

# HOME WORK FMP



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## ABOUT ME

From a user interaction perspective, my approach to industrial design is characterized by allowing for **expression of identity** (e.g. emotions, achievements, beliefs) in user-product interaction, and expressing this input through elements of a product's behavior and/or aesthetics. In my view the value of this approach is most noticeable in the ways products are experienced throughout use and how the formation of bonds between user and product are stimulated. I am intrigued by the ways in which factors such as our perception of time and the social roles in which we (desire to) act affect wellbeing; our perception of the quality of life, and how our experiences with interactive products are able to steer it. It were these interests that inspired the design opportunities discussed in this project report.



## ABSTRACT

The demands of home life, work and enrichment activities are at the cause of the highly structured lives being led by dual income families, in which almost no time remains unscheduled. This complexity is often compensated for by the establishment of routines, relieving some of the responsibility for remembering every event-related detail [1]. But even within such detailed routines, breakdowns are inevitable; traffic causes delays, children get sick, and things are forgotten. It is during these breakdowns that parents feel particularly out of control and subjugated to their environment, stressing families both physically and emotionally as a result.

In addition, demands on time force parents to make compromises relating to the quality of activities. Activities in which attention and effort is directed towards the children, like the preparation of a meal, are considered good parenting, contributing to their sense of identity and themselves as parents. However, parents in dual income families often experience feelings of inadequacy, as they do not have the time for these type of activities. These daily demands of home life, work and enrichment activities constrain parents' ability to achieve their sense of who they are and who they would like to be.

This final master project seeks to provide parents in dual income families with more time for activities that are important to them in the role of parent and by designing a product that stimulates the children to contribute to the household.



## BACKGROUND

Dual income families form a significant and growing demographic within both Europe and the United States. Attempting to navigate and coordinate the activities and responsibilities of home life, work, school, and enrichment activities within these families often feels as living in a permanent state of rush hour [3]. Sensitive to the choice that was made to be a dual income family, these parents are more inclined to feel anxious or apprehensive with regard to not living up to their ideal of how parents should behave when compromises relating to the quality of activities are made.

### Transitional context

Additionally, as a result of advances in communication technologies that have broken down the barriers between the different contexts people enact, we tend to experience an increase in stress and lack of order. Today people must enact all their social roles everywhere and at any time.

### 3.1 Direction

Pilot fieldwork done during the 'Smart Homes, Families, and Control' project at the Carnegie Mellon University [4] revealed that **waking up and arriving home** were often the busiest moments of the day for dual income families, involving significant coordination amongst all family members. After an explorative process characterized by the adoption of cultural probes and the conduction of contextual interviews a list of five high-level application areas was abstracted: activity manager, logistical, opportunistic reminders, health and meal support, and family awareness.

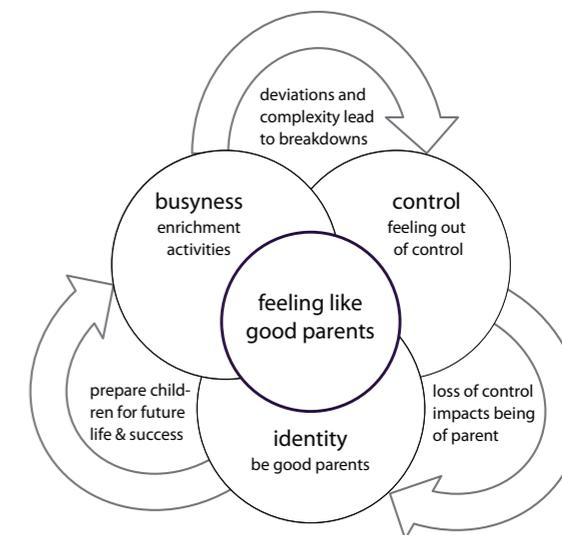
Two main opportunities for relieving the stresses of family live were identified: (1) helping families avoid breakdowns caused by deviations in the daily routine, and (2) providing opportunities for family members to give their time and attention to each other, in

particular for activities that support the construction of the family's identity. The following sections discuss these opportunities and relating application areas in more detail.

