the game proceeds in turns. For example, Tapani utilizes the provided weekly timetable as a prompt for a storyline that starts as follows: "On Tuesdays the lunch is normally served at eleven o'clock, but today the food from the food supplier arrives at fifteen to twelve." He continues describing how that will cause problems for the residents and ends the scenario by stating that "the situation is over when the food will be served". Henna starts performing the scenario in accordance with the description given by Tapani by playing her role-character followed by Sirkka, Reetta, Tapani and Pekka. Everyone is involved in the construction of the play. They go on for five minutes, after

which the turn to introduce a scenario moves to the next player. They still perform five short scenarios lasting from five to ten minutes each.

The participants alternate between the "I perspective" and "objective narrator" while performing. To ease the play, the facilitator introduces the first scenario and the characters in it, as was illustrated above. Then the players' task is to create the scenarios based on the discussions so far and/or utilise the printout of the weekly timetable that describes possible events in the house. Seven scenarios, on an average, were created and performed before the time reserved for the game was over. After role-playing, there was a coffee break, followed by the idea generation phase, where the participants were asked to step back to their professional roles while keeping in mind the experiences from the performance.

Fig. 47

Before creating and performing the scenarios, the participants tune-in by sorting out user data and discussing themes prompted by it. In the end, outcomes are shortly referred to other groups.



Sirkka: "I'm third floor's Eeva Juuri, born in 1925. I was an elementary school teacher. I don't have actually any physical limitations, only every now and then having lumbago type back problems, but it is quite bad when it occurs, and that was the reason for moving into Satulinna [the name the group gave to their senior house]. My life situation is that I'm a single. I have been married – when I was young – and I have a son from that marriage, who is already 58 years old. After that there haven't been any relationships. The son barely has time to visit his mom, but once in a while my sister and her daughter-in-law come, but that is one of the reasons for needing others' help. The attitude is a bit negative, so that I easily see the bad sides in everything and in other people as well and in neighbours alike [looks at others around her, and everyone laughs]. But anyway she is quite active and energetic, perhaps somewhat too much so, having time to follow other people's doings. [She looks around and smiles while other players laugh at the description]. And maybe she is slightly scared of every kind of outside threats."

Fig.48

One of the outcomes from the design game was the brief character/persona descriptions based on the user study. They were created by the researchers and filled in by the players based on their experiences and imagination.

4.4.3 Storytelling game: interplay between lived experiences and future visions

The Storytelling Game was played out three times, twice in the bank case and once in relation to social media. The number of players varied in each group from four to five plus one to two facilitators: a moderator who makes notes to the storyline and encourages storytelling and a creative secretary who asks focus-group types of questions about opinions, attitudes and service concepts related to emerging situations. In the beginning, the participants were given a couple of alternatives as titles for the story and the context with an overall focus such as services in social media or improving bank services.

The play started either by first creating the main character for the story, a fictitious person with age, profession, family, living area and living style, or by defining the situation followed by an appropriate character. The story followed a service journey, for instance a 30-year bank loan, from the main character's point of view. The participants were encouraged to think how the story begins; what motivates the character to start using the service, what happens first, what are the consequences, where it leads to, who are involved etc. These 'happenings' were written down on post-it notes and placed on the timeline that had been drawn on the paper.

If there is a creative secretary in a group s/he should ask clarifying questions to find out participants' personal stories related to the situations, encounters, and incidents which emerge during the story. (What has happened to them? Why some topics are introduced in the storytelling? What kinds of emotions, motivations and needs the personal experiences embrace?) When the story was ready, in some groups it was role-played through verbally, like

a radio play by taking the characters' point of view. The aim of acting out is to sum up the storyline and allow new insights. However, performing the scenario is a voluntary extra act to open up further perspectives, and all groups did not take that step. Below the game is illustrated with an example from the third case study that focused on social media.

Introducing the title

One of the groups is facilitated by Sofia, a sociology student who is working as a research assistant in the project. Besides her there is Natalie, a service designer from Palmu Inc., as the creative secretary, and four players, two men and two women, representing users with different ages, experiences and skills in regard to social media. Here they are referred to as users 1, 2, 3 and 4. They sit around a table, on top of which there is a paper with a drawn timeline, post-it notes, and piles of stickers that illustrate a variety of social media. Sofia introduces the title, "good humoured surprise", for the story and then encourages the participants to "start thinking what the title could mean; who might surprise whom?"

Crafting the storyline

They begin to propose content for the story, and after 15 minutes they have the overall storyline ready summed up by the facilitator: "Ok, we have 55 year-old Anneli, an account manager, whose relationship status in Facebook goes wrong; she accidentally announces being engaged even though she is not." When she asks the players to think the story further, User 1 proposes that Anneli "receives a great number of messages to her inbox and to her wall at Facebook, but she doesn't really realize that her relationship status is the cause behind them". User 3 suggests that "… wedding organizer service gives the first offer" and User 4 continues that Anneli receives a gift from her colleagues at work. This proposition triggers a real life example from User 1 about celebrations at work. These and many more incidents, accompanied by laughter, are added to the storyline.

After a while the storyline has evolved so that Anneli gets married (caused by a chain of incidents in regard to Facebook status) with a colleague, who helps her with the status update. User 1 finally closes the story: "The story will end so that they have kept this relationship secret, and then it becomes as a surprise when they get engaged for real, and that pops up in the status again." User 3: "And that time everyone teases her that can't you still use the Facebook properly." [...] User 4: "But then she can publish a photo about the engagement ring to confirm that this time it's true."

Acting out the story

After 45 minutes they are ready to act out the created storyline, and the facilitator explains the idea: "... we kind of recall the storyline because this [creating the story] has been quite a chaotic process, just to remember what was there. So we will go it through once more. And we can, of course, add some intriguing ideas there if we want. [...] we can sit here and talk it through." User 2 volunteers to be Anneli and User 1 acts as Reino, the helping colleague, and others act as the work community.

Fig. 49

Several groups work simultaneously and create their own stories. Images are from the session looking at service opportunities in social media.

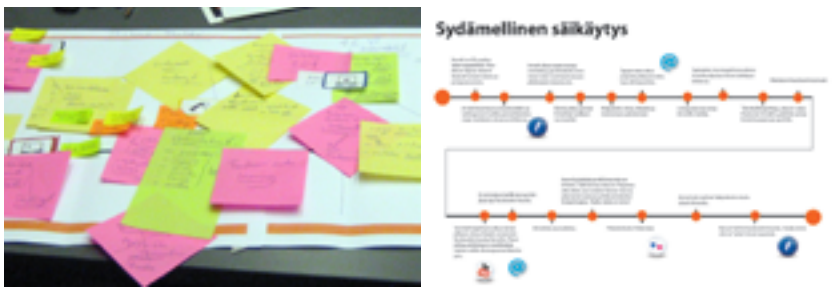


Fig. 50

A representation of the group work illustrates the developed storyline with characters, incidents and generated service ideas related to the scenario and the given design task. Left side image is the illustration, as it appears in the Storytelling Game, and on the right side the story has been transformed into an easy-to-share pdf format later in the design process. (Images by Peter Kaario, 2010)

4.5 Between a process overview and details of interaction

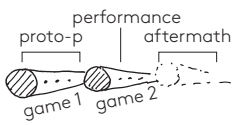
As was mentioned earlier, the performance process by Schechner (2006, p 225) may enlighten co-design processes by its processual connotations, by its ritual aspects of changing participants temporarily or permanently during and through the co-design activities, and by giving more precise labels for the roles in the performance process. Furthermore, it shifts the focus from steady elements such as design game materials into the dynamic process of using them in embodied interaction where messages are conveyed through narratives, vivid characters, and enactment. The performance process and the elements in it, as described by Schechner, can be seen either as concrete actions or merely as a particular attitude and mindset driving the performance process. In both terms it may provide valuable starting points for analysing the co-design.

Figure 51 below combines the performance process with the design games driven approach, turning the attention to the overall process, as illustrated on the left side of the picture. When the focus is on the whole process, its value is in pointing out activities also before and after the co-design gathering, which has rarely been the subject of an academic debate. For me the interesting question related to this model comes from the relationship between different phases and collaborative knowledge created in them. This has directed me to look at the activities and roles in designing design games as well as the continuity in collaboration.

The right side of the same image shows an alternative way of considering the performance process in the co-design by focusing on one co-design gathering. Its benefit is in understanding the structure, roles and different mindsets directing the evolving co-design gathering in detail. The bigger entity of the co-design gathering can be divided into smaller parts based on what they pursue in the process. It has pushed me to look at the interaction and the role of the Play framework in the co-design gatherings in detail. What should be noticed is that the two are not excluding each other, but that they are simultaneously existing models, with a distinct emphasis. They both have been influencing the way I discuss the three design games in the next chapter, where I will highlight some aspects of the design games and play-qualities employed in them.

Fig. 51

A) FOCUS ON THE DESIGN PROCESS



proto-p = preparations

performance = co-design gathering with a design game

aftermath = consequenses

B) FOCUS ON THE CO-DESIGN GATHERING

proto-p = presentenging the aims, tuning-in exercise, design games

performance = presenting/ performing the results of a design game or created story

aftermath = feedback, closing discussion

On the left side, the image illustrates the phases of the performance process in correlation to the design games driven approach, whereas the image on right illustrates how the same phases can be identified from one co-design gathering.

Chapter 5
Play-qualities in co-design gatherings: Design game designer's perspective

This chapter discards the chronological order followed in the previous chapter by guiding the discussion through specific themes identified as meaningful in understanding the relationship, on one hand, between the design and the games and, on the other hand, between the play-qualities and the co-design. In order to demonstrate the use of the Play framework, it is reflected in connection to the chosen themes. At the same time, this chapter continues the story of exploring the design games driven approach in the Extreme Design project. It tells about the experiences from the *design game designer's perspective* in relation to the questions like *how to bind co-design participants' insights into a consistent story or a performance*, and *how play-qualities can enhance playing with the alternatives.*

When we consider designing design games as a creative development process in itself, my experiences show that we need to pay attention to issues similar to those in any user-inspired design process: To whom is the game targeted? What is the game's basic idea and storyline? What are the rules governing the actions? How does one start and end the game? What is the playing context: computer game, role-playing game, board game, card game? What is the motivation: competition, chance, simulation, vertigo? How many players can play the game? How does the game look and feel? How long does it take to play the game? How expensive is it? How long does it take to manufacture it? What materials are involved? Can it be used more than once?

Most of these influencing factors have been discussed already in the previous chapters. What I want to underline here is the four main aspects of co-design gatherings and design games that are central in understanding the design games driven co-design and the Play framework: *1) shared focus of attention, 2) visual traces left behind, 3) design games as tools for binding inputs from various people, and 4) transporting participants into another world.*

5.1 Shared focus of attention in co–design gatherings

Interaction among participants is a core aspect of any co-design gathering which aims at advancing the overall design process by inviting experiences and insights from various people. It has already been proposed that visual and tangible design game materials may work as boundary objects (Brandt & Messeter 2004) enhancing the interaction, or as things-to-think-with or things-to-act-with (Brandt & Grunnet 2000; Vaajakallio 2009) to scaffold collective idea generation. Design games in co-design should entail fairly equal participation to make everyone's contribution available. This requires what I call a shared focus of attention, paraphrasing Erving Goffman's description of face engagements referred also to as an encounter or focused interaction (1963, pp 88–89): "*Face engagements comprise all those instances of two or more participants in a situation joining each other openly in maintaining a single focus of cognitive and visual attention – what is sensed as a single mutual activity.*"

A shared focus of attention can be supported by design game materials in a visually explicit way: they provide a visual reference point and thus embrace a single mutual focus for the participants. In laying out design game materials, or in creating them in the course of playing the game, a shared focus of attention is established. In addition, guiding the interaction through tangible elements helps to maintain the shared focus of attention or re-establish it if some breaches occur. The following segment from my account illustrates one way of utilising predesigned game materials, in this case the method cards, as a shared focus of attention in constructing a common vision of the coming project.

Hannu: "I don't know if these make anything". He moves some method cards on the table and Nina goes closer to him. Nina: "But isn't that [takes one of Hannu's cards] similar with this [puts the card over one of her cards]?" Hannu leans over the table to look at the cards Nina points with her finger, takes one of his cards and places it above Nina's cards while saying: "This is also similar." They laugh in a relaxed manner and look satisfied. Nina: "Yes, at least these are alternative ways..."
Kirsikka: "Are you ready?" Nina: "No." Hannu: "This could go here, to the very beginning." Hannu ignores Kirsikka's question and continues speaking to Nina while he moves the cards on the game board. Nina: "This could work over there." She places the card to the middle of the process while Hannu's gaze follows the move. After a while Kirsikka interrupts Nina and Hannu by stating that they could move on, presenting the chosen methods.
Kirsikka: "Who proposed this?" She points with her finger to one method card in the beginning of the process. Hannu: "I did." Kirsikka: "Can you explain the idea behind it?" Hannu: "The idea was to visualize and concretize the future by transforming it into a story. It might be good way to create an understanding of what it could mean." Kirsikka: "So, would it be based on these expert interviews [she refers to an earlier discussion]?" Hannu: "Yes." Nina: "Could it be even the steering group member, if we want to get the big picture and the future visions?"
(Project Planning Game, OPK, March 2009, translated from Finnish)

The above clip shows how the playing cards and manipulating them on the game-board becomes the focus of attention during the creation of a shared vision for the coming case study with OPK. Without the playing cards, comparing the methods and considering an appropriate place for them in the coming design research process would have been less obvious and open for negotiation. This is also an example of a face-to-face engagement, which may take place through a mixture of verbal statements and gestures, or moves on the game board. Players hold, point, pile, and change

the places of the cards, and through this they provoke reactions and verbal statements from others. The game-boards and playing cards provide an official visual centre of attention while the moves become visualised as they are explained and negotiated. The talk is verified through materials, and, thus, what happens on the table becomes as important as what is said.

Nina and Hannu are so immersed with the situation that they barely notice Kirsikka's question about whether they are ready or not. To open up the encounter also for Kirsikka and Vilma, Kirsikka points to one of the cards on the plan and asks *"who put this here?"* This illustrates how participants within one gathering may temporarily have a shared focus, without necessarily maintaining it throughout the situation. What makes it interesting for co-design gatherings is the way collaboration is re-established again by referring to the design game materials.

There was a similar observation also in the Character Game when one participant excluded himself from a verbal encounter, which the others were having, by fully concentrating on the game materials on the table at the stage of *building up the game world* (**Figure 52**). In that situation the participants were merely in the copresence of others, in Goffman's (1963, p 34) terms, without an *"official center of attention"*. Hence, game materials may also become distracting if inviting only some participants' interest or if they are given in a wrong time, as happened in the Situated Make Tools study. In that incident, we displayed the Make Tools set before giving the task of building the dream device, which led us in the situation where the user played aimlessly with the Make Tools (**Figure 52**). Luckily the method was flexible enough to allow the user to proceed without further reflection

Fig. 52

On the left: One of the participants got so immersed with the predesigned design game material during the Character Game that he didn't follow the conversation others were having at the same time. On the right: In the first Situated Make Tools study, the workers began to play with the design material without listening to what they were expected to do with it. Consequently, in later exercises, we first discussed objectives and the given task and only then presented the design material.

on the dream device at that phase, and instead the user considered its functions later through performing scenarios (see page 23). These experiences suggest that visual material can be, besides the glue that unites different perspectives and provides a shared focus, distracting if it engages or takes all the cognitive attention from only some participants.

The given examples provide an excellent illustration of the four ways design materials may influence the focused interaction: by *establishing, maintaining, distracting or re-establishing* it. In practice this is done 1) by providing design game materials that grab everyone's attention and allow joint reflection through moves on the game board, and 2) through intensive and immersive play spirit that captures and maintains players' focus in the situation. The following quotations illustrate especially the captivating atmosphere generated by design games.

