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# Emotional Chairs

A study of how emotional objects enter our lives

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# 1 Abstract

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This thesis is a design study of how everyday objects with embedded digital emotionality can be expected to be accepted into peoples lives.

Through the design and evaluation of a chair and a stool with digital emotional features, the project explores the way these objects are given presence, and let into peoples lives.

By placing them in the homes of volunteers for a shorter time, the project zooms in on the initial meeting with more emotional everyday objects.

The project defines the creation of *personality* and *narratives* around the objects as being good design assets in designing for emotional relations.

Further it states, and discusses, how balancing *detailing* and *open-ended* design features are important in both a general design perspective and when creating personality and narratives.



## 2 Research Questions

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### 2.1 Questions

*How can digital embedded emotionality affect the way we let physical everyday objects into our lives?*

*What can we learn from this project that is of more general relevance to interaction design?*

### 2.2 Definitions

These definitions are made in order to explain the content and focus of this project, and should not be understood as an attempt to make general definitions, applicable outside this thesis.

#### **Digital embedded emotionality**

This is to be understood as an emotional expression created through digital means. Particular it describes emotionality as a digital feature created as part of the design of a physical product.

#### **Everyday objects**

These are the objects we all know and share in our everyday lives. Good examples of such are furniture like chairs and tables we all know and have a shared understanding of what is.

### 2.3 Knowledge contribution

The answers to these questions should be seen in connection to a wider range of projects, working with design of digital technologies from a point of view where usability and efficiency aren't the most important focus of the designs use experience. The following chapter, *3 Background and motivation*, provides the background needed to place the knowledge produced in this thesis in relation to other relevant design research. Thereby making the knowledge usable in a bigger perspective.

By initiating a design exploration this project seeks answers to these questions through design practice. The research strategy in this project is therefore best described as *Research Through Design* (Frayling, 1993) and I find that the scope of the knowledge produced in this project is most likely to be limited to other design projects with related focus. Though the usefulness of knowledge is decided in the way it's used in the future, I find it important to understand that the conclusions put forward by this thesis is a product of an RtD process, and therefore has to be seen as such. It is not scientific generalizable the same way as scientific facts of physics, but well-grounded indices about the research questions. These are none the less relevant for a range of design projects, and it's in those I find the scope of the knowledge produced by this thesis.



## 3 Background and motivation

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### 3.1 Physical vs. Digital

From the beginning of the digital culture, with invention of computers, hardware has been a, somewhat, generic platform where different software were able to run on the same hardware, the desktop computer. In a way we had a situation where the computer was the physical shell in which the digital world existed. The computer in itself had restrictions in terms of physicality that enforced this relation and understanding of the computer. These restrictions both have to do with the interfaces, screen, keyboard and mouse, and the size and mobility of the hardware. Mobile computing technologies like laptops and smartphones, and more flexible interfaces, have made way for new ways of embedding and interacting with digital technology in our everyday lives. Interaction with the digital has moved away from the screen, keyboard and mouse and into other spaces. Notions like Physical Computing, Tangible Computing and Internet of Things (IoT), in relation to design, are being used to describe and understand this new situation. Physical and Tangible computing describe ways of interacting, where the computer interfaces moves away from the computer as a terminal. Enabled by new technologies we are able to move the ways we give input and receive output from a computer system into the physical world that surround us. IoT is addressing another side of this new situation, the connectedness in a world where the objects we surround ourselves with, in increasing numbers, is connected through LAN networks and the internet. Of course this ability for the computer to reach out in the physical world isn't new, engineers in the industry have been making computer systems controlling mechanical fabrication for a long time. The new situation arises from the facts that this is entering the world of everyday consumers, and that the computers have reached a size enabling them to not be the center of focus in design combining physical and digital elements. Though exaggerated, it seems we are now in a situation where we can design digital abilities into our surrounding as we feel like. We can take digital and physical features and build them together to create a new class of design objects. I will refer to these as *hybrid objects*.

### 3.2 Design domain

With the term *hybrid objects* established I find one interesting question being: how hybrid objects can create value when we design how we live our lives.

An important place to consider in relation to how we built our lives is our homes. We buy or rent empty spaces and fill them up with things that make us want to call it a home.

Things are there for many different reasons. Sometimes out of entire practical motives and sometimes with more sentimental purpose. For some people a picture on their wall might be a way of expressing a message about their personality, while for others it might be an act of covering a hole in the wall. What we choose to put into our space in order to transform it into a home is something we have tried to understand for as long as we have been selling design for the home environment, and probably long before that.

It is without doubt that emotional motivations play an important role when making these choices. We all know the feeling of having a favourite between two similar objects, e.g. two

chairs, sometimes without being able to put words on why. It seems best explained as a feeling we have towards the object.

I find that hybrid objects for the home is an interesting design domain for investigating the possibilities in adding more emotional features to everyday objects, through a digital layer.

### 3.3 What If

As a way of initiating discussion about alternatives to the way we do things today Anthony Dunne and Fiona Raby from the Royal College of Art in London (RCA) have formulated 'what if'.

This is a way of making conceptual design that makes suggestions for new ways of using design to make people think about how we do things, and especially how we could be doing things differently.

*"It's an important space, a place where the future can be debated and discussed before it happens, so that, at least in theory, the most desirable futures can be aimed for and the least desirable avoided."* (Dunne & Raby, 2009)

*"[...] By presenting people with hypothetical products, services and systems from alternative futures people engage with them as citizen/consumers. As well as trying to reason and use our intellects we are seduced by desire and the irrational. This complex mix of contradictory emotions and responses is what it is all about."* (Dunne & Raby, 2009)

In this project 'what if' have served as inspiration on how to approach the design situation. By asking: What if we had more emotional everyday objects?

I have been able to identify an interesting design space for exploring the emotional sides of how we create our lives with the objects in our homes. This was done through the design of two chairs, as hybrid objects for the home, with emphasis on interactivity that has more direct relations to our emotions.

### 3.4 Designing for emotions

In the following I take a closer look at what it could mean to design for emotions, by zooming in on a few related projects that have served as inspiration for this project. By doing this I wish to situate this project, in order to show how this project should be understood as contributing to related research.

I look into four different projects. The one called *Tales of Things* (Barthel et al., 2011) have a different take on emotionality than this thesis. This is in order to understand other perspectives on the design space. The next two are closer related to this project, in their focus on *Ludic Designs* and have served as key inspiration in how to design for emotions. Their work with ludic design, together with *The Placebo Project* (Dunne & Raby, 2001) have also served as important inspiration in giving a methodological frame for the project, which will be further elaborated in chapter 4. *Method and academic practice*.

### 3.4.1 Tales of Things

This project was part of a three-year research project, across different universities in the UK. It had the aim to explore “[...] *new contexts for augmenting things with stories in the emerging culture of the Internet of Things (IoT).*” (Barthel et al., 2011)

They designed and built a system that consisted of objects tagged with Radio Frequency Identification (RFID) tags or Quick Response (QR) codes, a web platform that contained data about the objects, and sufficient technology to read and write peoples memories about, and with, the objects. The tagging technologies served as the link between the objects and the memory information about them saved on the web platform. Scanning an object reveals the stories recorded about it and its previous owners and locations, presented in the web interface. In the same way recording new data happens through the web interface. The users of the system can use the interface either on a pc or a smartphone. Besides text and audio files storing the stories, all media content comes from already existing platforms, like YouTube and Flickr.

The design had the purpose to function as a technology probe with the aim to “*stimulate discussion and identify desire lines that point to novel design opportunities for the engagement with personal and social memories linked to everyday objects.*” (Barthel et al., 2011)

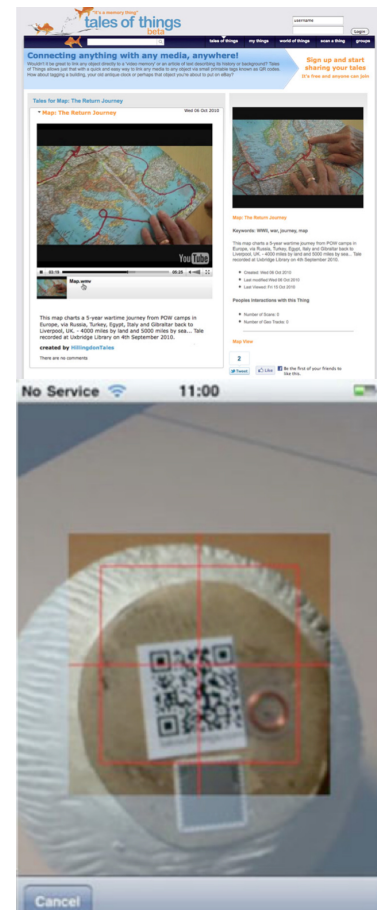


fig. 1

### 3.4.2 Ludic Design

In 2000 the research project *The Equator Project* got established. This aimed at exploring “*how digital and physical realities can be interleaved in everyday life.*” (Gaver et al., 2004) The two projects presented below both origins from this project. They also share a research focus on exploring how to design for more playful engagement, with everyday objects in our homes.

The motivation lies in an observation stating that the home has become a center of attention as a new marked for designing digital technologies. Furthermore they found that most designs for the home were made out of more utilitarian concerns, suppressing the fact that some of the activities we engage in at home also have clear non-utilitarian nature. These projects are therefore made out of an interest in understanding how technologies for the home could support ludic activities. (Gaver et al., 2004)(Gaver et al., 2006)

A focus on ludic engagement and emotional engagement are close related in their focus on non-efficiency driven design criteria. Why these projects have served as background research for this project.

### 3.4.2.1 Drift Table

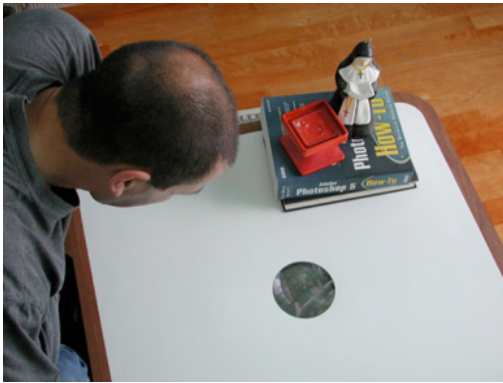


fig. 2

This design is a big electronic coffee table with a round viewing port in the middle. When looking into the port you see a satellite landscape view of England. The distribution of weight on the surface controls a slow sliding movement over the landscape, as only way of navigating it. Only other features, besides physical appearance of the table, were a compass revealing the relations to the outside world, a reset button and a text display stating the area name. By keeping it simple they intentionally left it open-ended to encourage the users to engage with in an explorative approach. (Gaver et al. 2004)

*"[...] our opening position was that ludic design should not be 'for' anything, but instead offer a range of possible actions and meanings for people to explore."* (Gaver et al., 2004)

The *Drift Table* were tested by placing it in different home for longer time periods, for an example six weeks in the example used as basis for the analysis in the referenced paper. (Gaver et al., 2004)

### 3.4.2.2 History Tablecloth

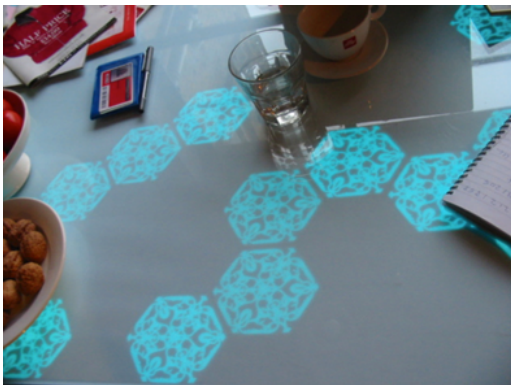


fig. 3

This design is a tablecloth imprinted with electroluminescent material able to light up in hexagon patterns. As with the *Drift Table* it uses weight sensing, but instead of using it to change direction of a movement, it uses it to locate items placed on the table. This enables it to illuminate the cloth underneath the places things get placed, forming a kind of halo. Over time the size of the halo grows as a representation of time.

*"History Tablecloth was designed to raise the issue of object movement without imposing a particular point of view. It is intended to establish an ambiguity of*

*relationship for people to resolve themselves."* (Gaver et al., 2006)

Serving as background to this project was a study within the *Equator Project* investigating the flow of tangible information through domestic spaces. The study found that surfaces like tables were among the key spaces where information where placed when entering the house, being processed and being displayed. (Gaver et al., 2006)

Beside the focus on objects moving through the home the project also had a focus on how the design could be an asset for social interaction.