#### 3.1.1 Avoiding breakdowns in routine

Research has shown that breakdowns caused by deviations in daily routines are one of the main contributors to making families feel loss of control. It is through the establishment of routines that families are able to carry on the synchronous choreography of their lives without the need for constantly having to invent and agree upon plans [1].

The deviations that lead to these breakdowns can be planned, such as a parent going on a business trip, or unscheduled, such as children having illnesses. Breakdowns that are potentially caused by these scheduled and unscheduled deviations often lead to feelings of stress and apprehension. These deviations can be addressed through the provision of **reminders and alerts** during critical family activities.



### 3.1.2 Gift of time and attention

Having a feeling of control over your life is not solely dependent on successfully managing routines, but on the desire to carry out routines in the way you want to and to achieve an expected quality of life through that action as well. For example, in the rush of the morning parents often find themselves yelling at their children in order to meet the timelines of schools, busses, and work, thereby starting the day off on the wrong tone. The required end is achieved, but the manner of its completion contributes to a feeling of loss of control.

Control over these circumstances can be gained by providing the members of the family with more time for enhancing things they value, such as their identity, their time, and their relationships. These latter emotional bonds reinforce family activities.

## 3.2 Project aim

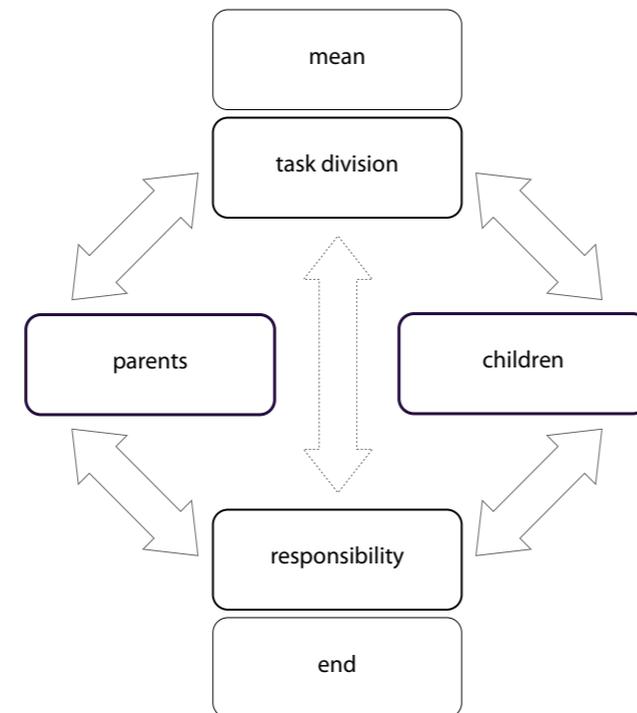
Parents in dual income families often find it difficult to spend and divide time between their children and tasks they have assigned themselves. The studies during the “Smart Homes, Families, and Control” project [4] showed that parents would like to have more time for doing activities that are important to them in the role of parent, such as helping their children learn responsibilities. Following the “Designing for the Self” approach to design (described in more detail in a later section of this report) this Final Master Project aims to provide parents with the opportunity and time for doing parenting activities in the way that they aspire them to do. The aim of the project is:

**Providing parents in dual income families with the opportunities for teaching responsibility to their children by designing a product that stimulates the children to make a contribution to the household.**

Stimulating the children in dual income families to make contributions to these highly structured and demanding households (e.g. by having them pick up chores around the house that would otherwise have further strained parents’ time demands), is thus the mean for allowing parents to teach their children responsibility and prepare them for success in life.

#### Deliverables

Alongside a working prototype the project will provide a set of guidelines for applying the attachment theory of **designing for the self** (within the context of dual income families) for the purpose of better understanding such theories and their application.



### 3.2.1 Target group

The target group of the project consists of dual income families with one or more children aging from approximately 4 to 12 years old; helping them become the parents they desire to be. Besides the difficulties of spending and dividing time between children and tasks parents assigned themselves, a main reason for focusing on this target group is because they are considered to be aggressive adopters and experimental users of new technologies in their aim of becoming better parents [6]. It was chosen to focus on children between the ages of 4 and 12 years old, as their enthusiasm towards contributing to the household in relationship to teenagers provides opportunities for playfully teaching responsibilities that would benefit them in later teenage years as well.