> " *[...] I just commented at some point that I hadn't been checking the time at all, and then it was already twelve – the time had flown. I also questioned at one point whether I had been thinking at all what I was doing, I just kept placing those method cards there [to the project plan]. But we considered it [in our group] as a positive sign that I wasn't over-interpreting what I was supposed to accomplish. Yes, I feel really good.*" (A participant from OPK after the Project Planning Game, March 2009)

> Women from SATO: "*This is of course work, but how can working be this fun?*" Women from KONE: "*There was quite a lot of laugh in our group as well.*" Men from SATO: "*In our group two persons even changed their names... [He refers to the way the group continued using the role-names in follow-up activities to highlight a particular character's view instead of their own.]*" Everyone laughs. (Participants' comments after the Character Game, KONE, March 2009, translated from Finnish)

As stated previously, design games are not played for fun; they serve a certain predefined agenda that governs the course of action. However, they do imply play-qualities shown in **Figure 28** (page 131) to generate an intensive, inventive and playful attitude among its participants, as also illustrated by the comments above. Huizinga (1950) has proposed that humans have a tendency to enjoy games and playful activities, and it is for this reason that he calls people *Homo Ludens "playing human"*. The play as it emerges in its various formats in human life seems to entail intensive and innovative modes, which may support out-of-box thinking, an important quality in design that tries to reach novel solutions. As was mentioned in regard to the Play framework, play spirit is essential for taking risks and tolerating uncertainty (ibid.), also attitudes needed during the co-design gatherings.

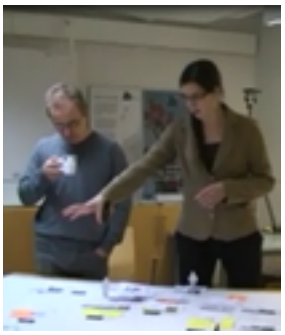
5.2 Leaving visual traces: material meanings in co–design

Above I suggested that game materials may support the initiation and maintenance of focused interaction among the participants, thus allowing contribution from everyone due to their visual and tangible qualities. Furthermore, these materials leave explicit traces that last beyond the gathering. Thereby visual predesigned material can be used to build up various representations during a co-design gathering to serve as documentation about what was discussed, envisioned and found relevant in relation to the topic under focus (**Figure 53**). This reduces the risk of losing information and hence is likely to improve the relevance of the gathering. The meaning of visual documentation becomes clear in the following example from the Project Planning Game, where representatives from KONE consider what could be the expected outcomes from the senior case study.

Fig. 53

Visual game material documents discussion in different forms of representation while the game proceeds. The representation on the left is from the Project Planning Game, the middle picture is from the Storytelling Game and the picture on the right is from the Character Game.

In this particular gathering, there were four people present from KONE: two usability specialists, an engineering student doing her internship and diploma work, and the project manager responsible for the senior case study. Besides them, there were three researchers from the Extreme Design project. Participants were divided into two groups while creating the project plan proposals. In a given moment, both groups were gathered around the table where two alternative visions of the forthcoming case study, constructed during the game, were laid out. The participants were encouraged to find similarities and differences between the proposals.

Usability expert 1: "*We have more resources and methods in the concept development phase than you have.*" Usability expert 2 [from the other group]: "*We had a question mark there about whether we include it [the concept development] into the case study – or does it belong to the next phase [outside the collaboration]? There is no answer to the question he addresses, but after a while the project manager states why he thinks that the concept development has been more emphasised in their proposal. Project manager: "Maybe this points to the fact that from KONE's perspective it's the concrete concepts that we are after.*" [...]Usability expert 2: "*The 'communication package' could be more clearly the outcome from this case study.*"

They leave this topic for a while and consider the timeline for the project instead. When considering the length of the different phases, the project manager returns to the topic. "*Perhaps researchers' input is not so necessary here in the concept development stage, but it may be that we will do it internally. [...] instead your [researchers] role could be bigger, for instance, in illustration techniques.*" (The Project Planning Game with KONE, December 2008, translated from Finnish)

When comparing the two proposals, the question whether concept development belongs to the scope of the Extreme Design project or not arises. The project manager gives first a quite opposite view but seems to change his mind when he states that instead of concept design, the researchers' input could be in the presentation techniques, expressed earlier by the usability expert 2 as *"the communication package"*. Thus agreed, the researchers' main contribution would not be in the actual concept design, but rather in the preceding phases, i.e. concept search. Without the visual representations that pointed out different emphases in the project plan structures, this discussion would probably not have emerged and vital information about the different expectations would have stayed unrecognised.

The above example demonstrates design games also as *test beds for exploring alternative solutions.* Because the moves during the design games

happen in the magic circle that is separate from the real life, they do not have any immediate impact. Instead, it can be decided what to take from the gathering for further design processes and what to ignore. For instance, neither of the project plan proposals was implemented as such, but they helped to explicate and negotiate wished outcomes and alternative paths to it. Another occasion from the Project Planning Game, but with OPK, illustrates exploring alternative solutions in regard to different consequences related to what phase of the design project a particular method would be adapted.

> *"I have placed this card [touches one card on the table] over here as a method [we could utilise], it could be several places in the process, for example here [she points to one part of the process] for development or evaluation. Or probably it could also be over here for gathering information and evoking ideas. The aim [of the method] depends on where we put it [in the process].*" (A representative from OPK during the Project Planning Game, March 2009, translated from Finnish)

Whereas in the Project Planning Game the documentation was done mainly by using the predesigned game materials, in the Storytelling Game it was less obvious, however, equally important. The post-it notes, where the facilitator wrote down the description of the created characters, proposed incidents and emerging experiences, were placed on the timeline to work as reminders and documentation of the created storyline (**Figure 54**). It enabled referring to things that had been chosen to be part of the storyline and later on performing and presenting them. But since the post-its included only those issues that were chosen into the storyline, the creative facilitator needed to make simultaneously another memo concentrating on the relevant issues from the designer's perspective. Those issues included, for example, the participants' own experiences or side comments, not necessarily part of the final co-constructed story, but possibly interesting for the overall understanding of the topic.

Fig. 54

Post-it notes on timeline worked as a visual representation and reminder of the co-constructed storyline, thus also working as documentation.

As Westerlund (2009, p 77) has pointed out, and as was mentioned earlier, all representations resulting from co-design are useful, if not displaying interesting design opportunities, then in defining the design space, or as *"seed for other more relevant proposals"*. Therefore, from the designers' (creative secretary) perspective other comments and statements may be more relevant than those needed to piece together the fragmented user insights into a unified storyline. Thus both types of documentations are needed.

The above examples demonstrate the game material as documentation of the dialogue and decisions made during the design games, as well as a visual tool in exploring alternatives. Another value an evolving representation can provide, is demonstrating the progress of the game for the participants. At the same time, the step-by-step process makes ambiguous topics more manageable.

> "*It was good that it was cut into several phases, because had this been introduced at once, then I think it would have been a bit hard.*" (A representative from OPK after the Project Planning Game, March 2009, translated from Finnish)
>
> *"Somehow it felt in the beginning that this [the project description with clearly defined stages] is too huge, like one big thing [makes a hand movement, which seems to illustrate a ball], but then it was possible to cut it into parts, so that these [pointing to different stages] are already pretty big as such." (A representative from KONE after the Project Planning Game, November 2008,* translated from Finnish)

Building of the project plan proposal or storyline gradually visualises the growing amount of information that can thus be verified by the participants. For the same reason, the resulting representations work as reminders, as the question from one participant after the OPK's Project Planning Game illustrates: *"Could it be possible to get a photo about the outcomes, a picture would be nice [...] to remember one's own thoughts?"*

5.2.1 From predesigned material to materialising discussion in–situ

As has been discussed, design games imply several types of visual game material which serve various purposes. In some, like in the Project Planning Game, predesigned material is more meaningful in guiding the interaction or understanding the design space, whereas in others, like in the Storytelling Game, the material emerging during the performance is the most important. However, the amount and role of the game material needs to be carefully considered when designing a design game. For example, in the Character Game, the amount of predesigned visual material was extensive, since its aim was to present glimpses of senior houses and of seniors living in them. It also followed the basic idea of the Project Planning Game, that is, utilising game material as reference points for discussion. Since role-playing was added as a new dimension to the inter-

action in the Character Game, a special set of material including photos, quotes from the seniors' interviews, and character templates was created to support role-immersion. Especially the weekly timetable and the first given example set the stage and overall frames for the scenarios and performances developed during the game.

In the Storytelling Game, on the other hand, the predesigned game materials were minimized into a white paper with a line drawn to illustrate the timeline of a customer journey and few images as reminders of possible service channels. This resulted from the direct user involvement, as the users who we were interested in were also players; hence the game was designed to invite them to bring in contextual understanding and user insights. Initially, when playing the Storytelling Game for the first time, we had additional design game material to support conversation and to illustrate events in the story based on our previous experiences.

Providing visual stimulus resulted also from my understanding of design games at that moment; I thought visual predesigned game material as "obligatory" for a successful gathering. The material consisted of so-called service evidence, i.e. marketing brochures, contract forms, and symbols that illustrate multiple channels, such as mobile phone, computer, office and letter, related to the banking services. However, in relation to co-constructing a storyline, they didn't generate discussion or affect the story and were not perceived as useful by the participants or by the facilitators.

Accordingly, almost all extra material was dropped from the subsequent Storytelling Games. Few images were introduced in the game. These were focused on service opportunities within social media, to illustrate its various forms, since the context is fairly new and not every participant would necessarily be familiar or remember all the alternatives without having been introduced to them in visual terms. As a conclusion, the game material is not necessary even though helpful in stimulating experiences and collectively developing future scenarios grounded on participants' past memories, current perceptions and future dreams. Other strategies, such as giving boundaries through fixed elements (Johnston 1998/2005) can be used instead.

However, as discussed above, some sort of visual references are relevant: if not stimulating reactions as in most design games, then illustrating the progress of a storyline. Therefore, to move from pure verbal means towards more tangible evidence of the events in the story, the propositions made by the players during the Storytelling Game were materialized by the facilitator, who wrote them down to post-it notes and placed them on the timeline. Compared to the scenario building in the Character Game, this way every participant contributed material, "building blocks", for the common storyline, instead of creating scenarios in turns.

Based on these experiences, I claim that the design game materials are relevant in co-design gatherings besides being a shared focus of attention

in 1) *documenting the discussions,* 2) *exploring alternative solutions,* 3) *illustrating the progress,* and 4) *as reminder for those who created it*. These all are important aspects in supporting the overall purpose of the design games driven co-design that aims at leading to personal discoveries and informing the design process. The next sections look more closely into these two objectives.

5.3 Design games as tools for binding inputs from various people

According to Brandt (2001, p 84), there are three different purposes for user involvement, which cover other interest groups as well: *1) gathering information for the basis of the development task, 2) the political need to involve certain people for the decision-making process, and 3) reaching mutual knowledge between different competencies.* In the design games driven approach, introduced in the last chapter, co-design culminates in two types of co-design gatherings with distinct purposes and participants embracing the overall purpose of the first and third points in Brandt's list. *The first co-design gathering* puts emphasis on mutual learning between researchers, core development team members and decision makers from the company's side in creating a common vision for the coming project. It touches upon the first purpose by considering participants as relevant experts by holding information about the company's needs and desired goals and the ways of achieving them. However, possible users or interest groups are not yet present at this stage.

The second gathering expands the number and variety of participants by involving people outside the core project team attending the first gathering. The people invited includes users or other interest groups, depending on the dominant purpose; in other words, it depends on whether the users' direct input for co-constructing design openings is seen as more relevant than indirectly representing the users' world as a basis for mutual learning between the development team and various interests groups.

Although neither of these options takes into account who should be involved from a political point of view, the process of debate and discussion (ibid., p 84) is central in both gatherings. It is considered necessary for learning that goes beyond individual preconceptions. As Westerlund demonstrates (2009, pp 71–73), in idea generation between participants with diverse backgrounds, many possibilities and challenges of both existing and future solutions become topics of debate evoking insights that go beyond researchers' knowledge. By putting emphasis on stating different opinions, values and experiences, such idea generation aims at evoking personal discoveries which emerge from actively processing various people's viewpoints and engaging in continuous reflection between *me* and the *other*.

By considering co-design gatherings through the *performance process* with three main phases: proto-performance, performance, and aftermath

presented earlier, we may analyse the way performance comes together as a combination of these different participants' input. This may increase understanding of the expectations put on involving users, interest groups, a development team and researchers in the early design stages. I will first discuss it in general terms and then through empirical examples from the Extreme Design project.

Since a design games driven approach puts emphasis on co-constructing future possibilities, it is not a process where researchers gather information, interpret it and then communicate the results. Instead, it builds on a knowledge creation process where several people's input is vital. We can study it through the two performance process models introduced at the end of the last chapter (page 171) by starting with the full performance process and then focusing on a co-design gathering.

From the knowledge creation point of view, *proto-performance* consists of three sub phases. *The first phase* concentrates on producing general knowledge about participant's attitudes, skills and expectations as they relate to the project: it is about crafting a common vision for the coming project. *The second phase* takes some questions addressed in the first phase under further study and transforms them into activities/actions. The knowledge that is produced represents fragmented pieces illustrating people's daily lives by focusing on a particular but ambiguous theme, such as living in senior houses. The information includes rather separate statements and pictures about current situations, and does not yet build a consistent image of design opportunities or alternative futures. *The third phase* has to do with clarifying and simplifying information by dissecting data and creating ways to approach the rest of the material. It is about designing frames for co-constructing new knowledge in the next phase, which is the actual performance: the co-design gathering.

During *the performance,* new knowledge starts to take the shape of design concepts – more detailed and consistent stories from the present and future. However, it is still rather conceptual, since it has not been evaluated or tested against implementation demands. Therefore, *in the aftermath*, co-created knowledge is reflected towards its use context, for example developing new service models for banks or building new B2B partnerships. After this, the amount of information can be worked into action points, design drivers and a detailed design brief.

Although we can think of these phases separately, they share four actions, which may be explicit or implicit: *gathering new information, mixing up information from different sources, contextualising (interpreting) information* and *sharing information*. These actions all co-exist in the above-mentioned phases of the performance process, not in chronological order but as an entangled web. Since in a design games driven approach the co-design culminates in co-design gatherings, the four activities are also more evident in those actions (**Figure 55**).

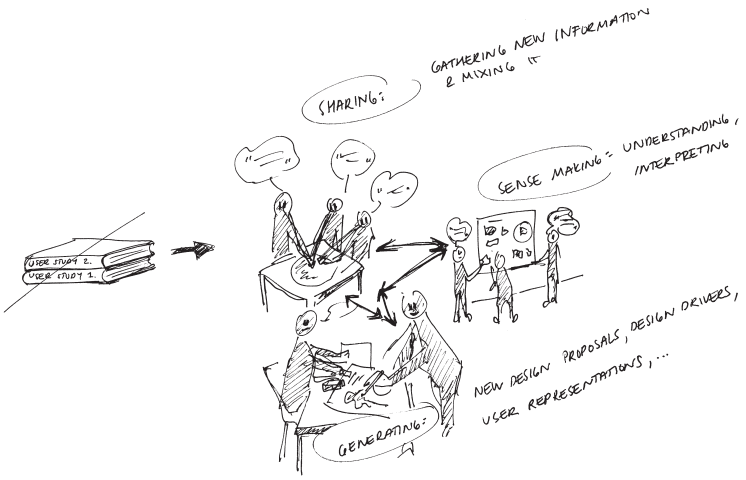


Fig. 55

Left side: In many research processes new knowledge is created by the researchers and shared with a wider audience through different presentations and written reports. Right side: In a design games driven approach creating new knowledge, sharing it, making sense of it and generating design ideas based on it happens collectively through the co-design activities in the gatherings.

In other words, knowledge creation is a dialogical and hands-on process of simultaneously collecting, interpreting and communicating information, values and attitudes to support mutual learning among a particular group of people. Therefore, it is essential to consider who is involved, for what purposes, and in which role.