The design were tested by placing it on a living room table of volunteering family for four months, while conducting observations of it in use. (Gaver et al., 2006)

### 3.4.3 The Placebo Project

*“The Placebo project is an experiment in taking design research beyond an academic setting into everyday life.” (Dunne & Raby, 2001)*

This project counted eight prototype objects that got placed with volunteers in their homes. They were all built with the intention to better understand peoples “[...] attitude to and experiences of electromagnetic fields in the home” (Dunne & Raby, 20001). By letting people live with the objects they aimed to explore the narratives people created to explain and relate to electronic technologies, especially the way they related to the electromagnetic fields they create. The project had a conceptual frame of viewing electronic objects as something that have a hidden life.

*“Once electronic objects enter people’s homes, they develop private lives, or at least ones that are hidden from human vision. Occasionally we catch a glimpse of this life when objects interfere with each other, or malfunction.” (Dunne & Raby, 2001)*

The eight prototypes were:

- Electro-draught excluder*
- GPS table*
- Electricity drain*
- Loft*
- Compass table*
- Parasite light*
- Nipple chair*
- Phone table*



fig. 4

They were all designed to be open-ended enough to make people wonder, and come up with stories about how they worked. They were not scientific in the way they worked, but made to create speculation and narratives. Below I will in short introduce one of the prototypes in order to give a basic understanding of their designs.

#### 3.4.3.1 Parasite light

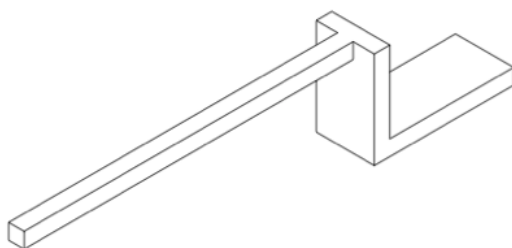


fig. 5

The design is made in MDF wood, and is big enough so that books or similar sized objects can be placed on the angle platform. It senses the strength of the electromagnetic field around it and uses that to control the light intensity of 20 built in Light Emitting Diodes (LED). The diodes are placed in the end of the pole opposite to the platform. It reacts on different electronic devices placed on it, by reacting on the electromagnetic field surrounding the Parasite light. (fig. 5)

They evaluated the prototypes by letting people live with them, and conducted interviews with them at the end of the test period. Volunteers were found through adverts and articles in a magazine and newspaper, workshops, and through advertising in a shopping window. There weren't any scientific motives in the way test people got selected. (Dunne & Raby, 2001)

### 3.5 Letting things into our lives

When designing for the home, and less efficiency driven engagement than that of a tool we use as part of our work practice, it is important to understand what matters when engaging with our everyday objects. This project has done so by establishing an understanding of the process of letting new things into our lives. How can we, as designers, understand this process and what matter when engaging with new things?

Hallnäs & Redström (2002) talks about a shift from 'use' to 'presence'. They argue that, "[...] *ubiquity of computational artifacts drives a shift from efficient use to meaningful presence of information technology.*" (Hallnäs & Redström, 2002). They describe how the work in fields like *ubiquitous computing* and *tangible computing*, have helped moving computation from the shell of our laptop or desktop computer and into an our everyday physical objects. This has brought the need to understand design of information technologies as part of our everyday lives. Besides marking a shift in physical presence, these design domains also marks a shift in what and how we use technology.

*"Information technology is changing from only being tools for the researcher or the business professional to becoming part of our everyday lives."* (Hallnäs & Redström, 2002)

Things have presence in our lives, not only viewed from the angle of the functional tasks we use them for, but also how they present themselves to us and fit into our everyday lives. To better understand how to 'design for presence' they put an emphasis on how we accept things and let them into our everyday lives.

#### 3.5.1 How things have presence

The interesting distinction to be made here is the one of the general or objective description of an object, and how it is described in relation to our lives.

*"We can also answer the question of what a thing is in a different way, as when we ask a friend about a certain piece of furniture in her home and she answers that it is the table she got from her late grandfather. Clearly, it would be inappropriate to answer such a question with "it is a piece of furniture on which you can put this or that kind of object provided it does not weigh more than X kg." When we ask questions about this particular table, we do not ask for its general use, but about its existence in our friend's life, for example, its role or place."* (Hallnäs & Redström, 2002)

I see this notion of presence as another way of understanding how a given design can be situated within a person's life. By designing for presence we put emphasis on the way a given design is experienced, feels, and allows for the user to create an internal understanding of how it relates to his/her life. I find this a fruitful focus for this project. It can help creating an understanding of the potential in how we engage and situate more emotional everyday objects.

In relation to this Hallnäs and Redström (2002) talks about the places we have in mind when designing everyday objects.

*"Many kinds of artifacts have well-defined places, or categories of places, that they are more or less designed to fit. We can also design with such places in mind, as when we create furniture for a kitchen or a livingroom. While kitchens and livingrooms are physical places, furniture designed for these places also indicates ways for these things to enter into our everyday life."* (Hallnäs & Redström, 2002)

In the following we take a closer look at the act of letting things enter our lives, and what matter in the process of acceptance.

### 3.5.2 Letting things into our lives

Talking about designing for presence and understanding that as the way we situate things in relation to our lives, not limited to the usefulness of things, sets the scene for the question of how we let things enter our lives. This seems an important one when looking at a design situations where the objects we design has the risk of failing, if they do not manage to get a valued place in a persons life.

*"This first invitation clearly has something to do with appearance: what an object is like as it makes its appearance in our life, when it presents itself to us. A thing always presents itself through its expressions. The expressions of a thing are its pure appearances as we disregard—or "bracket"—functional and existential definitions. It is what defines the thing as an abstract expressional, a bearer of the properties of expressions that are invariant across the many different existential definitions, that is, an expression-identity."*(Hallnäs & Redström, 2002)

Working with the expression of things is working with the way we find meaningful ways of situating things in our lives. I see this as fundamental to the way we use our everyday objects when creating the way we wish to live our lives. In designing for presence the expression is central. This is because the act of accepting something into our lives is *"a matter of relating expression to meaning, or of giving meaning to expressions"*, and that *"[...] the result is that a thing becomes the bearer of meaningfulness through its expressiveness."* (Hallnäs & Redström, 2002).

With reference to this understanding of *presence and expression* this project have used these to focus the investigation of how to create an understanding of the potential of more emotional objects in our everyday life. They have been used as guidelines in the design process, and as tool for analysing the findings.



## 4 Method and academic practice

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This chapter links the background examples and theory together in framing the design process that have been used in perusing answers to the research questions put forward in the beginning of this thesis.

As base of this design exploration the chair were chosen as a suitable category of everyday objects, which where to be used for designing emotional hybrid objects.

By initiating two design experiments, inspired by the work described in 3.4.2 *Ludic Design* and 3.4.3 *The Placebo project*, the project have used an iterative design process. The objective of the designs created in this process wasn't to make one well functional design solution. Instead it was to serve as experiments, which could help collecting knowledge on how to understand the way emotional everyday objects can create presence in our lives. The qualities found in the inspirational works, towards achieving the goals of this project, I find in the core of the *what if* approach, put forward in 3.3 *What if*. By making designs that suggests new ways of doing things the evaluation of these designs seems the strongest if people are able to experience it over time and through functional prototypes.

This is because the answers, to the questions put forward, are found in the way people explore the designs and find meaningful ways of using them. Further I find that it is the actual use-experiences that will make people able to reflect upon their use and the relations they have created towards the objects.

The process of this project differs from that used in the *Placebo Project* in one important way. While the *Placebo Project* were a conceptual design piece exposed to real users, this project is using the exposure to the users to create iterations allowing the knowledge from the first experiment to be put into the second. This has the benefits of allowing interesting findings from the first experiment to be explored from another angle in the second. Further it differs in the time perspective. At no time were an object placed in a home for more than five days. This was what the timeframe of the project allowed, and I thought it was better to reach five different homes for shorter time. With the focus on the process of acceptance that happens when the object first presents itself to us (Hallnäs & Redström, 2002), this seemed to be the right priority. Narrowing down the amount of homes would also increase the risk of not getting usable data.

### 4.1 Project outline

Initially one design were sketched and built into a working prototype. After this one had been tested in three different homes, another one was designed and built based on the findings and experiences with the first one. The second got tested in two different homes. A short description of the test homes is found in chapter 5 *Design experiments and findings*. Test users were found through advertisement done using the social media platform Facebook. This had two main reasons. Because of the short test periods it was important to get the chairs placed with people that volunteered, and therefore could be expected to make an effort out of exploring the prototypes. Secondly because on social medias like Facebook people are used to reacting fast, otherwise things get lost in the constant flow of new information. This was important taken the short time perspective into consideration.

There were only a few weeks available for designing and making a prototype, evaluate it, and then design and make another prototype and then finally evaluate that. Since the designs weren't made with a certain target group in mind I found that making sure it ended in the hands of people that could be expected to build up enough experiences in a few days had biggest priority.

It is of course important to consider the findings and conclusions based on these facts, to get the right understanding of the scope of these.

After concluding the test period the data got analysed in relation to the understanding of *presence* and *expression* put forward by Hallnäs & Redström (2002), described in the previous chapter *3.5 Letting things into our lives*.

## 4.2 Data collection

At the end of each test period a follow up interview were made, with as many of the people that had been in contact with the prototype, and living in the apartment, as possible. Before each interview the answers from the previous interviews got reviewed. If something were found in the old interviews that needed to be explored further, the questions were revised if. The biggest revision logically happened when going from experiment one to experiment two. The interviews were recorded on audio files and a transcript made afterwards. As part of the transcript the interviews got translated, since they were conducted in Danish, which were the first language of everybody present during the interviews.

The transcripts are found in the *Appendix* section, and will be referred to as B1-B5 (order of appearance in Appendix).

## 5 Design experiments and findings

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This chapter contains an overview of the experiments and the key findings from the following interviews. The aim here is to give an introduction to how the project was carried out in order for the reader better to understand the analysis and conclusions drawn upon that.

As explained in the previous chapter the experiments were set up as iterations. Therefore the first experiment got defined, developed, and tested, before final decisions of the content of the second experiment were made.

In order to allow people to make their own interpretations of the objects, what they are, and how to use them, they got very little information when the objects got installed in their homes. The prototypes were designed to be usable without further instructions than to plug in the power supply that both chairs had. Beside that, only instructions given were for people to figure out for them selves what to do with them, and how to reset them if necessary and that more explanations of the project would follow in the interview concluding the test period.

### 5.1 First experiment

This first experiment was built around a simple concept of ‘the chair that likes being used’. By letting the chair react upon people with simple emotional mood expressions, the aim was to explore how people reacted on emotionality with clear reference to human ways of expressing ourselves.

#### 5.1.1 Design - Limpy

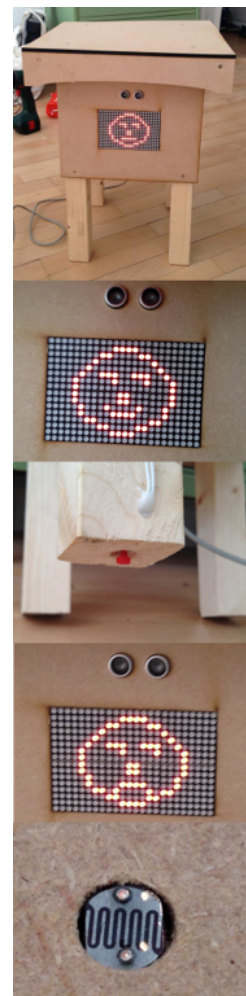
The design is a stool with four legs fabricated in MDF wood. It has a front side, where there is mounted a 16x24 LED display, and an ultrasonic proximity sensor. On top of it, there are three light sensors detecting when something is covering for the light, e.g. a person sitting down. One of the legs is a bit shorter than the rest making the stool tilt a little, when someone sits on it. Under this leg is placed a sensor detecting when it tilts towards that leg.

The display shows a smiley face (fig. 6) that has three different features responding to the way it’s treated.

##### 5.1.1.1 Mouth

Either it shows a smile, a straight (neutral) expression or a sad one. It smiles when shown attention, either by someone activating the front sensor from being in proximity of less than 1,5 meter of it, or someone sitting down on it. If left alone, meaning neither the front or top sensor is activated, the expression goes back to neutral after a few seconds. After being left alone for five minutes the mouth expression becomes sad.

fig. 6 Limpy



### 5.1.1.2 Blinking eye

When the chair tilts towards the 'limpy' leg it closes its left eye. The eye opens again when the stool is put back in place, as it normally stands without weight on it. This enables the users to make it blink while sitting down on it, by leaning towards the back and forward again.

### 5.1.1.3 Dancing

Whenever someone sits down on the stool and activates the light sensors, besides smiling, it starts moving its head from side to side, until the person moves away from the chair again.

## 5.1.2 Rationale

The rationale behind the design of this prototype was to make a design that clearly, and unhidden, tried to communicate emotions. Starting with a very obvious and simple coupling to emotionality seemed beneficial in order to ensure some feedback of the build in emotionality. By referring to human emotions this prototype aimed to appeal to our empathic side by enabling people to make the stool show a happy smile, when shown a bit of attention.