**Keywords:** time perception, time management, social roles, family, communication, chores

### 3.2.2 Expert

Expertise on the subject of designing products that play an explicit role in the identity construction process will be provided by John Zimmerman, associate professor Human Computer Interaction Institute (HCII) at the Carnegie Mellon University. His expertise on the subject area of **designing for the self** was of particular value for the project. Contact was maintained through email.

## 3.3 Designing for the self

Over the past decades, consumer behavior research has developed theories on the ways in which people develop and evolve attachments to their products as a part of an ongoing process of identity construction. New products are brought into a person’s life and choices are made to keep or discard old ones as a way of understanding who one is and who one desires to be. However, this view of products being an implicit part of the identity construction process has been ignored up till recently. Designing for the self is an approach to design that is characterized by the search

for opportunities where interactive products can more explicitly engage people in identity construction activities. It is about making products/systems/services that through their interaction help people become the person they desire to be. Two areas of focus of designing for the self are:

**Role-enhancement:** designing products that help people move closer to their idealized sense of self in a specific social role through their interaction with the product. [7] My project exclusively addresses this area of focus.

**Role-transition:** designing product that supports the process of discovering and/or inventing yourself in a new social role. [8]

### 3.3.1 Constructs

With the purpose of better understanding the application of attachment theories, such as designing for the self, a study by John Zimmerman of the Carnegie Mellon University identified a set of design patterns, which can be used as different design perspectives when applying attachment theories in a experience design project [9]. Six projects relating to designing for the self were analyzed in order to do so. These constructs are listed on the next page and used as both inspiration and guidelines throughout my project.

**Role engagement:** As people move through the activities of daily life they switch between the various roles they enact. In some cases these role-switches become so rapid that they start to engage in multi-contexting; enacting several roles nearly simultaneously [10]. An opportunity for applying product attachment theory is to have people fully engage in a single role.

**Control:** A returning issue in interaction design is (feeling of) control. Four of the designs investigated during the study focused on increasing the user’s perception of control through; (a) control over devices, (b) control over spaces, (c) access to information, and (d) control over the behavior of others.

**Affiliation:** Focusing on building and growing affiliation with friends and family is a third way for products to develop attachment. Opportunities for increasing social interactions helps a person to reconfirm his or her connections to a group and/or helps remind of people that are important in his or her life.

**Ability & bad habit:** A fourth way of connecting to product attachment is by providing people with opportunities for reducing mistakes and/or by addressing habits they less than desire. [6] Breakdowns in routine, caused by conflicting and complex scheduling in dual-income families, are particularly noticed by the children, leaving parents feeling embarrassed. Devices that help parents demonstrate that they are in control over their lives help prevent these feelings.

**Long term goals:** Focusing on long-term goals helps to reduce the noise of addressing immediate needs in specific situations. Making long-term goals more present in people's lives helps parents teach responsibility to their children as a way of preparing them to succeed in the world.

**Ritual:** Participation in ritual as a connection to product attachment is the final construct addressed in Zimmerman's study. By intentionally bringing objects into focus within rituals that parents and their children have co-created, they are transformed from being profane to being sacred. [11]



## CONTEXT

For the purpose of further contextualizing the project's subject area of providing parents with opportunities for teaching their children responsibilities some points of attention were specified based on a study of Beech et al. [2] on working parents. They attempted to broadly define some key characteristics of a segment of the population who have demanding home and work lives. Their goal was to sketch a picture of this lifestyle and ultimately be able to pinpoint some areas in which there are good opportunities for developing new technologies, and likewise address which kind of technologies are not appropriate. Some points of attention and consideration for my final master project based on their research conclusions are listed below.

### Points of attention [2]

- For working parents life is, in a sense, one long and constantly changing ToDo list with no clear end in sight.
- Despite the lack of free time, most working parents were happy with their lives and said that they would prefer to work rather than not to work.
- Women, whether by choice or delegation, often controlled and managed the household.
- Household routines are another coping mechanism for demands of working parents. These can be described as mutually understood "rules of thumb" that households orient to.
- Home related artifacts used for planning were mainly paper based, e.g. calendars, diaries, Post-it notes and lists.
- These paper based artifacts were often used for drawing attention to more urgent tasks.
- New technologies that require time and effort to learn will present a major obstacle to both its purchase and its appropriation and use in the home.
- Future technologies for supporting domestic chores and reminders were rated most valuable by working parents.