5.3.1 Permission to make claims

In co-design gathering the separation between distinct roles, such as audience or performers, is not clearly stated, as it is in many traditional theatre performances. The aim of the design game is to engage everyone in the situation, thus transforming participants from mere partakers into *sourcers, producers* and *performers* (Schechner 2006, p 225) alike. Whether participants are assigned a particular role or they remain in their everyday role, the players need to take an active stance and make statements about the world within the boundaries of the rules and context of the design game. Depending on the design games, researchers can stay outside of this debate, assuming the role of the producer in building bridges and making connections without bringing new sources into the performance. This was the case, for example, in the Character Game and the Storytelling Game, where the researchers supported the performance by directing the overall progress of the design game instead of giving input on the created content.

It is worth mentioning that not all design games make a distinction between the facilitator and the players in the first place. For example, in the Project Planning Game the researchers were equal performers with other players in terms of proposing content and expressing personal views and opinions and negotiating those views and opinions with others. In other

words, everyone had mixed roles as a sourcer, producer and performer by being allowed and expected to make their own perspective explicit while playing the design game. It is important to acknowledge, however, that in any design game, the researcher's input is embedded in the form of rules, game materials, and so forth, which provide the overall boundaries for the action. The difference is whether the researcher has the role of sourcer only in the proto-performance phases and remains a producer during the co-design phase, or whether s/he sources, produces and performs in the performance equally with the other participants (**Figure 56**).

The creative secretary that was introduced in the Storytelling Game is somewhere between sourcer who is active in suggesting content and producer who directs discussion and combines fragmented pieces into a narration, as the next example illustrates.

> Producer facilitator: "*What comes to your mind from 'good-humoured surprise'?*" User 1: "I *started immediately to think [about...] several real experiences that had happened to my friends: some less experienced Facebook users had managed to mess up their relationship statuses [...] [Laugh] [...] One was supposed to put 'engaged' and then accidentally stated 'single'. [...] the intention to announce a happy incident turned out the opposite because you clicked the wrong button.*" Creative secretary: "*I'm just wondering that would it be more fruitful if it would be turned around into a positive direction [in the story that will be created]. [Laugh] One had accidentally put 'married', even though that wasn't the intention. Because then there will be lot of congratulations, whereas if you put 'single' there will be just sympathetic messages in the style of 'oh, no how that happened'.*" (Storytelling Game with Palmu Inc. and Itella, December 2009, translated from Finnish)

In the above example, one of the users proposes a topic for the story prompted by his experiences with incidents that are typical in Facebook. The creative secretary then suggests giving it an optimistic twist in order to focus the attention on positive ideas. Thus, the starting point for the story is a mixture of a user's and the creative secretary's views, guided by the given title and the context. The producer facilitator does not express her opinion in the discussion, but keeps the story moving through questions and summarising every now and then the storyline so far, as will be demonstrated later on. Also, the partakers' role is discussed in the next sections.

With regard to the performance process, distinct roles can be divided in the following way (**Figure 56**). In the proto-performance there are two phases: in the first phase, the people involved are *sourcers* who create sources, that is to say, the raw material from which the performance is made, for example user data; in the second phase, the people involved

are *producers* who revise and discard sources and add new things to construct the first narrative – the design game. In performance, all four roles – *sourcers, producers, performers, partakers* (Schechner 2006, p 225) – can emerge separately or in various combinations. Everyone who brings in fragments of new knowledge, such as their own experiences or skills, is a sourcer, whereas those who keep the performance evolving but do not provide considerable input on the content are producers. Participants immersed in the negotiation process and in co-constructing the performance or story from the fragmented material, in other words, in developing the knowledge further, are performers. Those following the performance are partakers. Rarely does one person remain in one clearly defined role throughout the co-design gathering.

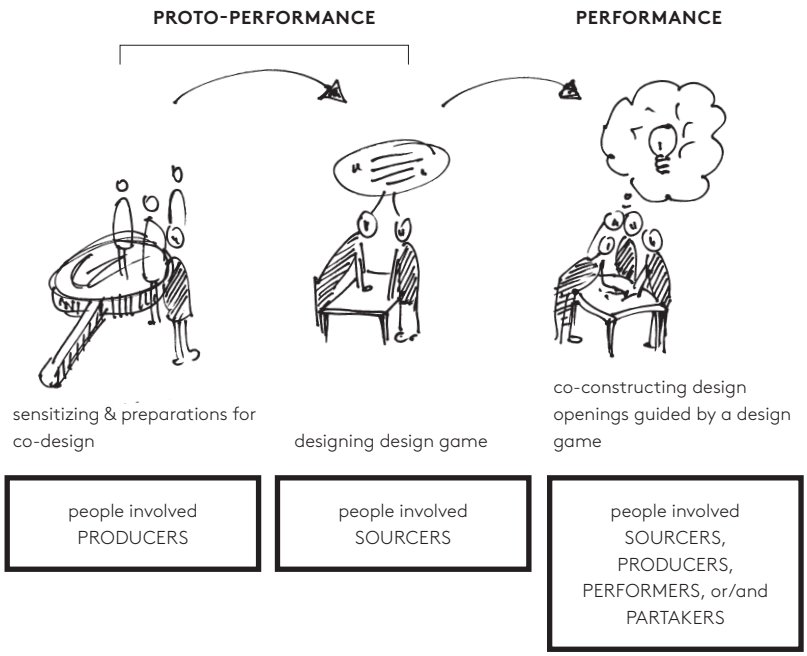


Fig. 56

Performance processes and different roles as I have implemented them in co-design.

The way the performance will turn out in the end is a combination of individual claims and propositions, a collectively developed storyline and a reformulated focus. Moreover, it is a combination of the given elements introduced by the design game and the moves that the players perform according to their standpoint on the topic. Even in the design games where the design materials are minimized, such as the Storytelling Game, the given frames, including the context, title and possible focus of the scenario/story, influence the solutions space by supporting and restricting it

simultaneously. The emphasis given to different inputs varies from game to game depending on how structured or open the game world is. There are two distinct phases where most of the contribution takes place: *1) when designing the design game in proto-p, and 2) during the performance of playing the design game.* These will be further discussed in the next section.

5.3.2 Co–designing design games

As mentioned earlier, designing design games is as important as playing the design game with regard to its influence on the players and the design project within which it is undertaken. Typically, this phase mainly involves the design researchers leading the collaborative process. In the Extreme Design project, we found it essential to already commit all of the relevant parties to the design phase of the performance process for two reasons. *Firstly*, the decisions made in design influence the actual performance, including considerations regarding what will be the focus, how the new ways of approaching the topic are promoted, what roles are given to the participants and how those are supported, and what the results will be.

Secondly, if the performance script will be based on the user study, appropriate fragments need to be selected and transformed into the game. This requires immersing oneself in the user data. Many of the implicit outcomes from the co-design process emerge already during this stage. Only fractions are gained while playing the design game. With this in mind, we extended the collaboration from playing the design games to designing them together with the company partners. The only exception was the Project Planning Game, which was used to establish the case studies and introduce the design games approach. In developing the Character Game an apprentice who did her diploma work for KONE was actively involved throughout the project, whereas one designer from Palmu took part in designing the Storytelling Game. In addition, there were some meetings among the whole case study team to make collective decisions about the main purpose of the particular design game and its focus.

Collaboration at the phase of designing the design games concentrated on formulating the basic idea, content and progress of the game, whereas the part of actualising the game materials was left for the design researchers. The tight collaboration demanded flexibility and resources from every participant, but also offered positive experiences. On the one hand, the researchers gained insights about the companies to ensure the relevance of the co-design, help in designing the games and real-life challenges to work with. On the other hand, the companies learned more about their potential users and got first-hand experiences from the innovative methods to be adopted in their everyday practices. By being involved throughout the process, companies were able to apply new insights immediately to daily practice instead of waiting till the design research project is over and the final report delivered. From the companies' perspective, this is characteristic of and strength of many design research

knowledge creation processes (Gibbons et al. 2004). Active participation from the companies' side was crucial, especially since researchers' control of the project didn't reach inside the company and the follow-up activities happening there.

Let me indicate the meaning of collaboration by quoting the project manager from KONE: *"An especially great thing was the attitude of doing things together – the "co-creation spirit" – now we have those parts [co-design methods] and we have already tested them a bit, which gives us an opportunity to do different things in appropriate situations*" (last steering group meeting, June 2010, translated from Finnish[20]).

5.3.3 Setting the boundaries for contribution

As mentioned above, the Project Planning Game was the first rehearsal for applying design games in the Extreme Design project, and the partners were not invited to contribute to its design. By controlling the design phase of the design game, researchers' preconceptions about the possible stream of activities and phases that the case study could follow – in particular, the selection of the titles and methods – dominated the game compared to other participants' input. In this sense, the possible outcomes were predetermined within the boundaries given by the predesigned game materials and rules. Inside these borders, however, the project's vision was open to different points of emphasis and details in terms of the goals and means of reaching them.

In formulating the final project plan, the input of company representatives was fundamental, since it was the dialogue during the Project Planning Game that pinpointed people's distinct expectations from the collaborative project that project researchers needed to be aware of. In order to create a shared language that would support building common goals understood by everyone, the first step of the meeting was critical, in other words, the illustration of a typical development process as seen in partnering companies. It made researchers aware of the concepts used in the partnering company illustrated in the example below, whereas the second activity of collectively defining phases and methods deepened this understanding for both sides.

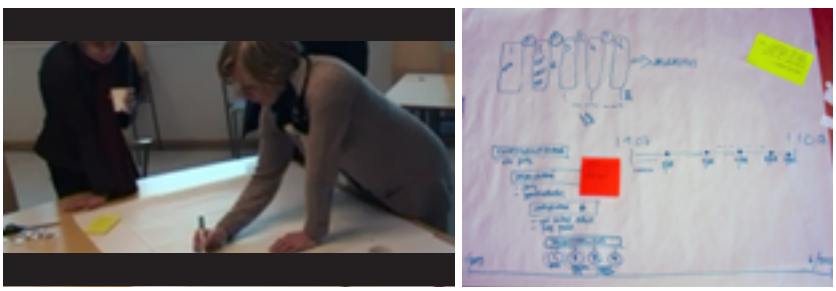
> Kirsikka: "*What does a business case contain? These are new terms for me.*" Project manager from KONE: "*It is... how to describe it... it includes what, why, to whom and then the business case. So what are the goals, and how to realize the plan?*" (KONE / Project Planning Game, December 2008, translated from Finnish)

[20] Ollaan tyytyväisiä projektiin, erityisen hienoa on ollut aktiivinen yhdessä tekemisen meininki puolin ja toisin - "co-creation meininkiä", on nyt ne palaset ja niitä on vähän kokeiltu niin se antaa mahdollisuuden tempaista sopivissa yhteyksissä erilaisia juttuja. (Original quotation in Finnish)

During the design games, the discussions reflected different levels of information from more abstract knowledge to concrete experiences. In the Project Planning Game these included: *1) the drawn description of a typical process contained information about the current situation, 2) participants past memories and experiences were introduced as anecdotes and examples, and 3) the evolving representation concretized an otherwise immaterial future and its opportunities.* Thus, besides explaining relevant concepts, the participants also contributed through their experiences and stories, which they shared while building a vision for the project, as the next example shows.

> Nina: "*Here is the project's steering group and then here [moving downwards on the paper] are the representatives from different business areas, and here is the project manager.*" Hannu: "*The end customers are not represented anywhere.*" Nina: "*No.*" [...] Hannu: "*If I return to what happened last time, I think it's relevant to memorize the previous project [the last time the bank reorganized its practices was about ten years earlier and Hannu was involved in it as an in-house consultant]. In that project, the design agency actually did involve an end customer point of view and they conducted some research, focus group discussions with the end customers or something. So the customer perspective came from there [design agency], instead of coming from any of these [he points to the different practitioners within the organisation mapped on the illustration that Nina has done].*"(OPK / Project Planning Game, March 2009, translated from Finnish)

Fig. 57



Nina describes a typical development process by drawing, to start with, the process of building common vocabulary and understanding an upcoming project.

The levels of knowledge introduced in the game show how the participants were not just performers acting according to a predefined storyline, but also *sourcers* who introduced topics for the performance, thus influencing the turns that the final storyline encompasses. Anyway, the researchers can be considered the main *producers* in the Project Planning Game because they had strong control over the game setting. A somewhat different approach was taken in the other two design games, where the participants were the main *sourcers and producers* in turn, as demonstrated next.

5.3.4 Letting user and interest group input dominate the performance

In the Character Game, the invited participants became *sourcers* when they, *first,* told their personal stories, *second,* during the design game when they reflected on their own interests and experiences related to the evolving game and role-playing, and *third*, when they brought in their professional and personal insights to guide the idea generation following the intensive role-playing part. While constructing the game world and creating the scenarios, they functioned mainly as *producers* by making connections between their own professional knowledge, other participants' insights and the design game material representing fragments of the senior world. When improvising the scenarios, everyone expect the facilitator, who acted as a producer throughout the gathering, was a *performer*. The dynamic relationships between being a sourcer, producer and performer in the Character Game are an excellent illustration of the mixed roles typical of co-design gatherings.

In all design games the starting point for the discussion is provided by the design game and the core performance is more or less dependent on the players' input. For instance, even though contextual photos and seniors' quotations triggered reactions in the Character Game, personal experiences and values along with the professional knowledge that people brought into the performance were the main means for learning during the gathering. Different perspectives and insights were needed to push the participants to reformulate the design task and come up with meaningful design drivers and personal discoveries.

> Participant 1: "*I would continue considering the colour coding and would place this [quotation card] over there [to the illustration of the future senior house on the wall].*" Participant 2: "*I need to tell a story. I was in usability tests...*" Colour coding prompts related memories concerning usability tests and how people are confused when they step outside the elevator about whether they are on the vright floor or not. This evokes discussion on possible solutions, such as using painted numbers on the floors as guidelines. (KONE / Character Game, March 2009, translated from Finnish)

The notion that people are easily confused when they step outside an elevator about what floor they are on would probably not have popped up without the discussions on colours and, thus, one of the player's professional insights on the topic. The example illustrates how the discussions typically evolve during the design game, triggered both by the game materials and by the participants' comments and experiences. An occasion from the Storytelling Game below also demonstrates how design games invite different participants' experiences and shape them into a single representation, for instance a story.

> Researcher/facilitator: "*Ok, so we have 55-year-old Anneli, an account manager, whose relationship status in Facebook goes wrong: she accidentally announces being engaged even though she is not. What happens then?*" User 4: "*Acquaintances send congratulations, whereas closer friends are horrified.*" [...] [Laugh] [...] User 1: "I*'m wondering if, at least in our office, someone is getting married or something, and emails circulate around when we try to come up with how to celebrate the happening. [...] Next Friday, there would be bottles of sparkling wine after lunch.*" User 4: "*I could think that my mother, for example, who has just divorced my father, that if she would put that kind of status update it would be quite a shock – for me at least.*" (Storytelling Game with Palmu Inc. and Itella, December 2009, translated from Finnish)

The above snippet illustrates how the participants shared their own experiences when developing the storyline. Because of the vague starting point, with loose boundaries, the participants do not have any options other than building on their own experiences and using them as *constructing blocks* in the game. Therefore, when compared to the Character Game, where the story was fed by user study data, the participants' own experiences have different meanings. Whereas in the Character Game reflecting on one's own experiences (professional and personal) during the game aimed at evoking empathy and emotional connections with the seniors, in the Storytelling Game the participants' own experiences were the main constructing material for the representation (the story/scenario from user's point of view). Hence, the co-constructed story united fragments from several users' perspectives into a single consistent description that worked as a source of inspiration for the designers.

In many design games, such as the Character Game and the Project Planning Game, the rules are used to allocate turns for the participants so that each has equal opportunity to contribute, but there are also design games that evolve without participants taking turns. In the Storytelling Game, participants didn't need to be equally active and the most silent ones became *partakers* who followed the performance of others

and only momentarily stepped into the game as a sourcer and performer. For instance, an older man in one of the Storytelling Games played out in the OPK case started as a mere *partaker* by silently listening to others' discussions and performances, but later, when he became more comfortable and confident with the situation, he intervened in the storyline as a *sourcer* by sharing his experiences and opinions as well.