That the type of chair for the first experiment was chosen to be a stool had two main considerations. A stool can be used for sitting in many different ways, and is also often used for other purposes, like standing on when reaching high up places or as display when putting other things on top of it (fig. 7). Besides that a stool's construction can be rather simple. This makes it both *neutral* and *flexible* which were interesting in the perspectives of allowing people to come up with their own ways of using it, and doable within the time restraints of this project.

The choice to build it myself was made based on a wish to get familiar with the design materials in order to get new perspectives on the project in the construction process. The way it was designed, and specially the way it reacts on people walking by, was made to see how people would react on it. Not only by capturing attention from the light in the display, but also from the way it reacted on people present in the space near it.

Furthermore it was thought as a way for the chair to invite people to use it, by giving a short smile when someone passed by, but saving the smiling dance for someone sitting down on it.

Giving it a 'limpy' leg, and using this as a trigger, was a way of trying to give it a bit more personality. Much like an old chair that gets accepted despite its signs of age, this was done in order to understand how this kind of extra focus on this functional disadvantage would be interpreted.



fig. 7

### 5.1.3 Findings

In the following is explained the key findings from the first experiment. The things put forward here are both related to the understanding of the motives for the second experiment and important background for the analysis in next chapter.

The findings from each experiment are divided into five different sections. First in *Test conditions* a brief intro to the conditions the tests were carried out under. Next under *Where* findings related to which physical locations the prototypes were used in, and general context description. In *What* the things related to how they defined or related to the prototype. *How* is a walkthrough of how they acted upon the prototype and their reflections on that. The last is *Use perspectives* that cover reflections upon potential user or other perspectives in the design.

#### 5.1.3.1 Test conditions

The advertisement for this prototype was made in a fun language explaining how it liked being used, and it was presented with its name (Limpy). This were done out of a concern that people would need this hint in order to understand, and react on, its emotionality.

##### *Apartment 1: (A1)*

A big apartment shared between eight people. Considering themselves a collective, and having a very social living form. In the apartment are living equal amount of boys and girls in an age range of 25-31.

The test period were three days and took place over a weekend where the collective had arranged a day where everybody were assembled to make small renovations on the apartment. Therefore there were a lot of people around, and a lot of walking around in the flat fixing stuff, and less quiet sitting down time. The interview was made with four people from the apartment, one boy and three girls.

##### *Apartment 2: (A2)*

Here two boys, aged 31 and 32, are living together in a shared flat. The one guy had a regular daytime job, and the other was writing a project for his studies, mostly sitting at home. Both had been at home some time during the test period of three normal weekdays. They also had guests one evening during the time of the test. The interview was made with both, though one of them had to leave two thirds into the interview.

##### *Apartment 3: (A3)*

Six people living together in an apartment. Three girls, and three boys, all in the age range of 24-27. Like A1 they also have a very social form of living, and are considering themselves a collective. During the five days the test period lasted here, they had a considerable amount of guests, especially one evening were everybody gathered in the kitchen where the prototype where placed.

#### 5.1.3.2 Where

In all three homes it was mainly placed in the kitchen. This was because that's the place where people use the most time, and they all thought that it should be a place where people are spending time. They didn't seem to consider moving it into a more personal space, like e.g. a bedroom. In exploration it naturally moved around different places in the kitchen

spaces. In A2 it got moved around to explore how different lighting conditions affected it, resulting in the person doing it being able to control its smile with the light after a while (B2). Only on one occasion did it leave the shared space of the kitchen. This was when it was standing in a hallway in A1. The following quotation describes a situation from this place where a girl engaged with it in a non-social context.

*“P2: Yesterday morning when I got up, I caught myself. Because I use the bathroom out there (pointing to a hallway) then it was just standing being a little sad, and then I touched it at the moment I walked by it. Afterwards I thought “no... how silly”.*

*M: then afterwards you tried to detach yourself from the thought that it wasn't just a thing, and then you placed it back on the floor.*

*P2: Yes... And I have been focusing on not petting it.” (B1)*

From all three apartments there were similar responses regarding the difference between being in a social context and being alone. Though not all had issues responding to it while being alone there where still a shared understanding about what mattered more in a personal space.

*“P: On your private rooms it wouldn't be fun the same way.*

*A: Then it had to be more something you could use for something. Then you would have to be able to talk to it, or ask it “Limpy what is the recipe on potato soup”.*

*P: Or just be a clock, or something else.*

*D: The practical part of it matters more when alone, and in the long run.” (B3)*

In A2 there were different views on this. One of them didn't have any issues reacting upon it while being alone, but did also find that the functionality aspect were more important when being alone. The other compared it to being caught playing with toys for children, which he strongly stated he wouldn't like (B2).

### 5.1.3.3 What

Below is a description of what people thought of it, in order to describe their understanding of the prototype.

The most surprising thing about this was the fact that people generally didn't think of it as a stool. In A1 and A2 they only used it for sitting on, with the motivation of exploring how it worked. The same way they drummed on it, yelled at it, or played music for it, in order to see if, and how, it responded (B1, B2).

Though they in A3 used it for sitting on it, it still got put in a role of something else (B3).

It got referenced in many different ways: *Interactive stool, dog like, a gimmick, not a chair a living thing, pet, toy, hybrid between a Tamagotchi and stool, electronic pet, something functional with a entertaining side, status symbol.* (B1, B2, B3)



fig. 8 Picture from A2

The most common way of looking at it was as a 'pet' or the more general categorization of 'a living thing'. Naturally these understandings were based on the emotionality expressed through the different facial expressions (B3). In A2 one of the interviewed people referred to the stool as 'him' during the whole interview (B2). This leads on to another important understanding about how people related to it, they assigned it personality:

*"At one point it was turned on a whole night, where someone had put a heavy bag on top of it, to make it happy. You kind of gives it a personality, and then I thought I were smarter than it."* (B3)

This is also visible in the way people referred to it as 'Limpy' between each other (B3) and how they reflected on how it had more personality in a social context (B3).

Sometimes personality was a natural consequence of understanding it as a living thing.

Though this has different origins that got expressed in a few different ways that shows slightly different perspectives. One perspective closely related to the understanding of it as a pet or living thing, is seen in the way people talked about it as something with likes, dislikes and preference:

*"P1: Then it has gotten a poster on top of it. At first M said that it didn't like it, but it actually did like it.*

*M: It liked having things on top of it."* (B1)

In addition to this is the way people manipulated it in the physical space:

*"It had to be tugged under a blanket, then it had to sit in a chair, in order to sit with us while we were playing magic cards, because else it would get bored."* (B1)

Another way this got expressed is in the way the 'limpy' leg got accepted with reference to the narrative around the leg controlling the blinking eye, and the whole expression of the digital layer:

*"With this one it's totally ok that it tilts, that wouldn't be ok with a normal chair."* (B3)

Thirdly the way it's not totally straightforward to understand how to make it react in different ways seems also to add to the understanding of personality. In A1 they talked about how it had to be able to surprise you for a longer time (B1), in order to be interesting over longer time. In A2 the balance of how hard its reaction patterns is to understand got related to it being an electronic pet:

*"In the longer perspective of this being a product, it might be better if people understood how to affect it, perhaps not totally, if the thought is something like an electronic pet. You also like them to have some personality."* (B2)

As the last point I wish to drag forward regarding how people have understood it and related to it, has a special critical nature in attempting to make people feel comfortable around new things.

In all the three interviews people have unsolicited been expressing concerns about trust and surveillance issues. *"I also think it contributes with something... scary is a strong word, but something surveillance or that kind of presence of something that isn't."* (B3). Most clearly it seems to be connected to the personality perspective and the fact that it doesn't reveal how it works or what might be inside it. This got linked to the human like emotionality with reference to its face and the idea of it speaking to you, and pretending to have personality (B3). The other key element here was people wondering what's inside it.

*"There could be some super hi-tech thing in it, able to read facial expressions or something*

*like that*" (B1). This clearly also had references to how it looked like. *"I would probably have a kind of trust issue. That might be because of the USB cable that powers it"* (B3). Especially also the proximity sensors in front of it have often gotten referenced to as either cameras or microphones when people have seen it for the first time, which also started some of these speculations (B2).

Another take on the trust issue, though not that explicitly expressed, had to do with the way the prototype expressed a wish for you to sit down, thereby relating to issues with how it tries to alter peoples behaviour.

*"A: Even though I think it's very fun, then the thought of having things with a personality...*

*P: That controls you in a certain direction. I have been thinking that. It's fun the way that it wants you to sit on it, all day. It's totally opposite of what you else are trying to make technologies to do. We have all kinds of technology for making children play outside, and that kind of stuff. This one wants you to keep sitting down."* (B3).

#### 5.1.3.4 How

In the following I will unfold how people have been using the stool. As already mentioned the stool wasn't used a lot for sitting on, which mainly was because of bad comfort (B1, B2). Instead it has primarily been used in social context. The focus is therefore on how people have been using it as a way of interacting socially with each other, and on the kind of actions and engagement there have occurred.

##### *Reacting on its expressions*

The way the stool has built in mood expressions have clearly made people react upon it. One person from A1 found that *"There is something fundamentally nice about a chair that gets happy when being used"* (B1). One from A3 found that *"While it has been here I would rather sit on this, than on other chairs, because it shouldn't be sad"* (B3).

This is also exemplified above in the situations from A1 with the girl reacting upon it in a hallway. Also in the way they brought it to the table, sitting in a chair, to keep it from getting bored.

Another type of engagement is people finding creative ways of keeping it happy over longer time without having to sit on it, e.g. by placing something on top of it, a poster (B1), a bag (B3) or something else. Especially the reference to human expression seems to matter here:

*"A: It's also something I get a little offended by I think. In the beginning it's a bit fun, then it's a game, but then all the sudden I'm trapped by an urge to make it smile. At the end it becomes an unwanted obligation, then I just put a bag on top of it, then it can smile, and I don't have to sit on it.*

*D: But it's not something you have to do!*

*A: No, but just a little... right*

*Me: Does it have anything to do with the face?*

*P: Yes the face is the central thing in this."* (B3)

This also shows an interesting example of how the emotional engagement can keep in place despite the more negative feelings towards the engagement.

### Excuse for social interaction



fig. 9 Picture from A1

The impression from all three interviews were that the thing people found most interesting and defining about it, were the potential of using it as part of, or an excuse for, jokes or funny remarks made with the purpose of engaging socializing with other people.

One evening in A3 there were a lot of guests, and the stool became “*part of the entertainment, everybody had to try to sit on it.*” (B3). In this way it got used as a joke or a fun element in social context. In A1 they engaged it in social pranks by creating situations that involved doing something fun with the stool (fig. 9). “*Because it’s*

*a gimmick, it’s also a way of socializing. E.g. now I put it here, and then I’m making a joke in relation to someone else. If you put it under a blanket it’s because you hope someone else finds it funny.*” (B1).

Another way this has been done is in the way it has been used in conversations as a subject for projecting internal relations.

*“E: It has also been good for projecting all the issues me and P has between us. For an example “now we’ve got a temporal family member and he shouldn’t think he is anything special”. He has to be set in place right away, and I placed him in the corner. P was just nice to it, while I were more yelling at it.*

*P: We are kind of a mom and dad. Angry dad and nice mother.*

*E: I just though it demanded attention. I don’t think we have been coming along, real well. Also think it has been quiet a lot of the time.*

*P: Yes you would have liked it to be more participating.*

*P: I think you have been a little hard on him.”* (B2)

Similar use occurred in A1 when a girl living there was teasing a flatmate by saying that the stool didn’t like him (B1).

#### 5.1.3.5 Use perspectives

In this paragraph I present the interviewed peoples reactions in relation to the use perspective of more emotional everyday objects. It covers different ways of interaction with such objects, situations they could fit into, thoughts upon the use in a long time perspective, and more general thoughts on the emotionality aspect.

When designing this prototype the potential use of sound were considered, but discarded based on a consideration of it quickly becoming annoying. Despite this people often envisioned speaking to it and it speaking back, in relation to other use or alternative ways of interacting with it. An example is from A3 when a girl talks about how functionality matters more if you had it in a personal space: “*Then it had to be more something you could use for something. Then you would have to be able to talk to it, or ask it “Limpy what is the recipe on potato soup”.*” (B3). Another perspective on interacting through speech, though the other way around, where that “[...] then it probably had to have a function, e.g. when I’m

alone here at home, then it could ask if I didn't had to work if I had been playing music for too long time." (B2).

Though giving it a voice seemed appealing based on this there is an important remark to make about that. In both A1 and A3 it was mentioned that it had to respect time and place by only speaking on appropriate times, e.g. when someone chooses to interact with it. The thought of a piece of furniture that spoke in unwanted situations seemed disturbing (B1).