## 4.1 Chores

*Who is doing which chores?*

*What are the different types of chores family members do?*

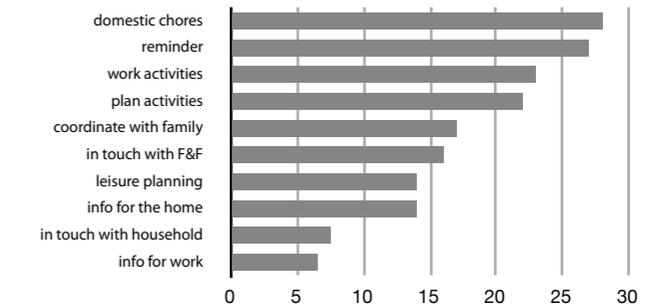
*What to consider when stimulating children to do chores?*

*Ideas for chore stimulation?*

Doing chores or chores being left undone in the household is a potential source of irritation for parents in many families. Common tasks children are motivated to do include: meal preparation and/or clearing the table, making beds, doing dishes, dusting and/or vacuuming and shopping.

Up to the age of 7-8 years old girls and boys are likely to spend equal amounts of time doing chores, but as they get older girls tend to contribute more than boys do. For these latter ages, the amount of household work being done by the father of the family is of high influence on the role and amount of household work boys do. This is similarly true for mothers' influence on girls. Other factors such as family size, income and parent professions are of influence on children's contribution to household work as well.

Future technologies wishlist and uses



### 4.1.1 Approach

In approaching children to do chores around the house it is essential for parents to consider a wide variety of household activities. The contribution children make to the family household can not simply be measured in the time spent doing certain chores or the amount of activities they did in a given timeframe. Whereas one child might spend an hour cleaning his or her room, another could spend the same amount of time caring for an ill grandparent. Though both activities are valuable for the family, it is difficult to compare them directly. Considering these examples, there are essentially two types of household chores:

- **Self care** - chores focusing on one's personal space, belongings and activities.
- **Family care** - chores that help and support the family.

Although activities associated to family care are more likely than self care activities to promote a sense of responsibility and family participation, both categories are of essence for running a family household deprived from stress.

### 4.1.2 Stimulation

Stimulating children to make a contribution to the household is not about treating them as slaves, neither can their contribution be viewed in the role of employee. Rather, it is an opportunity for children to learn important life lessons, helping them gain self-respect and take pride in a job well done. Praise and rewards given by parents will become secondary benefits as children will learn that a job well done is reward all on its own. In other words, they will come to possess an inner drive to do well rather than being dependent on external motivation and encouragement.

From the age of 3 years old children are ready to handle simple tasks, such as putting away toys or helping dad take out the garbage [12]. No matter the type of chores the children are motivated to do or how much time is needed to learn even the simplest of activities, they will come to think of themselves as part of family in which every individual makes his or her contribution. Additional-

ly, children learn to delay gratification through doing their chores as well, which is considered to be one of life's essential skills. [12] The effects of these early teachings are apparent in the behaviors of adults; either saving money for something important, such as putting your children through college, or using that money to buy a new plasma television or fancy sports car. Being able to prioritize is a gift that parents are able to teach their young children.

In selecting chores for the children to do it is great if parents are able to come up with interesting and fun activities, but it is just as important to mix in mundane tasks as well [12]. As we grow older we come to realize that not everything in life is as exciting as we once thought it was; there are many necessary routine chores waiting for us. Being able to tolerate a certain amount of mundanity and/or boredom is therefore a desirable life skill.

With these concepts in mind the ideation phase of the project was entered. Some guidelines and possible ways of stimulation children to make a contribution to the household were identified as well and formed a primary source of inspiration.

### Guidelines and ways of stimulating children to do chores around the house:

- Inform the children about the different chores they are assigned to do, the manner of their completion and the completion date and time.
- Try to keep the nature of the chores simple and include activities associated with the children and their likes.
- Before delegating certain responsibilities to the children it is important that parents set the correct example by fulfilling their own set of responsibilities.
- Praise and reward are essential in encouraging the children to pick up the chores and having them feel good about doing them.
- Avoid nagging and constant verbal reminders as these demotivate the children.
- It is essential to create structure for household chores by for instance setting specific times and days for the execution of them.
- Do some chores together with the children and help them integrate these household activities in their routines.
- It is to share chore expectations with the children and be aware of the effort the children put in the chores as to avoid conflict.