Giving a participant room to start as a partaker may be valuable, especially for occasions that involve users with very distinct experiences and ages. Based on my own experiences, most people become active at some point and want to share their insights, although they might be hesitant in the beginning. It is important to remember that co-design gatherings are novel situations for most participants, especially if those situations are built on direct user involvement. Consequently, some time to tune participants in for co-design is often needed, as was discussed earlier (e.g. Sleeswijk Visser et al. 2005).

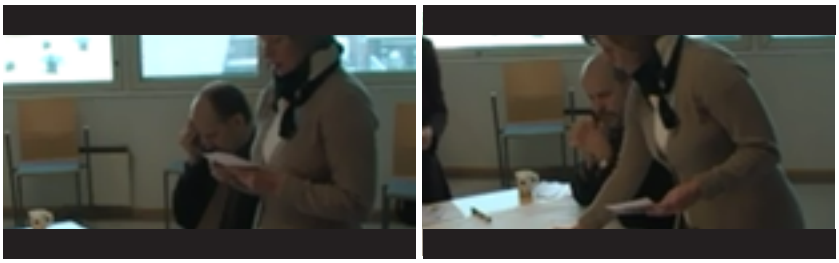
5.3.5 Rules for interaction

Besides the design game material, the rules may be seen as tools from the facilitators' point of view since, in their strictest form, they define the structure for the interaction and the progress of the game. In the Project Planning Game we applied board game types of written rules, whereas in the later games the rules were looser and came from improvisation, as Caillois (1961) has proposed. In the Project Planning Game the rules described how to proceed between collective activities and an individual phase, and when the discussion and moves should progress through turn taking. However, they were not fundamental in driving the course of action; rather, they worked as a starting point for the interaction by *supporting and explaining what the design game was about and how it would progress*.

For example, as was described in section 5.1, the two participants from OPK didn't use the opportunity to individually choose the most interesting methods and, at the same time, bring in their personal wishes, but proceeded together "against the rules" throughout the game (Figure 58). Perhaps teamwork gave them confidence, since they were not familiar with co-design or its methods prior to the gathering. This didn't spoil the performance; on the contrary, it already provoked fruitful discussions that took place together with choosing the methods. This shows the usefulness of flexible rules that can be adapted differently according to specific situation and needs.

Another type of meaning attached to rules can be illustrated through the Character Game. In that design game, written and printed rules worked as a memo for the facilitator by including the first scene that was read aloud as an example for the players. Otherwise, the improvisation and role-play guided the actions during the performance. The rules explored in the Storytelling Game can be referred to as fixed elements (Johnston 1998/2005, pp 24–52) or frames (Schechner 1988/2003,

Fig. 58



Participants started to go through the method cards individually according to instructions (left side), but were soon working as a team by discussing and negotiating where to put different methods and why (right side).

pp 12–19) since they only described the *context, title* and *goal,* but let the interaction proceed (naturally) by letting the players propose the material for the story and, on the side, share their own memories and experiences. Since the turns were not allocated by the rules or the facilitator, there were more active and passive participants, as discussed earlier, even though ultimately everyone contributed to the story.

By experimenting with different strategies attached to the rules in the above-mentioned design games, I find rules to be a fundamental characteristic of design games and a necessary attribute of the Play framework. However, they should not be taken strictly as the written and printed rules we are familiar with, for instance the board games we are familiar with from our leisure time; instead, they should be regarded as *tools in designing the interaction for the design game* that can be displayed rather openly for the players. While performing or playing the game, fixed elements define the overall boundaries, which are flexible and open for reinterpretation according to the particular co-design gathering and the people in it.

5.3.6 Several insights embedded in the resulting design representation

In co-design gatherings everyone's input is relevant and, thus, design games have been designed to combine different people's insights into a representation that can be for instance a performance or a story, and to provoke responses to others' reactions. Brandt (2001, p 69) has proposed that workshops should allow participants to challenge each other's views, and since mock-ups appear differently to different people, their role is to invite and provoke such views. As the above discussion demonstrated, design games and the game material serve the same purpose. What differentiates design games from most mock-ups is that they may also gain their visual form during the game, co-constructed by the participants, as was the case in the Storytelling Game, where the storyline visualised by post-it notes on the timeline was considered the representation.

To summarize, co-design participants have a huge influence on the outcomes, regardless of the preparatory work that is needed to give some predefined boundaries to the design. By giving participants an active role in creating the performance, the roles of *sourcer, producer* and *performer* become mixed. These roles may be explicitly given, but most often they are unconsciously taken based on the rules and materials of the design game. Therefore, they can be seen as a tool for the researcher to consider possible roles when designing the gathering rather than as something to be manifested in the co-design.

However, by mixing roles the scenarios that emerged during the three games – *the Project Planning Game focused on envisioning the coming project, the Character Game resulted various scenarios with regard to seniors, and the Storytelling Game built up scenarios from the perspective of particular characters* – were co-constructed by the researchers, whose predesigned material gave starting points for the incidents and the players who selected, combined and reframed the given material into novel stories that applied their insights spiced up by the conversations during the gathering. With regard to the Play framework, the game materials are not evidently visual, but fixed elements, such as the title for the story or the given context and focus, can be considered as design game materials.

5.3.7 Constructing a shared perspective

When considering co-design gatherings as one-off performances, where most participants are invited momentarily to contribute to the design process, the aim is typically to invite reactions to the topic under focus and to trigger new reactions from others who are present, not to build a mutual understanding of the goals at large. One way of seeing user data, then, is to use it as a strategy to evoke various responses instead of considering the data as building material for a coherent account of *what is* (Halse 2008, p 101). Prompting reactions is seen as a key for constructing the new whole, where every participant's insights meet and become mixed and questioned to build up future opportunities (Mattelmäki et al. 2011). In this process hands-on explorations, where participants search for new design openings by creating possible connections between the fragments of data and participants' subjective insights, are essential. Design opportunities, not to mention the solutions, are often not revealed by observing; rather, there is a need for active data processing and reflection (this was illustrated in **Figure 55** on page 186).

The process of building various representations employs participants' perspectives and conceptions, but at the same becomes more than just the sum of these perspectives and conceptions. Let me give an example of how the group of people developed their thinking about senior houses by being stimulated by the discussion they had been triggered by the user data, and the dialogical process of naming their ideal future senior house. In the example below there are two women from SATO, one man from KONE

and one from YIT, referred as *Players 1, 2, 3 and 4,* and the researcher as *facilitator*. They are trying to come up with a good and descriptive name for the future senior house where the role-play will take place.

> Player 4: "*Could we approach it by writing down the goals of the house? If it fulfils the three requirements - easy to move around, safe and services nearby or in it - we can speak of a qualified senior house.*" [...] Player 3: "*What we have been talking about in our R&D is that "why senior house?" They are intended as well for people in their fifties; senior is a word that no one wants to be associated with. [...] I would try to come up with something positive [...]*" Player 4: "*[...] aren't these things [accessibility, safety, services available] applicable to all - regardless perhaps of the nursing services?*" Player 3: "*We are actually talking about the future housing buildings.*" Player 4: "*Exactly: Style, safety – everything we have been discussing makes really strong arguments.*" Player 3: "*[...] especially families with children have similar challenges as walking with a walking aid.*" (Character Game with KONE, March 2009, translated from Finnish)

The above scene exemplifies verbal interaction as a means of developing collective understanding on the topic. Instead of just giving some name to the senior house, the participants critically consider a name for a future senior house that is both appropriate and inviting by starting with the most obvious principles, which include accessibility, safety and readily available services. Gradually, by building on other's comments, the participants develop a common perception of senior houses as something that could be targeted for anyone, especially for families with small children. A key discovery seems to be Player 4's question – *"aren't these things applicable to all?"* – which causes Player 3 to reframe the focus from age towards that of future apartments. In the following discussion, Player 4 supports this view by referring to his professional experiences with modern technology in apartment buildings.

> Player 4: "*[...] from the constructor's perspective, I can tell that those solutions from forerun senior houses have been applied to apartment buildings targeted at a wealthy population – the more premium the building, the more certain you are to find these things. There are automatic doors, access control and electronic locking systems at the doors and [...] just because these elements have been introduced [to the building], we should not stigmatize them as being targeted just for elderly [...]. [...]*" Facilitator: "*So what could be the name then?*" Player 1: "*How about Many Ages*" (in Finnish Monta Ikää). Player 4: "*Yes, that sounds good.*" Player 2: "*It is good.*" Player 3: "*Yes.*" (Character Game with KONE, March 2009, translated from Finnish)

The co-constructed view on senior houses indicates the shift from perceiving senior houses as something negative to considering them as forerunners of technological and service solutions. This formulating is based on participants' professional insights, the personal experiences they have been sharing among the group as well as the user data provided by the researchers discussed when creating the game world. Later on, after the role-play, the same group defines an appropriate design brief for idea generation similarly through a collective process. They have decided to focus on semi-public places within the senior houses, but the facilitator wants them to be more precise about what it means and why it is meaningful for design.

> Facilitator: "*Let's think once more about why we ended up with the topic of a semi-public place?*" Player 3: "*Let's put it this way – there should be a place to share experiences and thoughts.*" Player 2: "*And to gain inspiration from others.*" Player 3: "*Now we will go to the cafeteria, but perhaps older people can't go that far from home.*" Player 4: "*Did you notice the article in Hesari [a newspaper] some time ago about the building block with various green areas, etc., designed for social meetings? Not like traditional Jakomäki [a residential area in Helsinki], where everyone stays in their apartments.*" Player 3: "*To improve social interaction.*"
> Player 2: "*At the same time, it's about safety as well.*" Player 3: "*Yes, a feeling of safety. The relatives know that one doesn't need to be alone, but can go there [to the semi-public meeting place]. But there is another side as well – if one doesn't want to be with others [...], one can still stay in his/her own apartment.*" Player 4: "*That is an important point as well.*" Facilitator: "*Would this be clear enough? The design task is to improve social interaction and produce safety.*" Player 3 corrects him: "*Feeling safe. [...] actual safety is different.*" (Character Game with KONE, March 2009, translated from Finnish)

Like in the earlier example, the comments continue from the previous ones and, by adding new aspects, they create together a more holistic reasoning for why semi-public places are relevant for design focus. Since most of the design games discussed in the dissertation were performed during the concept search phase of the design process, the outcomes that can be meaningfully utilized to inform the design process are still rather open in nature, including alternative frames regarding what the design brief could be or topics that need more attention, as the above scene also demonstrates.

5.3.8 Insights through role–play

One common denominator for the design games developed in the Extreme Design project was the awareness of people's different standpoints on the topic under focus and providing alternative ways of approaching the topic through predesigned game materials and the special roles appointed by the game. Thinking about the topic from someone else's perspective promoted empathic understanding and exploring design opportunities whose relevance went beyond the participants' own needs. Role-play was also used to introduce *a play spirit,* with the connotation of being outside of real life's boundaries in order to support openness to new discoveries.

There are different strategies for utilising role characters in design games. In the Character Game everyone had their own role character, whereas in the Storytelling Game the design was reflected from a shared role character's point of view. Nonetheless, in both games the actions and topics were considered as reflections of the participants' own values and experiences and the particular character's point of view. The depth of the created roles varied; however, the next example, where one of the participants in the Character Game introduces her role character, illustrates some of the aspects usually touched upon.

> "*I'm Viivi. [...] I was born in 1930 and I have been working as a tax officer. [...] Attitude is positive explorer after I got rid of the tax officer's job. The reason for moving into the senior house was to get closer to happenings, to get into social circles. [...] [Laugh] A central event in my life was when I retired on a disability pension when I was fifty years old and I could start to visit cultural events. [...] I have a son and a boyfriend [...]*" (Character Game with KONE, March 2009, translated from Finnish)

The roles provided one source to draw from during the performance and idea generation. However, to allow the participants to develop their understanding of the topic while maintaining its relevance to their work practises, I think it is not enough to step into someone else's shoes. Instead, I propose that the players utilize their professional and personal competencies and interests in line with the experiences gained from the role-play. For example, in the Character Game this was reached by encouraging the participants to change back to their professional position when they continued idea generation after the role-play.

How insights and information from several sources came together in practice is next demonstrated by several snippets from my account describing the Character Game. As has already been pointed out, participants co-constructed the view and the design brief gradually on the basis of their earlier conversations and comments. As the below examples indicate, the scenarios and following performance touches upon the same themes and concerns, but with a new twist; the perspective makes the

players take standpoints that are different from their professional views – whether they see their value or not. Performing also requires active involvement instead of remaining a spectator, thus engaging all of the participants in the situation and supporting an intensive play spirit.

> Player 4 introduces the scenario: "*[...] there have been people in bypass surgery and Kauko has fallen down in the garden [he refers to previous scenarios]. [...] A couple of years have passed and there is a need to pay more attention to the accessibility issues within the building and in the apartments. [...] we should find consensus about what is most important for us.*" Facilitator: "*Think about the location; where this happens, who are present and how it ends.*" Player 4: "*We meet with Oskari in a garden; from there we move to the staircase to discuss the situation. Then, the girls could step into the conversation. And it could end so dramatically that Oskari staggers on the stairs and will be taken away by ambulance.*"
>
> Player 4 starts the performance: "*Hello, Oskari! [...] How are things going?*" Player 3: "*Well, I have been worse.*" Player 4: "*It's raining slightly, should we go inside for a small chat?*" Player 3: "*Well, why not, there is no hurry anywhere.*" [...] (Character Game with KONE, March 2009, translated from Finnish)

All of the preceding actions during the co-design gathering paved the way for creating and acting out somewhat relevant scenarios with regard to emphasising life in the senior house as a dynamic system of happenings emerging from the divergent abilities, personal attitudes, histories and values of the people living there. Instead of staying at the level of discussion, the scenarios are put into action as one strategy to generate personal discoveries coming from inside experiences rather than as given from the outside. The idea was illustrated previously in Chapter 4 by referring to Turner's (1987) notion of performing ethnography (see page 150). The point is to put the participants more fully inside the topic they are trying to understand. The example below, taken from the middle of performing a scenario as framed in the above example, demonstrates the role-immersion and "I perspective" as it emerged during the play.

> Player 4: "*[...] How about that outside door – that is awfully heavy.*" Player 3: "*Let me show you how it works. [He pretends to grab an imaged door handle.] Uuups!*" His grasp slips and he pretends to fall backwards. Player 4: "*Well, here we are! [...] I just wonder who will get Oskari up again.*" Player 3: "*[...] it hurts so much.*" Player 4: "*And how could I pick him up when I can hardly stand myself. [To illustrate his lack of stability he swings in his chair back and forth.] Let's just call the ambulance.*" Player 1: "*But it's so expensive – the calling [...].*"

Player 4: "*I have my mobile phone, let me just take it out [he acts out taking the phone from his pocket and putting it to his ear like he is calling someone.] We will need an ambulance over here, to senior house Many Ages [in the background Player 3 still wails].*" Player 2: "*The address is Kielotie.*" (Character Game with KONE, March 2009, translated from Finnish)


The players' acts in the above snippet also indicate the point of reaching the intensive *play spirit*; they change their tone of voice, use body language in addition to verbal dialogue and talk over each other. Through improvisation, they create the final storyline together within the boundaries of the given scenario. The performance seems to be intriguing enough to maintain the shared focus without having visual game materials other than a picture and the name of the role-character in front of the players and a printout of the weekly timetable illustrating activities in the senior houses. The players didn't lose their attention during the performances, perhaps because each one was an active performer in all of the improvised scenarios, although it was advised that not every scene necessarily needs to engage everyone. From the Play framework's point of view, this demonstrates the possibility to also have a shared focus of attention without visual references if the action is captivating enough. Accordingly, I argue that game material is not *necessary* for evoking a play spirit in design games, even though it may support the actions in several ways, as has been discussed earlier.

The purpose of role-immersion is to evoke personal discoveries to be used in idea generation. When role-play and personal interests are partly separated, the participants need to consciously reflect on their experiences from the role immersion. Further, it supports taking the user perspective into consideration and discussing it. However, many ideas are generated already during the performances. The dialogue given below points out some of the observations that the role-play prompted in the players during the Character Game.