The use in a longer perspective painted a clear picture of its perhaps biggest problem. As mentioned already, some saw it as a gimmick (B1), which also bears a risk of it not lasting longer than its novelty factor. One didn't think it would last in a longer perspective (B3), many started to consider how it then should be more advanced and by holding back on some of its features. Then it could keep being interesting by revealing them over longer time (B1, B3). As in relation to using it in a personal space here also got mentioned that the more functional features would be important in the long run (B3, B2). One of the people in A2 had a rather clear reaction to the perspectives in this emotionality: *"It's fine to play with and all that, but it has to be functional. The emotional thing is deemed to fail, because it's fake."* (B2). Though other statements showed how he seemed to enjoy it, why I interpret this as a comment on the longer perspectives.

Regarding the type of person this type of thing might be interesting the picture drawn by the answers were also quite clear. Mainly old people and children got mentioned, Children because of their tendency to project personality into things (B3), old as something to keep the company without the obligations of a living pet (B1).

## 5.2 Second experiment

This chair prototype was built with the purpose of exploring the potential of a more personal relation to the chair, and a non-human like emotionality. The concept evolved around the thought of 'a generous' chair. By letting the chair return the favour when being treated the right way, it had the aim to explore how a less straightforward emotionality would be understood and used.

### 5.2.1 Design – Generous chair

The design is a chair with armrests, but a rather upright sitting position. The frame is made in wood and the seat and the back is stuffed and covered with a green fabric, with patterns from a close up photo of a grass lawn. On the right armrest it has six thin metal pieces functioning as a sensors detecting when someone is stroking it with a finger. Inside the back of the chair it has two vibrational motors, which vibrates when someone is stroking the sensor on the armrest. If it's continually stroked, for a longer time, it starts playing music. The song is, *You'Re, The First, The Last, My Everything* with the soul artist Barry

fig. 10 Generous chair



White, sounding from a hidden speaker. All electronics are hidden under the seat and inside the back of the chair. Only exception is a few wires connecting the back to the electronics under the chair, and the power chord. Unlike the stool from the first experiment this one were made from an old chair being altered and being upholstered with new fabric cover.

#### 5.2.1.1 Stroke sensors

These were carved into the wood and situated in a place close to where the hand will normally rest. They were designed to feel pleasant or at least not unpleasant, depending on the person. The logic was made in a way so you had to touch them with a stroking movement going from the front of the chair towards the back, not going too fast. Though there were issues with noise allowing other kinds of movements to be understood as a stroke, the stroke was the only movement with guarantee of effect, and therefore expected to be more likely to be done.

#### 5.2.1.2 Vibration

The vibrations in the back were made to feel gentle though noticeable by the user of the chair. They lasted between 0,2 and 1 second controlled by randomization. The experience of this was thought to be a short not too monotonous feeling that should encourage people to keep on stroking the chair, trying to evoke a feeling of mutual pleasant reward from this engagement.

#### 5.2.1.3 Music

This element was built in as a more hidden layer of the design. The user had to sit for a longer time repeatedly stroking the chair. This was locked to time in a way so you had to do this as a continuous movement, ensuring that if you left the chair, or stopped stroking it, you had to start over again. When the strokes had been going on for long enough time, in the right pace, the chair started vibrating for about five to seven seconds, without you having to keep stroking, and the music slowly faded in. While the music was playing it was still possible to get vibrations by stroking it. Like when the music got triggered there would still be triggered a longer vibration if you continued stroking for a longer time.

### 5.2.2 Rationale

From the findings of the first experiment there were defined a few important issues that needed to be addressed differently in the second. This was in order to leave unfruitful design directions and explore new ideas based on new understandings gained in the first experiment.

The first thing was the fact that the stool in the first experiment didn't get used a lot for sitting on, which the strongest reaction towards was because of bad comfort. This was a thing that, could be addressed through the design by making the prototype with a more comfortable type of chair, thereby also hoping to make it more likely to compete with the chairs getting used the most in the test apartments. But also by designing the interaction with more focus on affording the user sitting down in the chair.

Another, and also very important issue that got addressed were the nature of the first prototype being used mostly as a social gimmick. This isn't a bad thing in itself, but looking at the answers on the perspectives in paragraph 5.1.3.5 *Use perspectives*, it seemed very unlikely for a social gimmick to last longer than its novelty period.

These two issues together helped define a focus for the second experiment being on a more personal level of engagement with the prototype.

The type of emotionality expressed by the prototype was also changed. With the first one, the rather straightforward human like emotionality, referenced through mood expressions, created a rather simple way of reacting on it, in the wish to make it happy. By not having a clear reference to how the emotional expression should be interpreted, the aim were for people to better find their own meaning in a potential more nuanced experience of interaction.

In connection to this no name for the chair was provided to lead on to the emotionality. The findings from the first experiment showed no sign of need for underlining the emotionality in this way, in order to speed up the act of engaging with it. Furthermore this could defeat the purpose of making the test users find their own way of approaching and using it.

The choice of the stroking gesture and vibration are based on an idea of creating a chair that shows it likes being stroked, by returning the favour with a gentle vibration. In this way the wish was to understand what kind of relation to the chair it could create, treating it a bit like when petting a cat or dog. The other consideration here was to better integrate the extra features as part of the chair design and normal use, as something to rest our bodies in.

The music element I added in order to see how far the exploration extended. If people were willing to engage in a more long-term interaction in order to explore the prototype.

## 5.2.3 Findings

### 5.2.3.1 Test conditions

#### *Apartment 4: (A4)*

A big apartment shared by four people, two girls and two boys, all in the age range of 23-31. They have a social living form and consider their apartment a collective. The chair stayed at their place for three days. Only the two girls were present during the interview. They were also the ones that had most experience with it during the days.

After two days, one of the girls also participating in the interview was told how to trigger the music. This information were given because it didn't seem that they would be able to find it by themselves, and I would like, as a minimum, to get some feedback on how it felt when the music played.

#### *Apartment 5: (A5)*

A girl aged 24, living alone in a two-room apartment. She had it for four days where she went to work around 9-10 in the morning and spend the evenings at home.

### 5.2.3.2 Where

In A4 the chair was placed in a shared living room, a place where there is both dining table sofa corner and TV set (B4). In A5 it got placed in front of a desktop (B5). Through both interviews the picture of a use context where the user would be alone and have good time, to engage were the strongest.

#### *Best when alone*

The picture was clear. This type of chair was most interesting when the user is alone. In A5 the test person found that it was a positive little nudge, when she were sitting at her desk working (B5). She also found that it would be more of a distraction in a social context: *“If I’m talking to another person, and it purrs, trying to get my attention. I would have a hard time coping with that.”* (B5). In A4 they found that it fast fell in the background when used as a dining chair (B4). Further more it seemed important being alone with it when figuring out what it could be used for: *“I have used it by walking up to it, then sat down and explored it. I go to it alone, and then it’s me and the chair that has to figure out what it does”* (B4).

#### *Use context*

The most interesting context of use showed to be the more quiet moments you have with yourself. Either as part of e.g. the morning rituals, where it was used as, *“a soft start of the day”* (B5). Or as a thing that can help creating an appealing space for doing the things you would like for yourself to use your time on.

*“Because I’m trying to build up my space so this is the place I’m using most time. There is a nice TV in the other room now I don’t have a flatmate, so I’m trying to use more time in here. If I have a really good chair here, by a desk, where there are some things that can make me do other stuff, like the computer, or drawing. More creative things.”* (B5).

It showed the importance of situating it in a *“[...] place where this is the chair you sit in.”* (B4), as part of building up a space where you want to sit down and dwell with something for a longer time.



fig. 11 Picture from A5

### 5.2.3.3 What

Unlike in the first experiment the chair where only used when someone were sitting in it. It got interpreted mostly as a chair with something extra. This got explained as: *“a mix between something living and a piece of furniture. It has been company while you have been sitting with your computer.”* (B5), or through how people relate to it: *“[...] I think you are creating a relation to it that is more than a normal chair.”* (B4). Like with the first experiment it also got understood as having personality.

*"It moves from being a thing to something a bit more alive. It's a bit like it has more personality than that chair (pointing on another chair)." (B4).*

Though still seen as a chair, people, like in the first interview, also saw it as a kind of pet, with reference to the way it vibrates.

*"It purrs... I see it as a kind of cat..." (B5)*

The test person in A5 saw herself as someone finding it easy to personify and give things names, and in relation to that mentioned that she found it easier to personify organic things, like plants (B5).

#### 5.2.3.4 How

In the below I will look closer at how people used the chair and how they felt while interacting with it.

In A4 trying it out in different situations helped understand how it worked best in a single person space, as mentioned above. They also found that it better replaces an armchair than e.g. a dining table chair (B4). It got used as *"[...] a break when I have been sitting to long time alone in my room."* (B4). In A5 it got placed at the desktop, where the typical activities were defined as: *drawing, using the computer, researching, creative stuff* (B5). In relation to this she expressed the following:

*"It is in here, it makes me feel nice. It gives the little caring push, that isn't disturbing, but like a cat that goes by. Then you are drawing a bit faster and think it is a bit cooler (the drawing). I will get most out of it when being alone. That's when I think I will get the most out of it."* (B5).

#### *How it felt*

In trying to understand how people related and situated the prototype there is a few interesting things revealed from the way it made people feel interacting with it.

In A4 both the interviewed people found that it could feel a bit silly 'petting' a chair. Especially while doing it over longer time to try the music feature, but this situation also shows something else about how it could be experienced.

*"In the beginning I thought, this seems really strange, because I had been doing it for a long time, but then suddenly it's as the chair takes over, the vibrations keeps going even though you stop, and then you think, shit, what is it going to do now, and then it starts playing music. Then I felt like, wow, now the chair is talking to me, it's doing this for me."* (B4)

People seemed to catch up on the 'giving back' perspective of the design. Beside the above this got commented on as a dialogue or collaboration (B4), and that it feels like the chair measures on the person sitting in it. The last were especially put in relation to a feeling about it as something that has it's own will (B5). About the way you interact with it, and how this experience got created the following were said: *"[...] you don't just press a button*

*but touches it like you would touch a human, you gives the chair something, and then it gives something back.” (B4).*

Though it might seem that there is a general consensus of experiencing this chair as something more than a chair, and that it is getting projected some kind of living presence into it, it is important to understand the range of how these people related to it. From the girl in A5 experiencing it like a cat, and explaining her experiences with it using the cat metaphor, to one of the girls in A4 saying: *“I don’t really know, without thinking more about how I make relations to things I don’t think it has to do with how you have to treat it.” (B4).*

#### *Creating a narrative*

In A5 the girl created a whole narrative around the chair, about how it was a cat and through out the interview she used this to explain her relation to the chair. Not only because of its vibrations as already mentioned, but also when explaining how *“It feels or measures a little on the person sitting in it, react upon that, like I think a cat does.” (B5).* In the way she experienced her attempt to understand and control its features: *“It changes a bit what it wants to do, which again makes me think about a cat... it’s just it’s own.” (B5).* Especially also her way of describing how she explored it shows how she creates this narrative around her image of a cat.

*“I looked at it, felt it with my hands, and nothing really happened... Then I was watching a YouTube clip and when I was leaning over, things started to happen. There was a bit of life in it. Then it started to play Barry White, and I had to sit and enjoy that for a while, and take it in. And I hoped it came again, but it didn’t. Then I got it to vibrate more times, and it made sense that that’s what it should do. I see the fabric that is grass, I’m thinking a lot in images and takes a bit to far out some times... and there is something in the grass, there is some animals hidden... there might be a cat hiding, I have never had a cat myself, but I have taken care of one for others, then it was allowed to be in the garden, and you could never see it in the grass.” (B5)*

#### 5.2.3.5 Use perspectives

Here is presented some of the thoughts expressed regarding its relevance in the perspective of a permanent use relation, and some general reactions to it.

#### *Feeling confident*

As expressed above the test users had very different level of commitment, or way of reacting upon the emotionality attempted through the designed interaction. By looking closer at some of the reasons for not using it as much, shows an interesting picture of how much it can take to get people to engage with new things.

*“If it was a chair someone had used, you had gotten a special place or you had bought. You had a story to relate to it. Then I think it would be different... Of course it also has to do with the fact that we haven’t gotten this one for a long time, so we are still a bit foreign to it, and then especially this thing with petting it can feel a bit silly somehow.” (B4)*

Much like this the girl from A5 also talked about how she liked taking her time to digest when getting to know new things, like with people and animals (B5). She explained the time relation of getting to know a thing like this, in the following way.