> Player 3: "*It was an interesting notion for me that we talk about the senior segment [at KONE], even though their needs are even more various than with any other [user] segment. Seniors have such long and diverse histories, different ways of approaching things and various needs, which make finding a synthesis between them pretty challenging. [...] If we want to provide some product or service for seniors, we should think about how it should be provided in the first place [...]. Those [solutions] should be quite modular. Somehow, people's personality in an apartment building should be considered. [...] This came to my mind when we discussed whether we would take a safety stove, the Internet or a microwave oven [in the scenario].*"
>
> Player 2: "*For me, the most interesting scenario was the one where our role characters smelled smoke in the corridor and then the meetings where the problem of finding a consensus occurred. [...] Well, safety is probably what people are looking for from this kind of house – and then of course the friendships.*" Player 4: "*Yes, that aspect [the friendships] emerged prominently.*" Player 3: "*Yes, the collectiveness – 'our group'.*" (Character Game with KONE, March 2009, translated from Finnish)

Since almost every participant's work was somehow related to the senior houses, gaining novel views on it was considered a possible challenge. To make participants rethink senior housing, the stories were placed in the game reality, but the motifs and content were drawn from the user data, and the created scenarios reflected the players' own experiences, assumptions and attitudes as well. Thus, the play-qualities and game material were used to locate the gathering out of everyday routines and provide a change which might open up new discoveries. This illustrates how design games allow elements to be combined from different realms to open up new perspectives for the participants. Thus, they work well in communicating user data while simultaneously evoking participants' own experiences and insights on the topic; the participants turn into active producers of the data instead of remaining as passive receivers of it. Furthermore, they become more aware of their presumptions as they relate to the users or topic under study.

What Schechner (2006, p 124) proposes is that in performances, play and games, the reactions of performers and audience are actual even though the actions that trigger these reactions are fictional. So there is the reality of artistic production, the performance and the domain of emotional response. This is also true in many design games which build on storytelling and performing; even though the story as such is fictional, the happenings and themes emerging in it elicit actual reactions, opinions and emotions (in the participants).

As has been mentioned previously, role-playing in its various forms is valuable in terms of the emphasis it puts on other person's perspective, thus working as a tool for empathic understanding. As shown in this chapter, the role-play made the participants think about the topic from the users' not service providers' point of view underlying human aspects in the different incidents that occurred during the game. Player 3's interpretation of the versatility of seniors as a user segment, as well as the following notions about the importance of friendship, illustrates how the players were able to take a human-centred standpoint throughout the game.

5.3.9 Role–playing as a strategy for human centeredness in co–design

As Goffman (1959) has pointed out, we always have some role when we are in the presence of others. However, the roles appointed by the design game can guide one's concentration towards a given subject in a similar manner as the game metaphor drew attention to the play-qualities. For instance, as was shown through my account of the Character Game, the players who normally approached design tasks systematically and rationally found another point of emphasis when having the seniors' lenses on. The fundamental idea of co-design is to learn from various expertises, experiences and perspectives, and not to provide a mould that produces stereotypical or average views and behaviour. Therefore, we have found it meaningful to have interplay between the natural roles people assume when they come to the co-design gathering and those given by the performance in order to make the participants more aware of their perceptions about the topic of interest.

By assigning players a particular viewpoint through role-playing or telling a story, design games aim at providing a glimpse of another world in order to potentially evoke empathy and human-centred thinking instead of ethnographically correct information. The user data snapshots or the participants' real-life examples have their origin in people's lives, thus they include a reference to reality, even though they would present fragmented information filled in by the imagination of the participants. Taking the role of someone else pushes the participants to reflect the image of another, for example seniors, while shifting the position between me and not me. According to Schechner (2006, p 72), during the performance the performers live a double negative; while acting, they are neither themselves nor the role-character, and yet, at the same time, they are a bit of both.

Fig. 59

One group presents names and images of their role character after the Character Game.

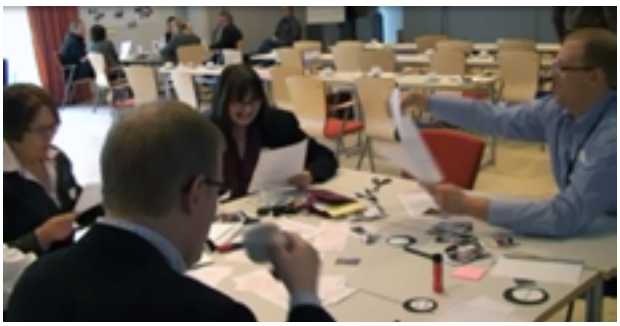
5.4 Transporting participants into another world

As has been illustrated already, co-design gatherings are special occasions with a certain *set time* (Schechner 1988/2003, p 8) that provides the boundaries within which the activities need to fit, that is to say, the gathering starts and ends at a given time regardless of whether or not all the planned activities have been accomplished. It is the task of the facilitator to work as a time keeper; hence, the activities should be flexible enough to be called off when needed. A set time limit is typical of any social occasion with predefined unfolding activities, but unlike typical meetings, design games also imply *symbolic time* (ibid.) as a means of supporting a *play spirit* and an opportunity to move in time.

It has been proposed (Johansson 2005) that design games help to create a relaxed atmosphere since participants can relate to the games they have played for fun and thus obtain a similar attitude. However, as discussed earlier, design games may not always resemble actual games that much; therefore, the connection is not necessarily self-evident for the participants. The *play spirit* connected to the games is relevant in order *"to transport the participants into another world"* (Huizinga 1950, p 18) where uncertainty and imagination are allowed. One way of promoting the play spirit and, hence, a magic circle for the participants can be done by *introducing the design game materials,* as the next example from a dialogue following the distribution of the methods cards indicates.

> Nina browses through her cards and says: "*What if I have all the best cards?*" Everyone laughs at her question. [...] Hannu: "*Would you change one Process Mapping?*" Everyone laughs at the proposition and Nina comments: "*I would have The Evaluation.*" She shows one of her cards to Hannu, who responds: "*Oh, you too have a Joker.*" They laugh and joke for a moment and then start reading the cards in silence. (Project Planning Game with OPK, March 2009, translated from Finnish)

Like Hannu and Nina, who began joking and laughing after receiving the playing cards, the players in the next example, taken from the Character Game, seemingly change their manner from that of professionals sharing insights to *homo ludens, that is to say, playing humans* when choosing and filling in the character templates, in other words, creating their role characters.



> Player 1: "*I want to be the lonely woman.*" Player 2: "*I could be the dull chairman of the residence board*". They joke and laugh while choosing the characters. Player 3: "*This is mine [keeping one of the templates that she has in her hand].*" Player 4: "*Good, I can then take what's left.*" Pekka takes the last three templates from the table and looks through them. The facilitator provides images of seniors and gives some guidelines on how to proceed. They start to fill in the templates and, after a while, they start joking about the influence that people's birth cities has on their personality and behaviour, for example how people from Savo are funny and people from Häme are slow [different areas of Finland]. They laugh while speaking and creating their role characters. (Character Game with KONE, March 2009, translated from Finnish)

Besides using the visual game material as indicators for the magic circle, as in the above examples, a playful mood can also be promoted through a *special ordering of time,* as was done in the Character Game.

> The facilitator reads aloud the pre-created description of the role-play context: "*It is a beautiful spring evening in 2012. The sun is shining and the snow is melting. Pedestrian zones are glimmering from the melting ice. Your happy group lives in a senior house outside central Helsinki...*"
> After giving the background and set the stage for the role-play, the game will start and approximately seven scenarios will be developed and performed. In one of the performed scenarios one of the

> role characters, Oskari, has fallen down and has been taken to the hospital. Now, the Player who in turn continues next scenario after that says: "*It has been some time now [...]. While Oskari was in the hospital, the other residents of the senior house Many Ages have woken up to the accessibility issues and it has become the best senior house in Finland. We meet in the corridor, as usual. I [Oskari] will be there for the first time [after the accident and being in the hospital] and you will start to introduce all of these great future visions, and you will speak very highly of them.*" (Character Game with KONE, March 2009, translated from Finnish)

In the above example the *symbolic time* was employed in two ways: *Firstly*, the participants were guided to think ahead three years from now to give room for re-imagining happenings and technologies but avoiding extremely futuristic ideas. Also, the scenario building was supported by the weekly timetables, which presented organised happenings in the senior house on a weekly base. *Secondly,* the participants started to follow these strategies while they were developing the scenarios, as the second script above illustrates; the first line *"it has been some time now"* indicates the leap in time compared to the previous scenarios already played out in the game. This leap even further into the future justifies the proposition that *"great future visions"* have taken place in the senior house, and at the same time, activates the other group members to think about what those visions could be, when the player states *"you start to introduce these"*.

According to Schechner (1988/2003, p 105), *"... performances are means of continually testing the boundaries between play and 'for real'. [...] 'Play frame' – which most observers note in both human and animal play are signals that the behaviour taking place within the brackets is 'only play'"*. With regard to co-design gatherings, it is not only to show the others present that one is just playing, but, by recognizing it, the player her/himself may become more open-minded to new things, to tolerate "foolish" behaviour and to utilise all the creative potential within him/herself (Johnston's 1998/2005, p 43). In addition, using symbolic time supports envisioning other realms outside the actual meeting room where the play takes place.

Halse (2008, p 78) has pointed out about envisioning the future that the *"images are evoked that could represent the future. [...] It is still a vision, but through concrete enactment it attains very real properties; if skilfully performed, it can be experienced through all the senses"*. Designers are educated to imagine non-existing – moving between realities and possibilities – but when a co-design gathering involves everyday or ordinary people, to use Sanders' terms (2001), there is a need to understand the establishment of time as a *"release from the familiar"*, as proposed by Halse (2008, p 77). All the design games developed during the Extreme Design project rehearsed setting the performances in game realities. The first, the Project

Planning Game, mainly utilised *design game materials as indicators of the magic circle*, and the game realm was closely related to the project timeline; that is, it focused on what would be done within the next months. The Character Game concerned more dynamic setting, where the real and a sense of play became more mixed as people changed between their professional position and role characters. Accordingly, role-immersion was part of the performance to symbolize a third persons' point of view, unlike in the Project Planning Game, where the participants kept their professional standpoint throughout the gathering.

The Storytelling Game concentrated on symbolic time and the fictive persons in the developed scenarios or stories. As a result, the main character, whose point of view the storyline reflected, was not any particular participant, but combined qualities and experiences from all the players. In the below example from the Storytelling Game, the task has been to tell the story of a fictive person who takes health insurance from the bank. I have summarized the dynamic process of telling the story as a short storyline with the main points illustrating symbolic time in the storytelling. Details and service ideas are outside the scope of this dissertation and, hence, they are not included in the summary.

> Paavo is a bit over 30 years old, a single father who lives with his two kids, a seven-year-old son and a four-year-old daughter, in an attached house. [...] The story starts from a situation in which Paavo wants to have better health insurance and so he contacts the insurance company. [...] The story evolves and they move three years forward in time. Paavo's life situation is even better, since he now has a new girlfriend. At this stage, they don't see the need to update any of his insurances. [...] Again, the story evolves; Paavo is now 50 years old. The girlfriend leaves him and the children have moved away from home. Paavo has gotten a job and he buys a new motorbike – a Suzuki 1000. For that, he needs new insurance and a loan. (Storytelling Game with OPK, May 2009, storyline is written based on the Finnish transcription)

The reason that symbolic time is appealing for co-design is its ability to transform the participants into another world and, thus, at its best, it may work as scaffolding for creative interplay between *reality* and *play*, in other words, between the existing and the non-existing. It is one of the strategies to promote a magic circle in order to create an explorative and intensive play spirit for the participants, and, accordingly, encourage out-of-the-box thinking without the current technological, professional and practical restrictions. This is an essential part of the concept search in order to reach innovative ideas for the following concept design. The experiences given above indicate that when building a scenario from the

envisioned person's perspective like a special role character, it seems to be easy for the participants to take leaps in time and discuss things that *might be* in the future.

To conclude, symbolic time allows participants to *move between the past* (memories, experiences), *the present* (the situation at hand) *and the future* (imagined, dream situation, *what if*) while playing the design game, since the performance can represent another span of clock time, as proposed by Schechner (1988/2003).

5.5 Revising the Play framework

In this chapter, I have pinpointed some central qualities of design games when they are applied in co-design to create a wider understanding of the topic under study and guide the design accordingly. Examples from my account have been used to demonstrate how several types of knowledge are shared and created during the design games, including 1) *the personal experiences* while co-constructing a common user representation (e.g. a storyline), 2) *the participants' professional knowledge*, which is reflected in the other player's claims and the given design game materials, and 3) *various design ideas* prompted by the intense discussions.

In order to reach the three types of knowledge, various kinds of visualizations have proved to be meaningful. Whereas previous literature (e.g. Brandt 2006; Johansson 2005) describes design game materials as *boundary objects, things to think and act with, a common language and stimulus for exploring alternatives,* my analysis in this chapter provides more detailed knowledge on the characteristics of the design game material. First of all, I have shown that design game material can be either *predesigned* or *generated when playing the game*. It is a *visual reference for shared focus of attention*, but instead of just establishing and maintaining the focus, design game material may also serve as a distraction that prevents users from collaborating; this was illustrated through the example where one participant's attention was so fully engaged by the materials at hand that he did not follow the common discussion. In order to use a visual reference as a strategy for collaboration, it is important to be aware of possible distractions and to re-establish a shared focus of attention when necessary.

Design game material also serves as *a way of documenting* the discussion, decisions and ideas represented in the form of co-constructed user representation, which work later on as *a reminder* for the participants. During the co-design gathering, evolving representation *illustrates the progress* of the gathering. Furthermore, if materials are used that have *game* connotations such as playing cards, they serve as *visual indicators of being in a special game world*, a magic circle, and hence support the play spirit.

Based on my analysis, **Table 6** below presents the characteristics of design game materials. They should not, however, be viewed as being in-

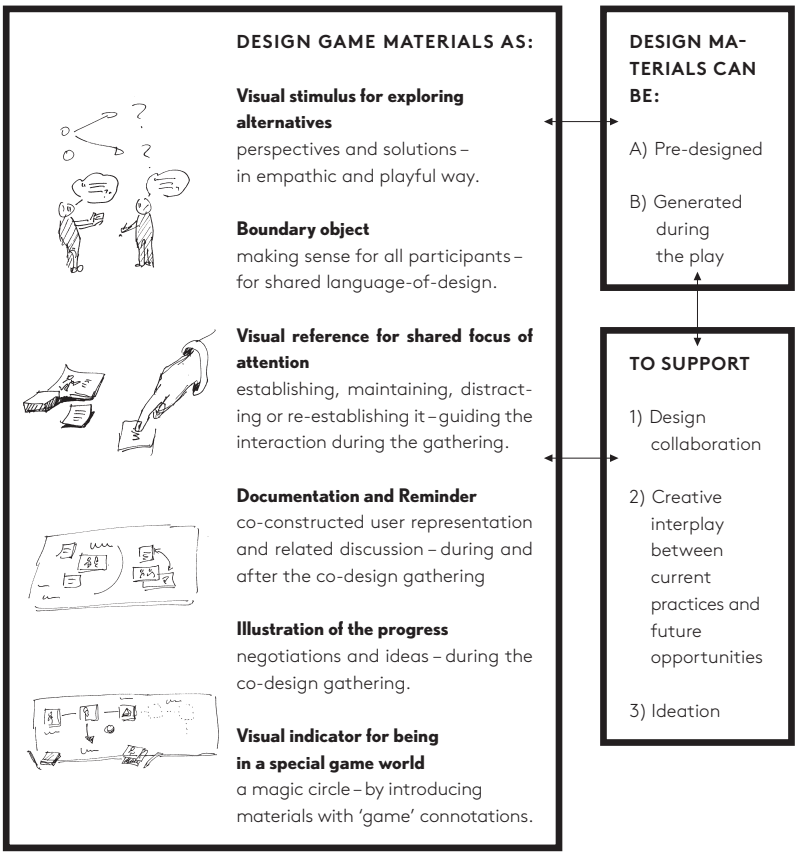
dependent from the overall application context, co-design and the three topics that I have explored throughout my research journey: collaboration, creative interplay between current practices and future opportunities, and idea generation. Instead, design game materials aim to support these three themes, with some characteristics being more important for a particular theme than others. I do not think that it is possible to make a clear distinction between the aims and characteristics of the themes, since they overlap in many ways.