*"It comes and goes a little, it's full of surprises. That's probably also what I like about it. It isn't constant, and that's fine, but if it also came with new things, once a while... Then I wish to give it time for... feeling secure telling me that it can do more things... talking or something."* (B5)

#### *Reaching out*

In both interviews there were talk about the perspective of making it reach out more. Either as an idea of making it react upon people, in a way that it showed it knew who was sitting in it (B4), or as a way of reacting before, or after, someone had used it (B5). This seemed to be quite highly valued as something that could make it interesting in a longer perspective. This is much in line with what people said after the first experiment. The following seems to conclude how this is about balance, since something similar got mentioned in all interviews:

*"M: [...] there is also a thin line to it becoming too much, it is too much present, where you don't want to be in the room if it makes too much notice on itself.*

*B: Also if it's alive or has something extra, it's also like you never know what it could do."* (B4).

## 6 Analysis and design discussions

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This chapter analyses the way the findings from the experiments show how people gave the prototypes presence, and how their expressions were understood and took part in that. This is a thing that can be viewed from many different angles. I have chosen to focus on the two things I find the strongest and still widely applicable, in relation how more emotional hybrid objects enter our lives. Those are the creation of personality and narratives. Furthermore this chapter takes a closer look at the potential of the personality aspect, through a more general design discussion, concluding this chapter.

### 6.1 Expression

People in both experiments had no issues catching up with the emotional sides of the two prototypes. They got experienced as having 'personality' and people clearly engaged in this, by responding positively to this invitation to interact. By positive I mean that no one totally discarded them as uninteresting, or didn't try to find out what these could be used for. The personality perspective was most visible present in the prototype from the first experiment, though the second also showed some interesting possibilities related to creating personality. The two designs showed very different strategies on creating an emotional layer.

In the first experiment it was made very visible and by embedding a human like emotionality that was very hard to miss. It also created a type of emotionality that was harder for the user to interpret in their own way. People reacted strongly to this expression, and responded in ways like we know it from human to human interaction. Though most of this kind of concern was shown as an act of making social jokes, this also spawned more genuine emotional reactions on personal level. This was seen in the feeling of obligation it was able to create. The fact that this was able to happen shows the strength of using very explicit emotionality. Though it isn't hard to imagine this type of commitment being useful in a design context, I imagine it being most usable in a more task-based context, where the importance lies within getting the user to perform a certain task, through a feeling of obligation.

The other experiment had another way of expressing emotionality. This was visually hidden, and it was more about how the user chooses to understand it. The way that all the interviewed found references to living things when asked about what they think the chair was, and what they thought about the interaction, shows an interesting potential. Though this is something happening on a very personal level, and therefore hard to generalize upon, I think this shows willingness for people to explore these types of relations.

By allowing themselves to engage in this way, people open up for creating narratives for their relations to the objects. I find this an important part of the process of accepting things into our life, being able to create narratives around them.

In the same way as we are able to talk about the place a sofa has in our life, by explaining how we have inherited it from someone that matters to us, I think narratives about our experiences and the way we relate to things can serve as an access to acceptance.

## 6.2 Presence

In order to understand the way that narratives are able to create presence, we will take a closer look at two of the interviewed peoples statements.

The first example is the girl living alone in A5. In the act of exploring what the chair did she created a whole story around how it was a cat, or how there was a cat hiding in the grass print. She used that story in her way of creating meaning, and enjoying the way the chair worked. By relating to the chair as a cat, she found a meaningful way of thinking of the way the chair made small vibrations while she were sitting by her desk.

*“It gives the little caring push, that isn’t disturbing, but like a cat that goes by. Then you are drawing a bit faster and think it is a bit cooler (the drawing).”* (B5)

Drawing this image for herself seems to constitute the way she gave meaning to its expression, and gave it presence. In this way it is possible, bit by bit, to expand the narrative about it. In this case I find a clear connection between these more specific narratives, and getting to a more general understanding of it, in this case as *“[...] company while you have been sitting with your computer.”* (B5).

The second example is a bit less obvious. This is the girl from A4 explaining her way of approaching it, when exploring how it worked.

*“I have used it by walking up to it, then sat down and explored it. I go to it alone, and then it’s me and the chair that has to figure out what it does.”* (B4)

She didn’t make up many different bits of a narrative, which was the example in the above example, but this quote shows how she had a certain approach towards it, and thereby took the first step in the creation of a narrative. By taking this approach, with it being some kind of collaboration figuring out how it works, she enabled the creation of an image of it as a living thing.

Another, and perhaps more straight forward way of talking about presence in relation to these hybrid objects, is in how they in their designed behaviour can express presence more directly than for an example a normal chair would be able to do. This was the case with the prototype from experiment one, and a similar thing got suggested as perspectives that could make the second one interesting for longer time.

This idea with the stool reaching out for people passing by, or being able to tell the difference on people using it gives another angle on how things have presence in our everyday lives. The thought here is to not let it fall in the background, of our attention, the same way a normal chair or other regular furniture normally does over time. Imagining how this would be like has one important complication. What you might call the ‘one size doesn’t fit all’-issue.

This is not totally straight forward, but think about how the way it’s reaching out, also is an important part of the way it expresses emotionality. With that in mind, the way people had

different response to the emotionality shows a contradictory relation. Making something that reaches out for people's emotions, also makes it hard to take well-informed design decisions, based on how people will be expected to react. Though the first prototype with its simpler understandable emotionality, created rather unified reactions, it is also here I find the clearest example of this. In the situation where someone find it obligating.

*"A: It's also something I get a little offended by, I think. In the beginning it's a bit fun, then it's a game, but then all the sudden I'm trapped by an urge to make it smile. At the end it becomes an unwanted obligation, then I just put a bag on top of it, then it can smile, and I don't have to sit on it.*

*D: But it's not something you have to do!*

*A: No, but just a little... right" (B3)*

This issue just seems to grow when you take a look at the long time use perspective. People found both prototypes interesting, but were also clear about that they needed to be able to evolve over time, in order to keep being interesting. This also means making it have more advanced reaction patterns, which again will open up possibilities for even more different ways of relating to it.

As a follow up on this, I will take up a discussion about how the creation of personality has implications in relation to strategies of either detailing a lot, designing a certain way the emotionality should be understood, or leaving it more open for people to create personality for themselves.

## 6.3 Design discussion

Below I look into complications and important considerations regarding some of the most interesting findings from the design experiments, all related to the creation of personality. Here I relate the findings to a more general design discussion, in order to show what we can learn from this, usable for future projects.

### 6.3.1 Personality: Open-ended vs. Detailing trade-off

From overviewing the findings it seems clear that this way of working with emotionality through a digital layer has interesting potential in relation to creating personality around the objects. By personality I specific think of the way people experience the designs as expressing some kind of characteristics that form the narrative about what the thing is. In both cases in this thesis this seems to be closely related to the understanding of the objects as something living. Then the personality comes to be about creating an image that fits viewing the chair as a being. Though this seems to be the straightforward answer to how personality is applicable, based on this project, I also see ways of transferring this to other types of design projects.

I see it as a matter of drawing attention to the personality creating elements in the right way. In the first experiment the personality of the chair got partly created around it's 'limpy' leg. By referring this with the blinking eye it got understood as part of its personality. A similar connection could be made, on a design without the references to a

living thing, by making a reaction an interesting and meaningful part of what a design object does and how it's used.

When that is said I think there is another interesting discussion to be taken here, which more clearly is exemplified in the experiments. When looking at the two experiments, one of the clear differences regarding how the personality narrative got created was in the foundation they were built upon. As described in the chapter 5 *Design experiments and findings* the first design experiment had built in more simple and clear references emotionality. It was also the case in the tests that people followed up on this without interpreting it in a totally different manner, than what was put forward in the thoughts about the design.

In the other experiment the emotional references were more open-ended, and therefore more freely to be put in different narratives of personality.

What I find interesting here is, what the issues might be, and what can be gained from these two approaches.

### *Open-ended*

From this approach I find the greatest potential in the strength of the relations the narratives create. By letting people make up their own narratives, they are able to make them in a way that is tailored precisely to fit their way of thinking. Like in the example from A5 where the girl made up a whole story, that had to do with her image of a cat, and how her previous experiences of cats were.

*"[...] there might be a cat hiding, I have never had a cat myself, but I have taken care of one for others, then it was allowed to be in the garden, and you could never see in the grass."* (B5)

The expectations for this kind of personality connection can be that it is strong since it was created centred around the person's own life. This is potentially an important fact in trying to make designs that people care about and therefore doesn't throw away easily. The obvious downside being that the narrative and personality creation is far from the control of the designer. If the intentions with creating narratives are other than ensuring a solid level of commitment to the design, this, open-ended strategy seem to lack the ability to direct the user. Another way of explaining this is that the strength is in the relation and not how the personality relation can be used to fulfil other goals for the design.

### *Detailing*

Looking at the first experiment, this strategy seems to have its strength in the way the designer can use this to create an indented narrative around the design. By leaving hints that are hard to miss, in the design, the creation of a personality through narratives could become an important design asset, in getting people to get relations that suits the wishes of the designer. There is also another important thing to mention. Though the other way seems to be able to create stronger relations, this one rely less on the users ability to create these narratives, without obvious hints. In that perspective this way might reach broader, by having an ability to reach people, which find it harder to project emotions into things.

Other studies have looked into openness as a design parameter. In the paper: *Ambiguity as a Resource for Design*, Gaver et al. (2003) looks at how ambiguity can be an asset in design. “[...] ambiguity is a property of the interpretative relationship between people and artefacts. This distinguishes ambiguity from related concepts such as fuzziness or inconsistency: these are attributes of things, whereas ambiguity is an attribute of our interpretation of them.” (Gaver et al., 2003)

They argue how leaving out information can become a way of making the user find their own meaning. Further they argue that pointing to something without explaining why, can be used as a way of creating individual reflection, making people find their own meaning, in the pointed to aspect of the design (Gaver et al., 2003). They explain this in relation an exemplification of ‘The History Tablecloth’.

*“[...] the cloth encourages people to reflect on the different histories of objects in their environment. But their interpretation is left open: the Tablecloth purposely allows the meaning of its display to remain ambiguous to its users.”* (Gaver et al., 2003)

I put this forward here in order to conclude this discussion by situating it in relation to current literature. With the discussion above I’m not trying to construct an either or relation between details and open-ended design structures. What I wish to emphasize here is that building up a personality as part of a design, is a balance between these two. Ambiguous elements are clearly powerful when it comes to creating strong relations to things that plays an important part in how we accept things into our lives, and give them presence. But they are only open-ended and ambiguous as long as there are details that point towards them.

I find the most important consideration when designing this balance being how directed the designer wish the creation of meaning to be. In relation to creation of personality I find this closely related to the expectations in the target user groups, way of engaging with the design.



## 7 Method reflections

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The purpose of letting people live with the experimental prototypes were to gain an understanding of how people engaged with these. The data collection got conducted as interviews concluding the test periods. The quality of the findings is therefore very dependent on how the test users were able to reflect upon the questions about their engagement. The questions I seek answers too, is questions I consider hard to get people to give qualified answers too. It seems it would have been hard, or perhaps impossible, to get interesting answers to questions like how people relate to a thing, in terms of emotionality, without being able to concretize it by explaining it with self experienced situations. People seemed to have little trouble talking about the subject of emotionality in relation to everyday objects, based on their own experiences. This was the case both in the group and single person interview.

Comparing my process with the one of Dunne and Raby in the placebo project (Dunne & Raby, 2001) I have done two important things differently. Instead of building finished conceptual designs I made rough prototypes, and thereby enabled the design process to become an iterative one. I find that this have worked well. Besides being able to build the second prototype with the knowledge from the first, I find that being aware of the important parameters that I have changed, have had great value. For an example the focus on human emotionality and the social vs. personal relations, have served as guide in creating good interview questions, and especially also as focus in the following analytical work.

The other important difference is the timeframe of the individual tests. By choosing to execute five tests, and only for a few days each, I lost possible interesting information on the long time perspective. Though in this projects timeframe it wouldn't have been doable to have a longer test period than at most 2-3 weeks. Doing that would also have meant only getting data from one test home. Another side of this is that the focus was on the act of acceptance that happens when we first encounter new things in the early stages.



## 8 Conclusion

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*How can digital embedded emotionality affect the way we let physical everyday objects into our lives?*

In this thesis I have carried out two design experiments in order to better understand the potential of embedding a digital layer that focuses on emotional engagement to everyday objects. This was motivated by technological possibilities, and an interest in understanding how these can be used to facilitate emotional engagement with objects in our homes.

Through an analysis of these experiments I have shown how the test users found ways of adding meaning to *expression*, and thereby showed how these emotional hybrid objects can get *presence* in peoples lives.

The key findings were how the digital element can be used to build up a *personality* around the objects, and ways to use that to encourage the creation of *narrative*. These narratives were found to have importance towards accepting these emotional new things into our lives.

*What can we learn from this project that is of more general relevance to interaction design?*

Through a design discussion it is also put forward how *detailed* and *open-ended* design elements can be used as design strategies. Balancing these can help the designer to make the designs afford certain types of narratives, creating a more controlled use structure, and different levels of commitment through the strength in the relations the users create through the narratives.

Further this thesis shows how a shorter version of an evaluation method where the design is placed in users homes, is useful for understanding what happens in the early stage of letting things into our lives.



## 9 Perspectives

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In this last chapter we take a look at use perspectives of the knowledge in this thesis, and points out interesting questions left open.

As stated in the beginning of the thesis in *2.3 Knowledge contribution*, I see the knowledge from this thesis relevant to design projects with a similar focus, as this one. This could for instance be a project working with digital emotionality as a design asset for creating strong commitment ensuring long lifetime of a design product.

Though I also see other perspectives on some of the things addressed here. During this project it has become clear that there is a broader perspective on digital emotionality that the one relating to my definition of hybrid everyday objects. One example of a design context where this is very present is in the development of robot technology, especially the development of social robots. This is a field where researchers work with the way people relates to robots that express more emotional qualities. One examples of this is social robot Leonardo (Breazeal, 2011). The findings and conclusions of this project is not directly transferable to this area as they are, but I find it most likely that the analysis in this thesis shows ways to approach design problems similar to ones experienced in the field of social robotics. Especially the question of trust raised again, below, seems to be relevant.

Below is presented questions revealed during this project that seems highly relevant for further analysis.

*How can emotional everyday objects be interesting in a longer time perspective?*

During this project this question have been commented on multiple times. There are different suggestions in relation to this, counting making the reaction patterns more advanced and working with the way it reaches our, towards people.

In order to answer this question in sufficiently covering way, I see a need for a test period that fits this question in length.

*How can trust be established through emotional design?*

One critical and important finding from the experiment was the trust issues mentioned. These count both associations to surveillance issues, the way it can feel like it tries to control your actions and the time it takes to build up trust to objects. I find a particular interesting take on this being investigating how trust can be built up through the emotional references and lead the attention away from negative ways of thinking about this.

*What is the possible target group for more emotional everyday objects?*

This project had little focus on how the test users were representing a relevant target group. They were all in an age range from 23-32 and all living in a bigger city. Besides that they were all found through Facebook, which also puts them in a relation far from random. I find it interesting to try to explore how different people, representing different target groups will experience more emotional everyday objects.



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# 11 Appendix

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## 11.1 B1: Interview 1 about Limpy at Collective Gyldenløvesgade

### **Intro: (Me talking)**

I'm doing a design project about creating everyday objects (e.g. furniture) that have sentimental or emotional capabilities.

The way I'm doing this is by making a series of small prototypes and send them out to live with different people for a few days, in order to be able to get some feedback on how it is to be around these kind of things.

They are build on simple principles of mixing digital and physical features in what I call hybrid objects, which relate to the more sentimental sides of us.

### **Have you had to describe it to others?**

M: Only to people, that have been here.

M: To J I just said that it was an interactive stool, that is called Limpy. Especially the part about Limpy I liked getting said. And that it limps.

M: Oh yes... (remembering) I talked to IM today, there I described it very detailed. I said that it blinks to you, that it limps and that it sometimes dances when you sit down on it. Also that it is able to smile and get angry, and that it could get an all straight mouth. And when you touch it, you smells like bonfire afterwards, and that it was the last part I liked the best.

### **How has it been used? e.g. I see it's standing in a chair at the moment, like when I left you last time...**

P1: It has exalted status.

M: It has been used a lot as a worktable, yesterday. It liked that. That's also why there have come some grease on it.

P2: There isn't really anyone that have been sitting on it, is there?

M: not really

D: We have been experimenting with sitting on it.

M: We have also been walking a lot around, we haven't be sitting down a lot while it has been here.

P2: M2 has been drumming on it.

P1: I might have been thinking that it's a kind of artefact that shouldn't break.

D: I think it's been a gimmick. It had to be tugged under a blanket, then it had to sit in a chair, in order to sit with us while we were playing magic cards, because else it would get bored.

P1: Then it has gotten a poster on top of it. At first M said that it didn't like it, but it actually did like it.

M: It liked having things on top of it.

P1: It has been very much present with its mood.

P1: Think if we had a child...

P2: Yesterday morning when I got up, I caught myself. Because I use the bathroom out there (pointing to a hallway) then it was just standing being a little sad, and then I touched in the moment I walked by it. Afterwards I thought "no... how silly".

M: then afterwards you tried to detach yourself from the thought that it wasn't just a thing, and then you placed it back on the floor.

P2: Yes... And I have been focusing on not petting it.

**It seems like you have been thinking of it like a little living thing?**

P2: It was a bit like it had a mood, even though I knew it didn't.

P1: I think you fast can put in a dog like role.

P1: Today we talked about that you could use it like old people are using dogs to communicate through. You could e.g. say to the stool, "go to R and tell him that he has to take his shoes on now". Because it gives the same effect, you could say.

D: I think it has been a gimmick, as I said. Because it's a gimmick, it's also a way of socializing. For instance now I put it here, and then I'm making a joke in relation to someone else.

If you put it under a blanket it's because you hope someone else finds it funny.

M: If I had been alone I probably wouldn't put it under a blanket.

M: Then we are all the time walking about saying, "now it's happy", you tend to talk a bit about it, "No... That made it sad"

M: I have tried teasing M2 with it not liking him.

P2: Then we have talked about what could make it happy.

D: I think we talked a lot about that.

(Explanation of how it works from a practical perspective, by them)

M: It reacts on movement in front of it, if someone is sitting on it, it does what we are calling dancing.

D: When it's dark it also dances.

P1: And then on sound... right?

M: I haven't really been able to figure that out.

M: And it blinks when you tilt it.

D: There also became a little contest out of it, when I had to try to figure out how it worked.

M: I thought it was broke the first night. Then I tried restarting it, but it kept doing the same thing.

M: I think we discovered that when it reacted on clapping, it was because we clapped in front of it. (referring to the proximity sensor)

M: We haven't used that much as a stool.

M: We could have experiences a Saturday evening with lots of guests that needed a place to sit around the table, then it might had gotten used for sitting on.

It has probably more been sitting on things, than we have been sitting on it.

M: I don't think of it as a chair.

P1: Yes it has much more been treated like a living thing, than an object.

P2: maybe it has to do with, if you sit on it, you can't see what it did.

M: Today I have kind of gotten used to it being here, and haven't reacted when it became angry.

### **How much is it still a chair?**

P1: Not that much, as you see, it stands in a chair.

M: The thing about sitting on it wasn't that strange, because I related it to the things we sad on at Phono (reference to a interactive installation at a music festival)

D: I have been thinking a lot about what's inside it. It's probably just my interest in technology.

P1: It makes you think... it can potential be all kinds of crazy things, but I guess you know it's not. But it could be...

P1: A bit surveillance ish thing.

M: or it could be filming us.

P1: or recording sound.... Do something

M: Without we knew about it.

P1: I haven't really thought that myself, but makes you think, and gives associations, that starts your imagination.

D: There could be some super hi-tech thing in it, able to read facial expressions or something like that. Like those Japanese robot seals, that plays with the cyborg thing.

D: There are these hi-tech robots that mix emotionality and functionality.

M: I think it would give more if it reacted on sound.

P2: If it were random sounds all the time I would probably turn it off at some point. But if it's in connection with someone doing something special to it, then it's okay. Then it would just have been an extra gimmick.

M: I'm sad my nephew hasn't been here.

M: It would be a more social thing if it were able react different on sound. If it became sad when you spoke angry to it, and happy when speaking more nicely.

I have also tried to play music for it. In order too see if I could make it dance.

M: you fast run out of things it does.

P1: I don't really think I have been thinking that much about it (the stool) as the rest of you.

M: It's probably because we were here when it came. M2 is also good at playing with stuff.

### **Would this kind of hybrid object be interesting in a longer perspective?**

D: It should be more comfortable than, and solar powered or something like that, then it definitely had to be able to do more things, respond more. It should be able to surprise for a

longer time, then I think it could be fun to have a thing like that. For instance if you had guests visiting.

P1: There is something fundamentally nice about a chair that gets happy when being used.

P2: I wouldn't find it interesting: I would only own it if it looked nice.

M: That's also what I'm thinking, if it had another appearance, I would want one. I think R (M's nephew) would find it amusing, then it had to be his chair. It's like his shoes lights when he is walking. It could be very fun for children. "now you have to sit still, otherwise the chair will get sad"

**What type of person would like to have a chair like this?**

M: I'm thinking my grandmother especially. She would find it cosy, especially if it reacted on sound, then she would walk around and talk to it.

P2: I'm also thinking a bit the same target group as the robot seal, elderly lonely people. Though I have been surprised of how much we have been talking to it. And about it.

M: If it could answer a bit on what you asked it I think older people would like it, people that isn't able to take care of a pet, but can have a thing like that.

P2: Could it make a 11 year old ADHD boy sit still?

D: I guess so... if it could catch the attention.

P2: Then it had to do more stuff when you are sitting on it.

Me: A little rough cut out, people with less need response?

Everybody agreeing: Yes

**What advise would you pass on someone else borrowing it?**

D: Remember to lock the closet with the silverware. It could be fun to create a kind of paranoia feeling around it.

*Some more general talk at the end*

M: I think it's a little confusing that it has two faces. I really mean that. But then I have decided that this is its face (the big one) and that this is its heart (the display).

## 11.2 B2: Interview 2 about Limpy at Jægersborggade apartment

### **Intro: (Me talking)**

I'm doing a design project about creating everyday objects (e.g. furniture) that have sentimental or emotional capabilities.

The way I'm doing this is by making a series of small prototypes and send them out to live with different people for a few days, in order to be able to get some feedback on how it is to be around these kind of things.

They are built on simple principles of mixing digital and physical features in what I call hybrid objects, which relate to the more sentimental sides of us.

### **How has it been used?**

P: It has been present here in this room, two different places, where we are using most time (shared kitchen living room). We have of course been sitting on it and tampered with it, and been trying to see if we could make it do stuff.

Shaked it and found that it's all but randomly too short leg had a button under it, that made it blink.

P: I have of course been trying to discuss a few things with him about quantum mechanic, when I was alone. But I have to say there he was a little quiet. (said In irony)

P: From my side there have been a huge interest in figuring out what he does, how you get him to do the things.

P: You are sitting okay on it, except that he limps.

Me: So it has been used for sitting on?

E: Very little. It was more an experimental phase.

E: It's because we have more comfortable chairs.

P: Yes... actually

E: Just because it has a face it doesn't make it more functional.

P: If it were more comfortable it would more be a chair that competed equally with the other chairs.

E: It has also been good for projecting all the issues me and P has between us. E.g. "now we've got a temporal family member and he shouldn't think he is anything special". He has to be set in place right away, and I placed him in the corner. P was just nice to it, while I were more yelling at it.

P: We are kind of a mom and dad. Angry dad and nice mother.

E: I just though it demanded attention. I don't think we have been coming along, real well. Also think it has been quiet a lot of the time.

P: Yes you would have liked it to be more participating.

P: I think you have been a little hard on him.

### **Have you also dealt with it while being alone?**

P: I have a little. Examining it. I figured out that he sometimes lights weaker, apparently without any reason.

You have used some kind of random number generator, or something.

But then I've played a little with him then. It has been more exploring. I've been sitting down on it, tilting a little on it, more examining it.

E: there I also the social aspect of it. If I got caught playing with it like a 7 years old kid, it would look wrong. I think I've would rather be caught watching porn.

E: It's a little like a toy.

### **And what about the social situation?**

P: When we had some friends visiting, we mainly talked about how it worked, and what it is supposed to be used for, that kind of stuff. Talk about it.

### **How have you explained it to others?**

P: It is part of a friends thesis we have visiting, it's a stool and it can smile and it limps. It haven't been deeper discussions like the things you probably have been thinking while making it.

P: We are very excited to hear if there are microphones inside of it. Then you can expect a lawsuit. (said in irony)

### **How do you think of it?**

P: I mainly think of it as a hybrid between a Tamagotchi and a stool. It's a electronic pet. Perhaps it had become even more a Tamagotchi to me if I could understand how to influence it, more systematically.

P: Talking for a long time about how he tried it in different places, and slowly figured out how light affects it. At the end he were able to make it smile and sad by turning the light on and off.

E: We haven't tried yelling at it yet (deep sound of E yelling into its face)

Me: Is it a good thing that it's a little hard to figure out how to control it, or would it be better for you understood it more easily?

P: If you'd know it from the beginning like you do... In the longer perspective of this being a product, it might be better if people understood how to affect it, perhaps not totally, if the thought is something like an electronic pet. You also like them to have some personality.

*(me explaining how it works)*

E: It's a funny thought giving life to something in everyday life context, but if it is in everything in 50 years, then I would destroy everything, move far away and newer contact civilization again.

E: It's fine to play with and all that, but it has to be functional. The emotional thing is deemed to fail, because it's fake.