For instance, on the one hand, design game materials should provide a shared focus of attention and a common language of design in order to invite the participants to be explicit about their views, understandings and attitudes as a means of enhancing design collaboration. On the other hand, a shared focus of attention and a common language are related to visual stimuli that provide reference points for discussion, enable participants to move between fragments and a holistic view, document progression and decisions and make it possible for participants to compare alternatives in order to support idea generation. A shared focus of attention and visual stimuli are also important in the interplay between the present and the future, although this objective is largely supported by promoting the magic circle through the playing cards, etc., which are typically associated with the games' make-believe world. Whether you choose to provide predesigned material or generate it during the design game depends on the most dominant objective in line with other contextual requirements and needs. The arrows in the table illustrate the relationship between the three parts.

Although design game materials have several benefits for co-design, my analysis reveals that tangible and visual material is not obligatory for creating co-constructed user representations which in my dissertation either take the form of a tangible outcome, verbal storyline or performed scenario. This may sound controversial in light of many claims that highlight visual and tangible design materials as *things-to-think-with* or *to-act-with* (Brandt & Grunnet 2000). My experiences from the "Situated Make Tools" study and "Co-design as embodied practise" presented in Chapter 1 were in line with views that emphasise the importance of tangible props when acting out scenarios. Whereas in those scenarios the tangible design material played an important role in idea generation, one that was on par with the performance, the experiences presented in this chapter show a different way of utilising performance in design, i.e. by verbally creating common stories and scenarios.

For example, in the Character Game the props were used to initiate scenarios, which were then improvised without any tangible materials. This approach can be described as *"imagination-in-action",* to paraphrase community drama director Chris Johnston (1998/2005). *"Imagination-in-action"* highlights the evolving process of constructing ideas that are open

Table 6



Design game materials have many characteristics that are related to the overall objectives and whether they are predesigned or generated during the play.

to both tangible and intangible methods. Thus, I find it useful in design games that build on storytelling and performing, whether it is used with or without any props. This claim does not diminish the value of various props in co-design. Instead, I want to point out that there are two ways of performing in design: one with a strong focus on bodily actions and props and one that is based on verbal storytelling without necessarily employing any props. Both of them include role immersion, which I find to be at the core of empathic design and finding a personal viewpoint on the topic.

When inviting people to contribute to the design through design games, different types of knowledge become mixed together, resulting from the way they are used as collaborative sketching material in a similar manner as Johansson (2005) proposed with regard to video snippets. This can be described by pointing out the interplay between the four roles introduced by Schechner (2006, p 225), as was done in section 5.2. Even though all design games differ in how they bind inputs from vari-

ous people and what information is emphasised, they typically give participants triple roles of *sourcer, producer* and *performer*. Playing the role of *sourcer* involves bringing a participant's own experiences, attitudes, stories, and so forth, to the performance, whereas the role of *producer* involves connecting one's own experiences to other players' experiences and to the game material, which may also represent users' claims. The role of *performer* includes improvising, acting out and co-constructing *what if* situations.

Mixed roles allow participants to contribute to the design in several ways, since they are both invited to share experienced incidents and to imagine dream situations without practical everyday limits. To support moving between past memories, current reality and future dreams, design games promote *symbolic time*, as was shown in this chapter. This is necessary since design always looks forward, even though it tries to understand the past and present as grounds for the ideas. In other words, design games ground discussions in reality but take advantage of imaginary aspects, similarly to how Ikävalko and Martinsuo (2000) proposed that some simulation games do. Since symbolic time allows moving in time, it also invites creative interplay between reality and imagination. Thereby, the process of considering ways to introduce, establish and maintain symbolic time may support the act of envisioning what could be in the future.

Based on the examples laid out in this chapter, the notion that in design games actions are governed by rules needs to be slightly revised. As was pointed out in Chapter 3, rules determine what holds true in the temporary game world; they tell what players can and cannot do and are special for many design games compared to other innovative methods and workshops. However, according to experiences discussed in this chapter, I argue that rules do much more than just guide the interaction that can be also supported by the visual materials. Rules have special meanings as a research tool both before and during the performance. By pre-designing the rules, the researcher considers early on how to help people to enter into the game world, for example by providing appointed turns or role-characters, what are the goals that should be achieved by playing the game, and how to reach them. In co-design gatherings, the rules work as a script in screenwriting, helping to explain what the design game will be about.

In all games it is important to set a clear goal to create meaningful play, and the rules explaining the games should not be overwhelming (Salen & Zimmerman 2004) or they might focus players' attention more on the rules than on the content and activities the game is striving for. This may sound easy but it is not, since the topics in design games are ambiguous, like role-playing seniors in order to gain an empathic understanding and find fresh opportunities for B2B partnerships. In any case, the players must deal with some level of uncertainty, but the meaningfulness of the play and participation in it should be clear. Rules that are well

thought out may serve that purpose as well. Besides giving the structure for the game and guiding the interaction within it, rules are important in design games to indicate stepping into the magic circle; in other words, they highlight the opportunities of play, with its own realms and customs. Table 7 summaries the roles of rules in covering the other, above-mentioned purposes, as well as in guiding the types of interaction proposed in the existing literature on design games (e.g. Brandt 2006; Johansson 2005).

GUIDING THE INTERACTION THROUGH RULES THAT ARE BOTH EXPLICIT AND THAT PRESENTS SOME FIXED ELEMENTS (SUCH AS TITLES, CONTEXTS AND CHARACTERS)

Table 7

1) To explain the basic idea of the game
instead of strictly guiding the actions in practice, by describing the aim, the goal and the progress of the game.

2) To provide starting points for the interaction
by describing who starts, how the interaction evolves (e.g. in turns) and what the assigned viewpoints are, if there are any.

3) To activate all participants in the game
by allocating turns or through appointed roles.

4) To promote being in a magic circle
by giving printed board-game-like rules to the participants.

Rules are important in design games as tools for the researcher / facilitator.

A point of confusion that I have faced when organising design games in a multidisciplinary design context concerns the meaning given to the user understanding/user information. It should be recognized that user representations are never complete or objective images of the user, but are influenced by a complex set of mirrors, including the contextual and personal standpoint of the researcher.

I have adopted this perspective intuitively while working with more experienced colleagues, and haven't been prepared to explain and justify it before organising the Storytelling Game with researchers having a background in performance arts, technology and psychology. When they questioned the relevance of the created stories and the ideas embedded in them because the stories and ideas didn't emerge as answers to clearly stated questions, as in, for example, interviews, I couldn't provide answers before looking in more detail at what happened in the performances and how the stories came together as a blend of the input from several different people deliberately utilising facts and imagination. Since I was not aware of the implicit view I had on the meaning of the user

representations such as co-constructed stories or scenarios as tools for personal discoveries, not as a complete description of a "user" that can be handed over to a third party, I could not communicate it for people having different assumptions about the value of user involvement.

To avoid this kind of situation and set correct expectations for the participants, both researchers and others, the nature and meaning of various use(r) representations in design need to be addressed. Halse's (2008, p 102) point that one should avoid producing overly naïve user accounts, which falsely try to communicate that the user can be defined and that the account evidently leads to novel design ideas, obviously need to be discussed by a multidisciplinary design research team. For example, in the Character Game the intention was not to give or produce *persona descriptions*, to use Cooper's (1999) terms, but rather to evoke empathic understanding by making participants work with the user study material in a way they wouldn't do as part of their daily practices. The aim was to get people personally and emotionally engaged by inviting them to reflect on their own experiences in relation to those of the people they are designing for. Hence, the user representations were intentionally left open-ended for new interpretations and to inspire personal insights.

False expectations may not only result from a different way of seeing user information and its representations, but also from expecting design games outcomes to be ready concepts or final design outlines – which is rarely the case. Gray et al. (2010, pp 10–14) illustrate three stages of games aimed at innovating that are *opening*, *exploring* and *closing* implied keywords: *divergent, emergent* and *convergent*. In most design games, as has been shown, the focus is on the first two activities and often the third is left out because of a lack of time or energy after the intense play.

Whereas the games discussed in this chapter are valuable in providing many insights, design drivers and ideas for further consideration, they are rather insignificant in pointing out exact design solutions. Although they often include initial prioritising, there is no final design decisions made during the games. The divergent nature of design games could be better communicated in the co-design gatherings to show the value of rather ambiguous outcomes.

In Chapter 3, I summarised the characteristics of design games both as *an attitude* and as *a tool*. The Extreme Design project, discussed in this and the previous chapter, showed that design games may also be a *structure* for the collaboration in a full-scale design research project, including design game materials and the dynamic interaction between different performance roles. In the next chapter I will summarise the Play framework that has been developed during this dissertation based on the literature and practical design research cases.

Chapter 6
Play framework for co-design

Whereas metaphors are useful in guiding thinking and conveying messages, they can be sometimes misleading, like in the case of design games that are at the same time similar and different in many central ways from games played in other contexts. Moreover, several academic papers and more practical books describe, at first glance, distinct-looking activities via the game metaphor, for example concept design games, organisational games, explorative design games, innovation games, which may confuse the reader and evoke questions about what makes a design game; *what are the underlying play-qualities embedded in the activities labelled as design games? Or, what makes people call these activities design games?* Furthermore, the words game, play and performance have different connotations and origins in different languages, thus the concepts used to describe design game activities are also fuzzy.

One of the driving forces in my study has been the challenges that I have faced when explaining the design-games approach to the students and company participants. I have noticed that the design-game activity and the nature of this activity are difficult to capture and verbalize without an appropriate and specific framework that would present the core elements and qualities of design games in a thorough manner. During the last five years, I have been exploring the core characteristics and qualities of what makes something a design game. I have discussed the journey in the previous chapters, and next I will summarise the core qualities in the form of a Play framework. I will also provide a definition for design games as they are understood within the Play framework.

6.1 Elements of the Play framework

At the end of the second chapter, I addressed the question *why are these same (or similar) methods sometimes called design games and sometimes, for instance, drama-inspired methods, scenarios or just co-design workshops?* It is obvious, that many workshops share the same purposes with design games, such as involving users more directly in the design process. Whereas "workshop" is used to refer to the event itself without explicating how it is organised, design-games, drama-inspired methods and scenarios all illustrate the action in the workshop. Whether choosing to call something a design game or not results not only from the characteristics of the co-design activity, but also from the researcher's motivation to emphasize qualities like play spirit or game rules through labelling the activity as a game. Besides conveying the underlying characteristics of collaborative activity to the participants, it may help the researcher to design and facilitate activities by focusing attention on the particular aspects of collaboration, like guiding group dynamics through explicit rules or providing game material that visualizes the consequences of alternative moves.

Design games are not games in a traditional sense, since the application area of early concept search and co-design, define them. What differentiates one design game approach from another is the interplay between the parts from the realms of design and games. As I started my research, I was convinced that the special character of design games lies in their similarities with many other games in a material way; that is to say, there are rules, a game-board and game pieces. Now I propose that instead of looking like a game from the outset, it is more important what the action employs at the mental level. These are not totally separate perspectives, since making the activity look and feel like a game can guide people's mindsets towards a play spirit. In other words, design games in the Play framework include two basic components, *context* and *play-qualities,* which define them:

> Design games are tools for co-design that purposefully emphasise play-qualities such as playful mindset and structure, which are supported by tangible game materials and rules. Instead of being a well-defined method, it is an expression that highlights the exploratory, imaginative, dialogical and empathic aspects of co-design. The objectives of applying design games are rooted in the design context, i.e. that if one is designing new service models for a bank, the bank practices and its development are connected to the aims of the design game. The means for reaching these objectives are drawn up in addition to the design (e.g. tangible mock-ups and user representations) from the world of games (e.g. role-playing, turn-taking, make-believe) to deliberately trigger participants' imagination as a source of design ideas.

Hence, in the Play framework design games are not seen only through their material qualities, but as *a tool*, *a mindset* and a *structure*. Underneath these three categories, there are more specified objectives, characteristics and play-qualities that I have found useful for the design games played in co-design that go beyond a product design context. The Play framework has been built based on my analysis, which has focused on the empirical cases introduced in this dissertation. The cases, though, have been influenced by the existing literature and, in that way, best practises are embedded within the framework. Whereas different authors highlight distinct characteristics of design games, I have tried to bring those perspectives together and add my own experiences in order to provide a thorough framework that is both simple and wide enough to help other researchers and design practitioners to design, analyse and discuss design games.

The theoretical ground for the framework comes from co-design combined with studies on play, games and performance. Within the Play

framework, this theoretical background is transformed into two main parts with three separate but intertwined components, depending on how the design games appear to the different people experiencing them. The *design* part of the term indicates the practical application context, whereas the *game* part refers to a set of play-qualities entailed in most types of play, games and theatrical performances, which I have found very useful to embed in design games as well. Based on these two main parts, and the roles that people have in the design process, they experience design games differently:

1 For the product or service designer, design games are *a tool* for addressing the three needs of co-design: organising dialogue, supporting empathic understanding and gaining several contributions in order to identify, frame and solve design problems.

2 For the players, design games appear as *a mindset* that creates an experience of being in a special game world, a magic circle, which is a physical and ideal playground with a special ordering of time, roles and rules that are not bound by the laws of ordinary life.

3 For the design game designer, design games are *a structure* with tangible design game materials, explicit rules or fixed elements, and performance roles that can be manipulated depending on contextual needs.

This is a simplified categorization and the amount and type of play-qualities can be manipulated and stressed according to the particular need of co-design, such as gaining an empathic understanding through role-playing. In other words, not every design game needs to employ all the play-qualities, but instead they can be adopted according to particular needs. Thus, game designers need to be sensitive to what works for whom and where as proposed by Johansson (2005). Since many important decisions are made during the design phase, I see design game design as part of co-design. Therefore, unlike the previous literature on design games, I propose opening up designing the design game to core team members other than just researchers, for instance to the key partners.

Richard Schechner (2006, p 93) proposes seven interrelated ways of approaching play and playing as *"a strategy for organising the inquiry into play"* which may be utilised with caution in designing co-design: *1) structure* (What are the relationships among the events constituting a play act?); *2) process* (How do the strategies of play change when the game progresses?); *3) experience* (What are the feelings and moods of the players and the observers, and how do these affect playing?); *4) function* (What purposes the play acts serve, and how do they affect individual and

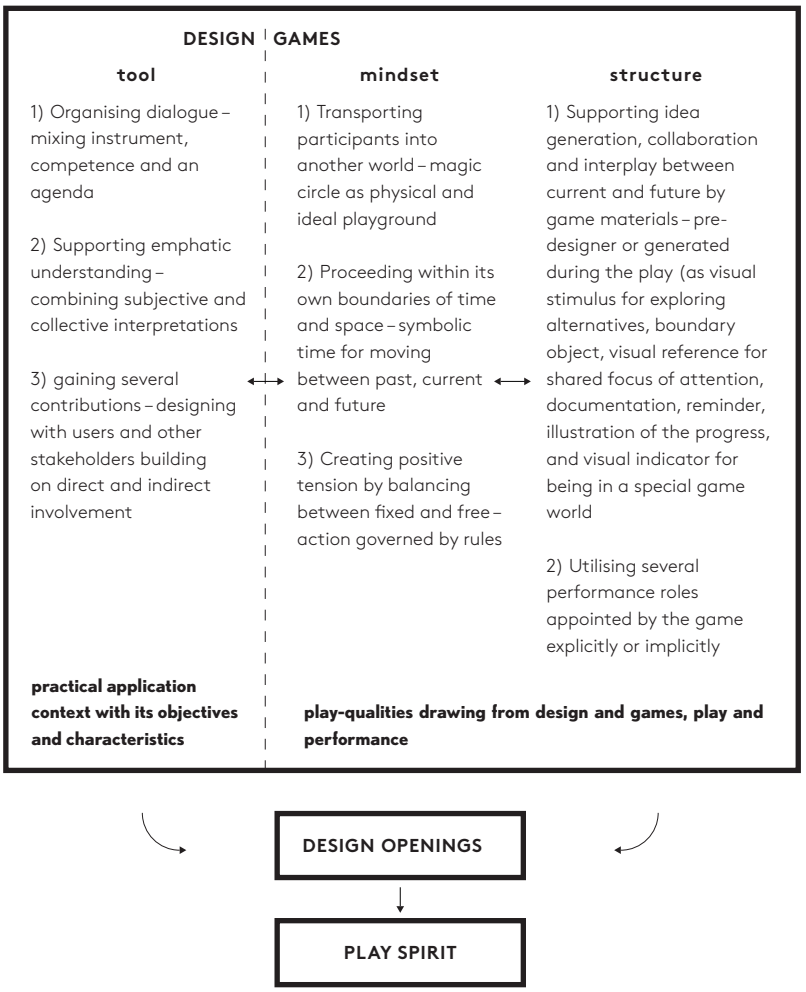


Fig. 60

The figure summarises the Play framework that pinpoints the core of design games drawing from design and games that take into account the essence of play spirit but stand in the intentions of co-design.

community learning, growth and creativity?); *5) evolutionary, species and individual development of play* (What are the differences between child play and adult play, and what is the relationship between playing and individual creativity?); *6) ideology* (What political, social, and personal values does any specific playing enunciate, propagate, criticize, or subvert, and how are these expressed and negotiated?); and *7) frame* (How do players, spectators, and the like know when play begins, is taking place, and is over?).

Because I find Schechner's list rather general, and thus partly unrelated to the particular case of design games, I have not followed it thoroughly; however, I find most of the questions useful in connection to design games and, therefore, they are addressed here.

6.1.1 Design games as a tool

As Keinonen (2009) has proposed, design methods may be considered as an instrument, a competence or an agenda, all serving different purposes when it comes to applying them and all requiring different criteria for evaluating them. The examples I have given indicated that design games are a mixture of them. Sometimes the underlying goal is empowering users, thus emphasising an agenda, whereas most often they are described through their instrumental qualities, such as repetitiveness or the competence required for the facilitation of design games. In the Play framework, I present three ways in which design games can be seen as tools: *organising dialogue, supporting empathic understanding* and *gaining several contributions*. These are not mutually exclusive, but, rather, complement one another, although what is most central in a specific design game varies. When I propose that design games can be seen as tools, I do not mean that they are instrumental in terms of repetitive use, but, instead, that they are designed in a specific way to work as a tool for facing contextual design needs.

When considering design games as tools applicable for future projects, we should understand especially the relationship between the *instrumental aspects* of them and *the level of competence* that is required to confidently run a design games driven co-design project or one-off gathering. What is dominant varies from game to game or rather from aim to aim. By *confident*, I mean the image that the researcher presents to indicate to the participants that the situation is under control and, although it is always unsure what the exact outcomes are, gives the impression that co-design evidently produces relevant material for the design task at hand. This is part of the motivation for the participants to be involved and thereby needs to be clearly indicated.

Competence is something that only grows when exercised over time. However, the Play framework aims at supporting the process of becoming a skilled design game designer and facilitator of creative collaboration by illustrating how the interplay between design games as tools, mindset and structure can make a design game. It explains the core of design games and their multifaceted nature succinctly enough to ease the need to explain the approach to various audiences – to non-experts as well as to more knowledgeable researchers. It provides a vocabulary and lens for studying co-design gatherings and different types of design games, thus serving as a sort of tool itself.

One question related to innovative methods (Hanington 2003) involves how much they can be instrumentalised or controlled so that they do not lose their capacity for renewal, which is fundamental in avoiding turning a method into *"a stagnant routine"*, and which, according to Mattelmäki (2006, pp 101–102), is often regarded as the opposite of creativity. Consequently, when developing the Play framework, I have tried to avoid straightforward guidelines to leave room for creative interpretations,

while, at the same time, I have aimed at describing the core qualities of design games to be considered extensively enough that the framework can enhance understanding, designing and explaining the particularities of design games.

In service design, like in many other design projects nowadays, the design target is not necessarily tangible in the same way as in traditional product design, but, instead, the design may focus on, for instance, organizing interaction and collaboration in new ways. It has been proposed that in a concept design team there should be person in charge of gathering user information (Keinonen & Takala 2006), a so-called *user expert*, who should be analytical, excellent with organisational capabilities and have a certain amount of empathy (ibid. p 38). In co-design, these are surely useful skills as well, but what I find to be the core of designer's skills in this context includes the ability to visualize things and make new connection between parts that at first glance do not seem to fit, being empathic to other people's experiences while respecting one's own, and a wish to change the world. These skills are central in designing design games as in facilitation.

When approaching design games as tools, the meaning of user involvement (both direct and indirect) becomes essential. As it is discussed here, in design games gaining user insights is not the goal as such; rather, the goal is the process of making the familiar unfamiliar and vice versa in order to elicit inspiration, empathy and fresh points of view on the phenomenon under development, which can then lead to novel design openings and improved services. As with many innovative user study methods, most design games are divergent rather than convergent; they open up new possibilities rather than produce final designs. As was discussed earlier, in design games knowledge creation is a dialogical process of simultaneously gathering and sharing information, mixing information from different sources, contextualising (interpreting) information, and generating design solutions to support mutual learning among a group of people. Consequently, questions about who is involved, and when, why and how, emerge.

To summarise, creative collaboration through design games is the process of co-constructing user understanding as an interplay between subjective and collective interpretations. This can be described in Brandt's terms (2010, p 132) as an activity that demands using one's imagination to fill in the gaps left open by the fragmented design game material and other participants' stories. Thereby, design games as tools for organising a dialogue, supporting empathic understanding and gaining several contributions are very similar to the four purposes of the empathic probes proposed by Mattelmäki (2006, pp 58–63) in seeking inspiration, information, participation and dialogue. Finally, when the success of a method depends on an individual researcher's competence, it is obvious that ev-

ery design researcher designs an appropriate method to meet personal motivation and skills. Hence, I do not believe that design games can ever become purely an instrument, although it gains similar qualities when utilised several times by the same researcher.

6.1.2 Design games as a mindset

Whether choosing to go for a role-playing game, a board-game or follow a narrative storyline, design games happen in a *magic circle* that is most of all an ideal playground that can be manifested through physical playground, that is to say, by setting the stage with materials typically associated with games or performance such as playing cards, dice or tangible props. Since the magic circle is mainly a mental stage, it is intangible and does not necessarily demand physical stimuli to start with, but it can be promoted also, for example, by intangible fixed elements such as the title for a commonly created story or a scenario.

The magic circle describes the ideal mental and physical circumstances that become manifested as play spirit and support creativity by encouraging the participants to change their perceptions. Since the play spirit helps one to take risks and bear uncertainty (Huizinga 1950), it is a desired quality of co-design gatherings. It can be established and maintained by utilising, for instance, design game qualities that evoke distinct associations or perceptions within participants, hence leading to a creative tension: *"[...] conflict can be generative for innovation, but only when it takes the form of a creative tension [...]. Creative tension can be generated by new perspectives, odd questions and intriguing provocations [...] (Darsø* 2004, *pp 52–53)."*

Ultimately, in design games there is continuous interplay between being a serious activity with regard to the expected results and being a game, a magic circle without the restrictions of everyday life and no immediate consequences. This relationship between, on the one hand, the *serious and play*, and, on the other hand, between *reality and fiction*, is stressed because it points out a very characteristic attribute of design games: *playing for real*. The balance between reality and fiction, that is to say, using people's past and current experiences as grounds for envisioning a non-existing future, is where participants need to move from the familiar – *lived experiences, subjective opinions and skills* – to imagining *what if* situations and *how the future could be* scenarios.

The counterpart also includes taking real problems and design challenges into the magic circle, which can be seen as a *test bed for different alternative solutions* due to the lack of immediate consequences and an opportunity to negotiate through the visualisations that illustrate the alternatives. Treating design games as a mindset also includes the ability to play with time, supporting the same purpose of using design games for exploring alternatives. *Symbolic time* in particular, in which the time may represent another, for example, shorter or longer span of clock time,

enhances participants' abilities to set their performances in the future and to imagine design opportunities without being fixated, for instance, on the restrictions given by technology or current overruling attitudes.

Another way symbolic time can be useful is in narratives that are utilised to stress a long-term perspective in people's lives. This can be seen as useful especially in service design, which is constituted from different processes in time, as described in Designing Interactions (2007, p 420) based on interviews with Live|Work designers (Chris Downs, Lavrans Løvlie & Ben Reason): *"Service design is the design of intangible experiences that reach people through many different touchpoints, and that happen over the time"*. Enhancing the creative interplay between past - present - future supports an understanding of the requests and opportunities that a long customer relationship may address to service providers. This does not mean that traditional methods, such as observations, focusing on user practices in their socio-cultural contexts are not suitable or needed in service design, but, instead, it highlights the need for various methods to cover different factors when designing complex services.

Besides evoking diverse associations and asking odd questions, creative tension and a play spirit can be created by balancing between fixed and free elements. On the one hand, design game gatherings are highly constrained situations bound by a certain location, social context and focus in the forms of the setting, rules and the material. On the other hand, game rules and design materials are typically open for reinterpretations and encourage people to take playful and experimental actions. If the game is too constrained, it may not allow for creativity and surprises, but if it is too open there is nothing to grasp onto for interesting and well-grounded discussions and performances.

Fixed elements belong to the *design game rules* that are important in giving boundaries to design, within which the participants can move freely. Rules can be seen as tools in many ways; however, their underlying purpose is to evoke a playful mindset in the participants instead of providing explicit guidelines and, therefore, I find them central when considering design games as a mindset. As I see it, rules are fundamental play-qualities that can be studied from the design game designer's, facilitator's and participant's perspective. *Firstly,* this is done by considering that the rules are about designing the game. *Secondly,* rules are the overall script of a specific game; they describe its progress, materials, goals and roles. Hence, they help explain the basic idea of the game and work as starting points for the interaction by describing who starts and how the interaction evolves for instance in turns, what the roles are (a person's own or one appointed by the game) and what the necessary fixed elements are such as titles, contexts, and character that guide the activities.

The rules may be somewhat implicit for the participants, presented in the form of fixed elements as frames for action, or they may be explicit

printouts given to the participants guiding the actions in practice. When printouts are used, they work as a reminder and guideline in facilitating the progress and in keeping time as well. For the participants, reading the printed rules in a step-wise manner creates a positive tension when they gradually reveal the next steps of the design game. The game rules and predefined structure ensure rather similar starting points and topics for the group work, within which personal styles are welcome. More importantly, since rules are easily associated with board- and card-games, they work as a bridge between ordinary work practises and the special play sphere – the magic circle.

Finding the balance between the given frames and ambiguousness is a matter of putting different play-qualities together in a particular way in a design game that serves specific contextual purposes. This is the competence of a design researcher and a design game designer. I find this process equal to any design project with similar questions that starts from thinking about the objectives and participants by following a more detailed description of the rules and the setting. Rules are one way of summarizing the decisions made when designing a particular design game and ensure that the different elements and play-qualities summarized in the Play framework have been considered. Design games as a mindset address the questions of how to support and manifest the magic circle to reach the play spirit, for example through rules, game materials, role-playing and/or narrative structure.

6.1.3 Design games as a structure

In Chapter 3, I summarized the characteristics of design games both as an attitude and as a tool. The Extreme Design project, discussed in Chapters 4 and 5, also emphasised design games as a structure for co-design. By structure, I mean the manipulation of play-qualities such as design game materials, facilitation and the participants' roles in design games, which the design game designer does in a context-specific manner.

Design material is often talked about in relation to stimulating thinking and discussions and, hence, its positive influence on collaboration. However, there is more to design material in the way it can influence the situation that is not all preferable in co-design, mainly in the way that stimulating material may distract collaboration or steal the attention away from the task. As I have demonstrated, people may become engaged with the situation and the people in it or with the materials and thus ignore others because of it. If it were a question of workshops where people are expressing their thoughts and dreams through individually building artefacts, then that would be allowed. In co-design gatherings, however, people are working in groups and, although there may be individual phases to the work, the central part involves working in pairs or in teams.

The above-mentioned problems can be avoided by explaining the task before displaying the material, or the facilitator can use the exact same

material to re-establish shared attention. However, it is good to be aware of these possible shortcomings when designing co-design in order to prepare strategies for overcoming distractions that emerge during collaboration. I chose to talk about *encounters* in Goffman's terms (1963) to describe the level of engagement with the situation, which may include the people and/or the design material. It is not just engagement that is relevant in co-design, but reaching and maintaining a shared focus of attention is most essential.

When discussing a visual stimulus in co-design, the aesthetic qualities have not been much debated and could be one of the areas for further research. However, in light of this dissertation, it seems that tangible predesigned material is not so evident after all. Instead, my experiences stress the ability to create quick-and-dirty prototypes, drawings or visual reminders on the fly, rather than aesthetically finalised game material prior to the gathering. Without further studies, it seems that aesthetic qualities are more important for the design researcher in building confidence and triggering inspiration than for the participants or the success of the design game. The visual outlook is a part of customising the method and can be seen as part of a continuous renewal process. Thereby, it is nevertheless relevant in terms of research. Aesthetically well-considered material may also support the professional image of the material and thus increase participants' motivation and trust regarding the approach.

In general, design games material has many positive influences on the co-design, as was summarised in **Table 6** (page 210), in terms of supporting idea generation, design collaboration and creative interplay between current practises and future opportunities. Although I have shown that predesigned material is not necessary, most often it is of great help in giving starting points for the collaboration, in enabling moving between fragments and a holistic view, in providing visual stimuli for evoking new associations, in playing with alternatives, and in documenting progress and decisions. Whether predesigned game material is needed or not, and what kind of material might be needed, depends on the contextual needs of the game.

Sometimes imagination and collaboration may not need any visual triggers. Instead of manifesting an intensive and immersive play spirit through design game materials, imagination and collaboration may emerge from the narration, which invites *imagination-in-action* (original term introduced by Johnston 1998/2005). Imagination-in-action describes the desired atmosphere in design games without emphasising the need for predesigned material. It is the ideal situation, where co-constructing a scenario or a performance becomes so captivating that it engages all the participants and draws from both fact and fiction without too much criticism. Role characters may enhance imagination-in-action since they free participants to act and think differently than they do during their daily routines.

The purpose of role-immersion, for example through role characters, is to evoke personal discoveries that can be used in guiding design. When role-play and personal interests are partly separated in the design game, participants need to consciously reflect on their own values and experiences in relation to a particular character's point of view. In the structure's point of view, design games engage everyone in the situation by transforming participants from mere *partakers* into *sourcers, producers* and *performers* alike. Participants need to take an active stance and make statements about the world within the boundaries of the rules and context of the game. Thus, besides the materials, the roles given by the design game can be one of the strategies for the facilitator to support creative collaboration.

Because design games are a combination of agenda, instrument and competence, organizing co-design through them demands skills both in design and facilitation. For example, although rules are designed to help one proceed in a prearranged way, there might be a need to reinterpret them on the fly, which demands experience from the facilitator. Ehn and Sjögren (1991, pp 262–263) have described sensitivity to the evolving situation in the following way: *"... we have become more experienced [facilitating the game] and are better able to improve and change a game as we play. We have learned to be more supportive of and instructive to the participants, while knowing when to stop interactions that are not clearly focused, and to skip parts of the game when appropriate, and to adopt to the situation."*

In other words, besides designing the design games, competence becomes fundamental in facilitating co-design. Unlike in many traditional user study methods, in co-design the facilitator often also needs to give it his/her all instead of, for example, remaining an observer. Consequently, co-design involves emotional risk both for the facilitator and the participants alike, similarly with drama workshops, where participants need courage to enter into the centre and onto the stage if they want to belong to the group (Johnston 1998/2005, pp 24–52). Although in co-design the stage may not be physical, it is rather an ideal or a mental stage, one upon which participants may hesitate, especially in the beginning.