P: Think about how long time we use getting stimulation from pointless things like facebook, if you turned all that off and just had a think like this, it might be a better solution regarding power consumption.

E: If you see YouTube, or the news, where there is a human reading something out loud and does something wrong once a while, I think that's really funny. That's a human being you observe.

P: Is it that important that it's humans?

### **How about the balance between functionality and emotionality?**

P: If I had to invest in a thing like this the functionality would matter 95%. But that's also because I'm stingy.

I also newer considered buying a Tamagotchi.

If it really was a good chair and a good design, then I would consider buying it. But then it would be because of the chair, not the emotional features.

*(E leaves)*

### **What other kind of reactions or interactions do you find interesting?**

P: If I should use it, then it probably had to have a function, e.g. when I'm alone here at home, then it could ask if I didn't had to work if I had been playing music for too long time.

P: or if it could figure out if you had the lights on for too long time, and notified me about that. It would be sad if there were too much light.

P: I don't have any problem with it feeling silly when I'm alone, I like gadgets.

P: For me there had to be something practically in it, besides the emotional.

### **How would it change how you'd think about it if it had more practical features?**

P: I don't think I would get a greater bonding to it, if it could the other thing. Then it really had to be advanced.

### **Is there something it shouldn't do?**

It shouldn't spontaneous say something, if you don't want it to. Even though that would be a very personal thing if it could do that.

### **How does it fit into peoples life?**

P: For me, entertainment as it is now anyway. A gadget or a little piece of design, just in a more fun way.

But could imagine others use it different.

P: Think small children would find it very fun, especially if it just got a little more advanced.

### **Do you like the idea of more emotional everyday objects?**

P: Yes I think it's very funny.

But would also like to say that it should be a lot more advanced, and the price shouldn't reflect that.

**What about in a longer perspective, this type of thing?**

P: I think so, wouldn't rule that out.

Me: What would make it interesting over longer time?

P: Definitely the functional side of it. Functionality and design had to be on level with a similar chair or stool.

Me: What role does the emotionality play in that, is it only fun for a couple of days?

P: I think it was cosy when he danced, I would like me small nephews to have been there, and showed them how it jumped and danced. It was very funny, but one on one, it's not like I'm walking around petting it.

Me: If you think about the emotional, would it play a different role, compared to other chairs?

P: It would have another value, I guess, without I'm able to put my finger to it.

**What type of person would this kind of thing be the most interesting for?**

P: People like you, there haven't made it, of course.

Families with children and a bit of surplus.

## 11.3 B3: Interview 3 about Limpy at Collective Hegnet

### **Intro: (Me talking)**

I'm doing a design project about creating everyday objects (e.g. furniture) that have sentimental or emotional capabilities.

The way I'm doing this is by making a series of small prototypes and send them out to live with different people for a few days, in order to be able to get some feedback on how it is to be around these kind of things.

They are built on simple principles of mixing digital and physical features in what I call hybrid objects, which relate to the more sentimental sides of us.

### **Where have it been placed?**

A: In the kitchen. The evening we got it, there just came more and more guests during the evening. It was pretty much the center of the entertainment.

A: It got used as a joke.

D: Has been used for sitting on. A little like a part of the entertainment, everybody had to try to sit on it.

D: People were very interested, and approached it almost scientifically.

D: At one point it was turned on a whole night, where someone had put a heavy bag on top of it, to make it happy.

D: You kind of gives it a personality, and then I thought I were smarter than it. (cheating it with the bag)

### **How have you explored it?**

P: We've looked at it, turned it around. Used a lot of time figuring out what it does.

P: With this one it's totally ok that it tilts, that wouldn't be ok with a normal chair.

D: While it has been here I would rather sit on this, than on other chairs, because it shouldn't be sad. And because it's your project.

### **How is it different when you are alone?**

D: It's like seeing a button you can press, it's nice pressing buttons.

D: To me it gets more personality in social context.

P: You also gain a little credit by saying, try to look at this, it has been living with us for a week.

A: It's a kind of status symbol.

*(boyfriend to a girl living in the apartment):*

I got presented to it as something you knew a lot about, you have given it personality.

### **Do you think of it like a chair or something else?**

D: We have been calling it 'Limpy' and not 'the stool'.

D: We have definitely given it some personality.

P: It has also been a kind of toy.

A: I think if I'd been a poster on the wall, doing the same thing, I think would have treated it the same way.

### **Is it fun for more than a week?**

A: I don't think so.

D: Then I think you would start thinking about the power consumption.

P: It would be more fun here than a lot of other places, because we get a lot of visitors.

### **How is it different when you are alone?**

P: On your private rooms it wouldn't be fun the same way.

A: Then it had to be more something you could use for something. Then you would have to be able to talk to it, or ask it "Limpy what is the recipe on potato soup".

P: Or just be a clock, or something else.

D: The practical part of it matters more when alone, and in the long run.

### **How does it fit into our lives?**

D: Something functional that have gotten an entertainment side to it.

### **Can you mention a situation where you would find it most interesting?**

P: I get to think that it could be connected to other electronic things, because that's what we are used to. That electronic things have another space than physical things. For instance if you could talk to a stool in another collective, that could say: "someone is sitting on me right now". Then I would find it more interesting.

D: I also think it would be very good in a child's bedroom. If us adults can give it that much personality, then I really think it would be interesting for a smaller child to have.

D: As a teddy bear or something like that.

### **What about situation and time of day, when is it more interesting?**

D: Leisure time and in the evenings. It's more interesting in social situations.

D: It has something to do with, then there is a bigger chance that you are in a social context.

P: I also think it takes a bit of surplus. In the mornings when I'm sitting eating my breakfast, I probably wouldn't think of it, but more what I had to do during the day.

D: But there it's still a functional thing; you can still sit on it.

### **Is it something you throw away, when you get tired of it?**

P: Then it might be degraded to a chair.

D: Yes, I don't think you would throw it away. Definitely not here.

P: No we're always missing chairs.

### **What would make you want it in the longer perspective?**

P: I would say if it all the sudden started doing other things after a week, then it would be interesting.

A: New functions.

P: Like if you could earn something.

D: Yes, and this thing about if it wasn't too easily understandable, that after some time where you had explored it, it started doing something new.

D: Development.

P: It has been compared a lot to a Tamagotchi.

P: Especially because it has a smily face that changes, and this thing about it getting sad when no one is doing anything with it, and that it becomes happy again when you do.

### **What can we use it for, emotional things?**

D: It reminds me a little of these art things on Roskilde Festival (Danish music festival), that makes me happy. But that would probably stop after a while, if all my furniture were like that.

A: I also think it contributes with something... scary is a strong word, but something surveillance or that kind of presence of something that isn't.

P: I got to think about that computer, Hal in the "A Space Odyssey"

P: What is inside that box there...

P: It has a face.

### **Would it be different if it were something you'd bought?**

D: Then I would have been more nervous.

P: I would probably be very proud if I had bought it, because no one else had it. This thing about something you have found yourself and others might say: "why have you bought this" "I don't know, I'm just a bit weird I guess"

D: I would probably have a kind of trust issue. That might be because of the USB cable that powers it.

A: It reminds me of the robot seals.

A: I think of these smart homes. There I think the technology takes over everything, but would probably be easier and more power saving. If it spoke to me I would probably like it less.

A: Or if it pretended to have a personality.

P: Yes more the personality...

A: Even though I think it's very fun, then the thought of having things with a personality...

P: That controls you in a certain direction. I have been thinking that. It's fun the way that it wants you to sit on it, all day. It's totally opposite of what you else are trying to make technologies to do. We have all kinds of technology for making children play outside, and that kind of stuff. This one wants you to keep sitting down.

### **What do you think of things that demand something of you?**

D: I think it's exiting that it does that you chooses something instead of something else. I've given that a lot of thoughts. It's strange that these diodes can get me to sit on this one, instead of another chair.

A: It's also something I get a little offended by I think. In the beginning it's a bit fun, then it's a game, but then all the sudden I'm trapped by an urge to make it smile. At the end it becomes an unwanted obligation, then I just put a bag on top of it, then it can smile, and I don't have to sit on it.

D: But it's not something you have to do!

A: No, but just a little... right

*Me: Does it have anything to do with the face?*

P: Yes the face is the central thing in this.

*(short explanation about the generous chair prototype, that havn't got a face)*

P: If it doesn't pretend to be a person, I think it's pretty exiting.

D: Then I more think it's something you choose to do, not an obligation.

## 11.4 B4: Interview 4 about Generous Chair at Collective Fælledvej

### **Intro: (Me talking)**

I'm doing a design project about creating everyday objects (e.g. furniture) that have sentimental or emotional capabilities.

The way I'm doing this is by making a series of small prototypes and send them out to live with different people for a few days, in order to be able to get some feedback on how it is to be around these kind of things.

They are built on simple principles of mixing digital and physical features in what I call hybrid objects, which relate to the more sentimental sides of us.

### **What is it you have had visiting you?**

M: Have had a hard time to grasp what it is it does?

M: It is really a foreign feeling that a chair gives response.

M: It makes a notice of itself.

### **Where have you put it?**

M: Only here in the shared living room, where it have moved around.

B: Both as a sofa chair, TV chair and with the dining table.

M: I thought it was best to keep it a place where everybody could see and hear it, if it suddenly started doing something.

### **How has it been used?**

M: I have used it by walking up to it, then sat down and explored it. I go to it alone, and then it's me and the chair that has to figure out what it does.

### **What have you done to explore it?**

M: Knocking on it many different places, petting it on the fabric and on the backside, and on the metal on the arm. I tried to see if you had to do some kind of pattern to make something happen, or if there is a difference in the way you stroke it on the metal.

B: Mostly just been sitting, and naturally put my hand there (the metal sensor), but otherwise I haven't explored it further.

### **How is it different with more people in the room?**

There it has been more neutral I would say. For instance when we were using it as a dining table chair Cecilie (a friend visiting) were sitting in it. She laid her arms on the arm of the chair, and it started vibrating. We explained to her that it was ok, and it wasn't going to catch fire or anything, but it was a experimental chair that she could try to sit in. After a while when nothing more happened it was just like a normal chair.

**Is the experience of this chair mostly centred around the person sitting in it then. I'm especially thinking of the situations where the use goes beyond the use like a normal chair?**

M: Yes, I think that's how I see it.

**Have you had to explain it to others?**

M: (explaining it to another flatmate)

It's a chair that you have made changes to. So it's kind of an experiment you have to play with and use, and see how works.

**Is it conscious that you didn't tell him your own experiences? Was that in order to let him experience it on his own?**

M: Yes that was the reason...

**What about the music?**

You gave me a tip to how to work this extra function when you keep stroking it for a while... In the beginning I thought, this seems really strange, because I had been doing it for a long time, but then suddenly it's as the chair takes over, the vibrations keeps going even though you stop, and then you think, shit, what is it going to do now, and then it starts playing music. Then I felt like, wow, now the chair is talking to me, it's doing this for me. Then L came in and saw it and said, what is that chair, and what is it doing. Then we began to talk about how cool it would be if you build new features into things. For instance if your dining table could turn on the candle lights if you had a date, or something like that. Building that kind of small functions into your normal things. L's (flatmate) example was if you had a sofa where you could press a button and it played Barry White when you had a date. It became a shared thing that we talked about what if your things had other features.

**How important is it that something new can happen, or that you can get new experiences with it over time?**

M: It would be easier to explore the chair if there wasn't that long between the two functions it has. The one is very easy, it almost happens every time someone sits down in it, and then you think that the other functions is just as easy or natural to find. When you have tried touching it different places on the chair then you gives up quite fast, because you think that's it.

M: It was also difficult with more functions connected to the same place. It's a bit like, when you have touched this place to make it do something, and then you think, where else do I have to touch it to make something new happen.

B: I would never have discovered that by myself, that it could do that.

**How do you see it, do you think of it like a chair?**

B: I think of it like a chair that can vibrate.

Me: very pragmatic, based in the functionality?

B: Yes that's how I see it.

**How would you describe what you do to make it react?**

B: You lay your arm on the chair's arm, and touch the silver things, then the back of the chair vibrates.

**Earlier you mentioned that you pet the chair, what does it make you think doing that to a chair?**

B: The act of petting it makes me think of it a bit like a pet, that it's a bit alive.

M: Yes, there is definitely something about having to do this (showing a petting gesture on the table) on something, and especially this thing with doing it many times, I was thinking, "what am I doing!".

B: I think it's also about it's a chair we don't know somehow. We don't have any relation to it. It's kind of a foreign element. I think, if it was something we had brought into the apartment ourselves, or something that had a sentimental value for you, then it would be a bit different, to do that.