Especially if the design games invite participants to role-play, it may be a good idea to allow evolving roles from sourcer to producer to performer and back to producer. Being a producer is needed as the last role for reflecting on the experiences gained from performing in order to relate it to the design. Thus, participants do not need to enter into the centre and onto the stage before they are mentally tuned-in and more ready for it. It is also not a great failure if someone stays most of the time as a partaker as long as s/he momentarily takes other roles as well. Being sensitive to different participants and their aptitude to dynamically alter between roles are part of the facilitator's competences, competences that can only be learned over time.

Travelling between several roles may clearly be a part of the game, such as in giving role-characters, but most often it is more implicit and unconscious. Understanding the meaning of these different roles of sourcer, producer, performer, and partaker (Schechner 2006, p 225), however, allows one to utilise them purposefully during the co-design. Considering various roles and the dynamics between them is not simplistic, but needs careful planning when designing the design game, or else there is the risk that people remain as partakers without making a real contribution to the design.

Similarly to participants, facilitators employ several roles which dynamically keep changing during the co-design gathering. I have shown two principal types of roles for facilitators: *1) those that take an active stance by mixing the roles of sourcer, producer, and performer and make their own perspective explicit while playing the game, and 2) those that stay mainly in the producer's role by building bridges and making connections without personal judgments.* There may be more than one facilitator; for example, there may be a creative secretary who is somewhere between these roles, as has been demonstrated in the previous chapter. Regardless of whether actively performing and making claims or not, researchers' (who are often also facilitators) input is embedded in the design game in the form of rules, game materials, and so forth, which establish the overall boundaries for the action.

Although a particular standpoint can be decided on when designing the game, there are obviously differences between facilitators; it is obvious that a theatre director, industrial designer and ethnographer all put their own particular stamp on the co-design facilitation.

Summary

I have illustrated how designing design games is a creative design process in itself, and although there is a need for examples, models and vocabulary, a unique design always results from how the different pieces come together based on a particular researchers' skills, ambition and case-specific needs. The Play framework presents design games from three different angles as a tool, a mindset and a structure to summarise the main play-qualities that design games provide for co-design in open-ended design contexts, such as service design. Since there is no object at hand that could establish boundaries and points of reference for creative collaboration, well-designed and thoughtful design games can be a tangible way of inviting users' and other stakeholders' input for the on-going design process.

6.2 Looking back on my journey

I will now reflect on my research journey by looking at the results in light of the stated aims, discussing the chosen research approach and its influence on the journey. In the end, I will propose some issues to consider for future research.

6.2.1 Reflection on research aims

In Chapter 1, two research aims were presented: 1) to explore and develop a framework with a practical and theoretical foundation and relevance; 2) to develop a set of design games that underline different aspects of co-design and illustrate the implications of the developed framework.

Exploring and developing a practical and theoretical framework

I have constructed the Play framework based on the findings from the explorative research journey, which included several case studies, both short and longer ones in various contexts, such as co-designing with children, understanding people flow in senior houses and developing new service models for a bank, just to mention few. Based on the existing literature and the empirical cases, I identified several aspects of design games that relate to the specific needs of co-design and influence the spirit and outcomes of co-design gatherings.

1 Due to the multidimensional practical design context, as well as the ambiguous game terminology, I was not able to provide a clear definition for design games, but instead ended up with a praxis-based and rather circular definition. According to this definition, design games are tools for co-design that purposefully emphasise play-qualities such as playful mindset and structure, which are supported by tangible game materials and rules. The main contribution of this research and the Play framework is in illustrating various characteristics and aspects of design games. These findings are strongly related to the way in which design games appear as a tool, a mindset or a structure, according to people's distinct roles in the design project. These cannot be clearly separated from one another; instead, they emphasise the dynamic relationship between design and games. Design is the practical ground with general and context-specific design objectives; in order to reach these goals, design games depend on games, play and performance as liberating means for role immersion and a play spirit, which I consider important in co-design. This empathy-based approach to design games considers imagination on par with factual information as a source of design ideas. Accordingly, design games consist of creative exercises and role-playing activities that stress personal engagement with the topic.

2 The four aspects that were discussed in Chapter 5: a shared focus of attention, leaving visual traces, binding inputs from various people and transporting participants into another world emerged from the data collected during the Extreme Design project. They extend the perception of design games by providing concrete examples of how the setting and the materials in it answer the general needs of co-design: organising dialogue, supporting empathic understanding and

obtaining contributions from several people. For instance, material meanings in co-design is a much researched area, but the analysis in this dissertation a) adds more details about the meanings of predesigned and in-situ-generated design game materials, b) shows the connection between visual reference points and a shared focus of attention by emphasising positive and negative consequences alike and c) introduces the concept of imagination-in-action to describe how performance can be applied in co-design with or without props or bodily action. This is a relevant notion for understanding design games that are oriented towards scenarios and storytelling. My findings also show that co-constructing future scenarios can be supported by giving fixed elements, such as a title for the story, in addition to or instead of the predesigned design game material that previous studies have emphasised.

Exploring the performance process (adapted from Schechner 2006) showed the way in which different people's input comes together and gradually takes the shape of a design concept, for instance in the form of co-constructed stories. Several performance roles originally presented by Schechner (2006) were used to explicitly point out the different roles embedded in design games. By understanding these roles, a design game designer can control whose input will dominate the co-designed representation and be aware of his/her own role in shaping that particular representation. This is meaningful in order to gain contributions from every participant. Switching between roles is important for gaining new experiences or perceptions of a topic and for reaching an empathic understanding of other people's experiences.

3

Developing a set of design games

Chapter 4 consists of descriptions and illustrations of three design games, which have been developed based on the five cases discussed in Chapters 1 to 3 and by adding elements and qualities from "games", "play"and "performance". Whereas the first case studies mainly explored notions and examples from the literature on co-design, empathic design and (explorative) design games, the Project Planning Game, Character Game and Storytelling Game (presented in Chapters 4 and 5) deliberately played with the ideas drawn from community drama, games, play and performance studies alike. They address different play-qualities of the Play framework and give concrete examples of their implications. Furthermore, the analysis and descriptive clips from the data in Chapters 4 and 5 aim to create a picture of the design objectives, the course of play, the settings and the materials to allow further application of the three design games. Accordingly, I consider the Project Planning Game, the Character Game and the Storytelling Game as the main "tool box" provided by this research.

1 The Project Planning Game stresses the sequence of proto-performance, performance and the aftermath as incremental parts of the co-design process. It builds on previous discussions about the need for a shared design language, but focuses on the very early phase of establishing collaboration. It invites key partners to express their initial ideas for the upcoming process and hence to inform the later phase of designing design games. The Project Planning Game is also an example of a structured setting with visual and tangible design game materials that promotes the play spirit and supports dialogue and gaining several contributions in different ways.

2 The Character Game concentrates on the empathic understanding of users by focusing on role immersion. Switching between participant's everyday roles and stepping into the shoes of a given role character are essential as a means of explicitly reflecting the different perspectives that these two roles employ. Being in a magic circle of games is purposefully utilised by symbolic time, scenario building, several performance roles, etc. to free the participants from current technological and economical restrictions and to allow them to draw from the make-believe world of the imaginary senior house. This is an example of a design game that aims at empathy through a narrative structure without direct user involvement.

3 The Storytelling Game explores direct user involvement and demonstrates imagination-in-action. It illustrates how design game materials are not necessary for initiating the scenarios, but, instead, are used for documenting the progress of the game. Instead of utilising tangible and visual materials or printed game rules, the fixed elements, inspired by drama workshops, are introduced as a strategy to give boundaries to the co-design process. In addition, symbolic time is at the core of the Storytelling Game; it is utilised, together with fictive role characters, to envision long-term services and people's everyday experiences as a source of inspiration for new service models. Since there is no predesigned material that would present diverse views or experiences, the participants' personal differences are celebrated as a source of inspiration for design.

The aim of this dissertation was to produce both theoretical and practical knowledge in the form of a Play framework and a set of design games. Whereas the Play framework is a conceptual model having to do with game-like co-design methods, the set of design games are examples of interpreting and applying that model. As I have stressed during the re-

search, designing design games is an incremental part of co-design. Hence the design games I have been describing here should not be implemented as a part of other projects without adequate consideration. Instead, they are exemplars that provide practical insights for applying different play-qualities and, along with the case examples, indicate the relationship between the application context and the purposes for applying design games with certain qualities, rules and participants.

This research project did not aim to develop a normative method; rather, it is a descriptive work that aims to understand the borderline between co-design and game-like activities. As a result of this background, it is logical to utilise case examples as exemplars of different ways of applying design games and the Play framework, instead of using them as a basis for direct guidelines. The context-specific nature and wide application context of design games means that such guidelines would remain at the general level, such as "consider the objectives of co-design and interpret the Play framework in relation to those objectives". These types of guidelines are inherent in the framework and it would not make any sense to explicate them. Furthermore, while conducting this research, I have not identified a right or wrong way of organising and playing design games and, therefore, I do not find it reasonable to say what to do or not to do. Instead of providing clear guidelines, I will give the same recommendation for the reader as Tuuli Mattelmäki (2006) did in her dissertation six years ago: Apply!

6.2.2 Reflection on the process and research approach

The reason I wanted to be truthful about the chronological order of the experiments stems from the research approach, in which the experiments, rather than clearly formulated research questions or a hypothesis, guide the research program. In other words, formulating the research question and the types of experiments was part of an intertwined process where the findings emerged along the way and a more precise picture only became clear at the very end.

At the beginning, I explained several strategies that I have used to ensure the reflexivity, validity and relevance of the work. The research has been systematic, although it has been explorative and design-driven in order to approach design games from various perspectives. To improve transparency, I provided parts of my account (in Chapter 5) so that the reader might have the opportunity to interpret the situation differently than I did. This makes the story rich in details, but at the same it becomes quite heavy in places.

I had several roles during the research project; I served as a researcher, a designer, a project manager and a facilitator working on varying multidisciplinary teams. Since I was dedicated to the research, I pushed myself and the others hard, for instance in the Extreme Design project, to make three different design games instead of just creating several applications for one game. At times, less structured occasions might have worked for

the design purposes, but, since I was driven by my research agenda, I pursued the process in a direction that supported my research. For example, I guided the design game design in a direction that helped me to test and illustrate different aspects of the Play framework. I was able to focus on those play-qualities that I did not have previous experience with and, hence, I was able to create a better overview of the phenomena. Therefore, the Play framework can be seen, in addition to its outcome, as a research instrument that was utilised to study the borderline between design and games. In addition, it worked as a research question or hypothesis directing my research; later case studies were organised so that they allowed me to explore different aspects of the Play framework.

Besides the roles listed above, I also had the three perfectives provided by the Play framework; that of the service designer utilising design games to reach design goals, that of the player experiencing the game setting with a playful mindset, and that of the design game designer who manipulates the play-qualities according to specific needs, which came partly from my research objectives and partly from the design case. Since I was not working alone on the cases, there were others who helped maintain the overall balance between the design and the research objectives.

6.2.3 Recommendations for future research

This research has introduced co-design gatherings and design games from several angles, revealing the practical and conceptual aspects related to them. This has been done by combining the most prominent characteristics from earlier studies and developing them further by deepening the understanding of play, games and performance based on selected research on them and through empirical testing. The results are presented in the form of a Play framework, the design games, and examples of possible future tasks and roles for design researchers. Regardless of the systematic research process, there are many aspects that could be given further consideration. Below I list a few that would deserve a deeper look in the future.

Influence of co-design on individuals, organizations and society at large

The focus on short-term collaboration, the co-design gatherings, has limited the possibilities for seeing the long-term influences on the people and organizations that have been involved. Many comments also presented in this dissertation indicate that often the people who have been invited to the co-design gatherings have found them to be inspirational. The comment from a project manager from Kone (given in Chapter 5) is a prominent sign of the usefulness of this type of co-design for organizations as well. However, there may be negative sides, for example those that relate to power relations or evoke an unrealistic expectation for change, which have not been touched upon in this study. Understanding the positive and

negative influences of co-design becomes central especially when co-design attempts to intervene more deeply in the problems of a particular society and involves wider communities of people as co-designers – the area of interest in many service design and social design programs.

Widening the scope beyond design

It would be interesting to look at the diverse games in another context, such as simulation games on organisational change or a variety of educational games, or games that look at children's play; however, this was not pursued at a deeper level within the context of this dissertation. Rather, it represents a promising area for future research. By grounding the research in design research and practise, more specifically in co-design, it was not possible to reflect on other application areas. However, already the variety of case studies provided indicates the importance of wider implication areas for design games and illustrate Brandt's (2006, p 64) statement that "*one should not be too strict about where they [exploratory design games] are applicable or not*".

Guidelines for applying design games as a tool, a mindset and a structure

Although I think the Play framework is useful for designing, discussing and analysing design games in a co-design context, it does not provide explicit guidelines. Guidelines were thought to be beyond the scope of a doctoral dissertation. However, when I have taught at the university or adult education centre I have seen a demand for a practical handbook with tips and tricks for applying design games.

6.3 Conclusions

This dissertation has described the development of a Play framework through empirical case studies and literature. Through this research process, I have developed a particular way of utilizing design games guided by the tradition of the research unit that I have been working with when conducting the research: a) in close relationship with companies, b) in the early stages of the design process, and c) by following empathic design principles. I have come to see design games as being different from games played in other contexts, since the application area, early concept design and co-design make up part of what they are. As I have been demonstrating in this dissertation, when the two, design and games, are brought together, neither of them contains all of the etymological connotations that either of the words have as such; however, each sustains some of those connotations. What differentiates one design game approach from another is exactly the interplay between the parts from both realms; a perspective seldom discussed in detail in academic debates.

As has been discussed in relation to user-centred design, users may need scaffoldings to express their creativity and to see beyond what exists right now, thus enabling them to envision the future, a challenge often faced in co-design (Johansson 2005). As I demonstrated through my account, one of the main play-qualities is the magic circle, where the laws of ordinary life no longer apply. Communicating to the participants that they are in this play-sphere may free them from the practical restrictions of daily life, and allow them to travel between past experiences, current interests and future opportunities, augmenting creative interplay between the existing and imagined, and to experiment with alternatives without the fear of immediate consequences. As I see it, that is the meaning of the "game" as a metaphor and activity in co-design gatherings.

As has been discussed and demonstrated, the facilitator influences the outcomes and success of innovative co-design methods, such as design games. This results from the fact that designing design games and conducting creative collaboration through them is a creative process requiring specialized skills both in regard to design including drawing, graphic design, building prototypes and to facilitation including sensitivity between different roles and the strategies for best supporting participants in a particular co-design situation in order to cope with group dynamics. This dissertation and the Play framework give support for developing both skill sets in practical and theoretical contexts.

I first prototyped my skills as a design game designer by conducting several experiments that explored different aspects of co-design and design games, and based on those experiences with the literature, I ended up designing and performing creative collaboration in this particular way guided by design games. It is only through extensive experiments that one can become a master at designing and performing design games and utilising the gained input in development work accordingly.

On my path towards becoming more competent at designing and conducting co-design, I started with the short experiments discussed in the first two chapters. Those case studies focused on rather short-term collaborations, and while they showed the value of co-design gatherings as stages to momentarily engage various people to contribute to the design process, they were rather independent from larger contextual structures. To increase my understanding, a full-scale design research project was established and analysed. The accomplished Play framework presented in Chapter 6 was built on the experiences both from the short-term and long-term co-design in relation to the literature covering user-centred design with a participative and empathic twist and games, play and performance.

I have come a long way from the first experiments; however, I have more to learn, especially when it comes to applying design games in ever complex and challenging projects that aim at a sustainable society, the direction where I would like to go next.

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