B: If it was a chair someone had used, you had gotten a special place or you had bought. You had a story to relate to it. Then I think it would be different... Of course it also has to do with the fact that we haven't gotten this one for a long time, so we are still a bit foreign to it, and then especially this thing with petting it can feel a bit silly somehow.

**Can this way of petting the chair give different ways of feeling, relating or bonding with the chair?**

M: I think like you said, it gives associations to having a pet. It moves from being a thing to something a bit more alive. It's a bit like it has more personality than that chair (pointing on another chair).

**How is it different from a regular massage chair?**

M: On a massage chair you give an order, now you have to do this, but on this one it's more like, now I'm trying to do something to the chair and then it does something back. It's more like a collaboration with the chair, than one giving orders to the chair.

B: Yes. With a button it's more obvious what you have to do, but here, you know where you have to do something, but it's not clear precisely what it takes to make something happen.

**It sounds almost like a small dialogue?**

M: That's how I feel about it. It's like a dialogue.

**Is it an important part of the experience figuring out what it does?**

B: It's not something that is important to me.

**More general about emotionality in chairs, how can you think of interesting ways of making it react, or the interaction with the chair?**

M: I thought about, if it could feel when you walked close to it, so it could react on you nearing it. So it in a way was present in the room, and also sees your presence. So it doesn't get hidden or forgotten in the room, by making notice of itself. As an animal or another person would do.

B: If it could feel the different people, or could react different on different people. I was reading about an app for smartphones that could sense witch mood you were in. If it could react on which mood you were in.

So it more reacts on the person sitting down in it.

### **What shouldn't it do?**

M: If it did things when you were not sitting in it. If it started to speak.

B: or if it jumped forward.

M: or if it suddenly started to shout during the night. That would be a bit wild in the long run.

M: I think I would find it more interesting if it was more a living thing, like you just talked about (referring to B) if it could feel more about who it is, or if there is someone at all. But there is also a thin line to it becoming too much, it is too much present, where you don't want to be in the room if it makes too much notice on itself.

B: Also if it's alive or has something extra, it's also like you never know what it could do.

### **Would a voice be too much?**

B: It would maybe be too silly.

### **Can you get some kind of emotionally relation to this thing that doesn't have the same obvious signs of human emotions?**

M: Yes I think that's possible. I think this one has it more than a regular chair, also because you don't just press a button but touches it like you would touch a human, you gives the chair something, and then it gives something back. Already there I think you are creating a relation to it that is more than a normal chair.

M: The more human you have to be towards it, that would do it more...

B: I just think in my case it's... I don't really know, without thinking more about how I make relations to things I don't think it has to do with how you have to treat it. I think about it as different than other chairs, and somehow as a living thing, but I don't think that the fact that I have to touch it a certain way will make me bond closer with it.

### **How does this fit into people's everyday lives?**

B: It is a useful thing from the fact that it is a chair. Also, it can create a moment when someone gets surprised. Seeing someone else getting surprised.

### **Is there a special situation where this kind of think is most interesting?**

M: I have most used it when I'm alone. I have used it as a break when I have been sitting to long time alone in my room.

B: It is situations when there are more people there is use for more chairs. If I were alone I wouldn't choose that chair to sit in, we have other chairs I would rather sit in.

M: For me it would be best if it were in the little kitchen room where you sit down if you drink a cup of coffee by yourself or eating breakfast. Where it is a bit smaller and you have time for it. Instead of putting it a place where there is a lot of other things, it should be a place where this is the chair you sit in.

**Can it be interesting over a longer time?**

M: I think if it had more variation in what it does. As it is now I think it could be forgotten after a while. If it was over longer time it should also interact more with the people living there, so you can't forget about it.

B: If I saw it over a longer time period I might also be more likely to use it.

**How would you see a thing like this enter your life, is it a thing you buy, and where?**

B: Fun if you buy it on a flea market or got it from a friend, and didn't know about it.

B: If I knew that it did it, I wouldn't buy it.

M: It's not like you think, if just I had a chair that vibrates...

**What type of person would think a thing like this is fun?**

B: Someone studying on the design school, or is interested.

M: Maybe it's most fun for someone that is personifying things or easily sees things as more than just a thing. Some people can put a lot of personality in a teddy bear, someone that finds it easy to see it as more than a chair, and catch up on these living things sides of it.

B: Quite young, younger than 50 I think. It has to be someone that are curious and want to explore things. On the other side, I'm under 50 and haven't paid too much attention to it.

**Extra comments:**

M: If I imagine who has it I see a person living alone. That has it as a thing to interact with, when alone in the evening.

M: In the personal room you tend to have a certain place you sit and do stuff like check mails and that kind of things.

B: We are also not using the living room that much at the moment.

B: It has to be a place where you can sit for longer time.

**Could it better take the place of an armchair than a dining table chair?**

Yes I think. For instance if it is one among the dining chairs it fast becomes a gimmick, that's fun for a while, and then it gets forgotten, and becomes a normal chair.

## 11.5 B5: Interview 5 about Generous Chair at Tagensvej apartment

### **Intro: (Me talking)**

I'm doing a design project about creating everyday objects (e.g. furniture) that have sentimental or emotional capabilities.

The way I'm doing this is by making a series of small prototypes and send them out to live with different people for a few days, in order to be able to get some feedback on how it is to be around these kind of things.

They are built on simple principles of mixing digital and physical features in what I call hybrid objects, which relate to the more sentimental sides of us.

### **What is it you have had visiting you?**

It's a chair that does something special. It buzzes a little when you touch it, like a cat. It has been a funny creature, a mix between something living and a piece of furniture. It has been company while you have been sitting with your computer.

### **Where have you placed it?**

In front of my desktop. It has been standing here all the time.

Because I'm trying to build up my space so this is the place I'm using most time. There is a nice TV in the other room now I don't have a flatmate, so I'm trying to use more time in here. If I have a really good chair here, by a desk, where there are some things that can make me do other stuff, like the computer, or drawing. More creative things.

H: What is it for kind of stuff you do here?

Hobbies, research etc.

### **How have you used it?**

The first thing I have done these mornings when I wake up, is sitting down in it, while my tea is boiling in the kitchen. And when I have made breakfast I sit here and eat it. I have no radio or anything, so I'm just sitting eating in this particular chair. I have used it as a soft start of the day.

It purrs...

I see it as a kind of cat...

Sometimes something has happened, other times nothing. I also heard a song a one point.

### **How have you explored it?**

I knew it had to have a power connection to work.

I looked at it, felt it with my hands, and nothing really happened...

Then I was watching a YouTube clip and when I was leaning over, things started to happen. There was a bit of life in it. Then it started to play Barry White, and I had to sit and enjoy that for a while, and take it in. And I hoped it came again, but it didn't.

Then I got it to vibrate more times, and it made sense that that's what it should do.

I see the fabric that is grass, I'm thinking a lot in images and takes a bit to far out some times... and there is something in the grass, there is some animals hidden... there might be a cat hiding, I have never had a cat myself, but I have taken care of one for others, then it was allowed to be in the garden, and you could never see it in the grass.

### **Have you had to explain it to others?**

I haven't had any visitors.

I explained to someone at Lagkagehuset (workplace) today, that I have a funny chair at home, but that was more because we started talking about Barry White.

It was a little difficult to explain.

I explained that it was a friend with a project that had this chair that circulated with different people, and that we had to give some feedback on what it does and how our experience with it had been like.

They thought that was a bit strange, but also funny...

I said it all the sudden started to play Barry White, because we were talking about old soul classics.

### **How do you relate to it?**

It is a bit more than a chair.

It stirs a little; it vibrates and plays a song sometimes... Especially that it does it sometimes, it's not always, not the song anyways. It comes and goes a little as it feels like.

It has it's own will.

At one point I couldn't get it to vibrate, then it's just a chair, but then it came to life just before I went to work.

It changes a bit what it wants to do, which again makes me think about a cat... it's just it's own.

### **What is it in your image if a cat that gives you this impression?**

When you are trying to make it obey, it doesn't want to, like a cat.

Cats have this thing wit being a bit more intelligent than dogs, it senses if you need some comfort.

When I came home from work and it was, you know, kind of... puhh... then it came to you...

But not this morning... it didn't wanted too.

It feels or measures a little on the person sitting in it, react upon that, like I think a cat does.

### **How would you describe what you do to make it react?**

I'm sitting with my arm here, and stroking it a little, again cat!

### **How does it make you think, stroking it like a cat?**

I have always been that kind of person that likes petting my things a little.

It's not that strange to me. I also gave my plant a name...

Not to sound crazy, but things like saying: *wau you look good today...* if it has gotten sun, and I can see it blooms.

I like that... But I also very much likes pizza...

From my time in USA there was a lot with talking to your food, there was many that did that over there...

Saying stuff like: *Arrgh you look so fine... yummy*

I think it's also because I've always had that playful sense of things. For instance I'm doing cartoons, it doesn't have to be that serious... the playful aspect.

I also live by myself at the moment, so I also think it's because I like to make it a bit cosy.

**Do you think there is anything in the act of petting it, that makes you think different about it?**

Different than just a normal chair anyways. I don't think I've done that to a chair before. It's a bit easier to see a plant, that is a living organism, as a living thing, but it is of course also very green in it's fabric.

And with the cat associations there is, it comes very natural to me, then it wasn't just a chair.... only sometimes!

**If you think about emotionality in relation to chairs more general, is there specific ways of interacting, or making it react that you think could be interesting?**

Maybe you could get a little good morning from it before you sit down in it.

Maybe something before you sit down in it...

Perhaps it has been trying to make a notice of itself... maybe something all the sudden happens while I'm not sitting in it, or while I'm walking away after sitting in it. It has been a bit quiet.

**Is it about presence in the room, is it interesting that it just makes notice of itself?**

Yes, that's what I think.

I could be funny if it said hi, good morning, mijaw, or something. It probably can't move, crawl into my bed, giant chair in my bed, like a cat could do...

**How do you think it would make you react if it reached more out?**

I would probably be more surprised than I am already, then I have underestimated it more, then it's a cat, a cat chair...

Then I would like to buy it I think...

**Is it because it reacts more on you, would that be more attractive?**

Yes, I think.

It's like it wants you more.

**Some people would perhaps think it would be more tiring if a chair made more notice of itself... how do you think about that?**

No that would just be great...

**When would it be too much?**

If it constant vibrated or sang Barry White.

Or stayed at my bed, or followed me around.

It comes and goes a little, it's full of surprises. That's probably also what I like about it.

It isn't constant, and that's fine, but if it also came with new things, once a while... Then I wish to give it time for... feeling secure telling me that it can do more things... talking or something.

Of course I would think it was really fun if it could do more things, it doesn't have to be wild or anything.

**In the perspective of long time use, how is this thing about it revealing what it does?**

It's more fun if it comes over a longer time span, I think.

It takes time to get to know things, animals, humans, chairs, it just don't take 5 minutes.

It takes some time, and then you figure out many funny details that are interesting. You need time to digest it, take it in, and then you can think... how cool.

It was also fun that it didn't come at once.

You get this chair, and get told to plug it in, and then you don't get told a lot more... and then that there goes a few hours before something happens is just fun. I managed to forget that it was more than a chair.

I'm also a real 'pause' person. I have to take my time to get a closer look at things. Things take time... I take my time to get used to new things.

**What kind of situation would do you see a thing like this fit into?**

Maybe if you have had a really bad day. Then it all the sudden start vibrating, and you hear that song. It could be another kind of reality check.

**What about more everyday routines?**

The morning. When I get up, eat breakfast and then in the evening before I go to bed. Then I sit down here and do research, writing or what I do.

It's also there I think of a cat. You say good morning and goodnight.

**What is it about these situations, when you think about time?**

I think of it as situations where you have good time. Again I'm a pause person.

**What about this situation when you are sitting here, researching or drawing... and the chair reacts, do you get distracted?**

That's positive. A little nudge.

**What about if you were sharing your apartment with someone else, would it be interesting in a more social situation?**

I would prefer having it in here. It is in here it makes me feel nice. It gives the little caring push, that isn't disturbing, but like a cat that goes by.

Then you are drawing a bit faster and think it is a bit cooler (the drawing).

I will get most out of it when being alone. That's when I think I will get the most out of it.

It's hard for me to concentrate on more than one think at the time. If I'm talking to another person, and it purrs, trying to get my attention. I would have a hard time coping with that.

**How is it different when you concentrate on work and conversation?**

It's another way I engage in sitting here working, than a conversation. It runs more freely, than when I have to express myself with words. It probably has to do with that I'm better to express myself through sounds, body language and drawing than words.

**What type of person would you think this kind of thing is most interesting for?**

It probably has to be someone with a young mind, children or childish souls.

People with a good imagination.

**What do you think about people living in collectives, alone or something in between?**

It can probably adjust because it's a cat.

Lonely people and cats have it great together.

If there were more people, there might had to be more than one chair.

**Do you think it has a personality?**

Yes.