## 4.2 Explorative user testing

For the purpose of understanding how aspects of motivating children to make a contribution to the household express themselves in practice, an explorative user test was set up. Where the literature study provided informative insights into the areas of parent-child interaction and the gains of helping out for children's development, this explorative user test was the first step in linking these insights to concrete design directions and applications. The explorative nature of the user test showed particularly in the way variations and alterations could be made to the tool used for testing on a weekly basis.

### 4.2.1 Set-up

The platform used for testing the principles of motivating children between the ages of 4 and 12 years old to do chores consisted of a metal board and magnetic activity cards. It was decided to use a set of chore pictograms, in order to make the chores understandable for children who are not able to read yet. Additionally, the use of cards instead of other input forms such as writing or recorded speech was opted for, as not to increase the effort required for setting up and/or interacting with the tool.

The tool allowed parents to set chores for their children on a daily basis by selecting a set of activity cards on the board. When the children completed a task they could take the card of the board or move it towards the side, providing feedback on progress. Various set-ups were explored during the test:

- Individual versus multiple children using one chore board.
- Addressing chores daily versus weekly.
- The chore board is located on the child's bedroom versus located in the living room.
- Chore cards are taken off the board versus moved towards the side of the board.

The test was participated by a dual income family with two girls of 5 and 10 years old over a period of 6 weeks. I visited on a weekly basis to check how the test progressed and make alterations to the tool and test set-up where needed. Through informal discussions with both children and parents insightful and inspiring information was extracted from the user test. Main areas of exploration set for this user test were:

- **Effort of use for both parents and children.**
- **Location of stimulation and motivation.**
- **Implementation into existing family routines.**
- **Providing praise and/or reward.**
- **Centralized versus decentralized solutions.**
- **Understandability of chore pictograms by children.**
- **Motivation and stimulation over longer periods of time.**

The chores included in the test were:

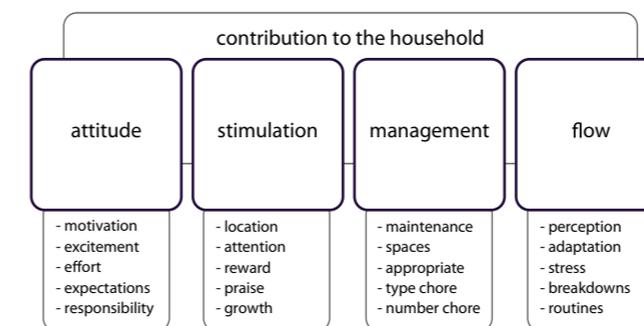
- Making the bed
- Opening and closing the curtains
- Making homework
- Cleaning the bedroom
- Cleaning the living room
- Picking up toys and books
- Helping do the dishes
- Feeding the pet rabbit
- Clearing and setting the table
- Vacuuming and dusting
- Picking up dirty laundry
- Putting away and folding laundry



#### 4.2.2 Take-aways

Over the six week testing period it was interesting to discover how enthusiastic both children were in 'collecting' chores on a daily basis. The sense of accomplishment accompanied by regular praise from the parents proved to be good motivators in engaging both children in the family household. Although the 6 weeks during which the chore board was tested is too short of a testing period to make any claims regarding motivation in the long term, it was positive to see these levels of enthusiasm with the persuasive mechanism of collecting.

However, adopting such a chore stimulation method from a parent perspective proved to be less of an ideal solution, requiring too much effort and attention in order to maintain and update the chore board. For both the daily and the weekly variations that were tested during the 6 week period the parents occasionally forgot to update the chores for their children. Rather than the chore motivation becoming an integrate part of existing family routines, it now was a routine by itself which had to be adopted by both parents and children. In my view there are opportunities for such a chore-motivation product to become part of the routines and habits that already exist within a family.



An additional finding was that having the board located in the children's bedrooms meant the children were being around it only 1-2 times a day, in the morning and in the evening. As a result, they had to actively visit the chore board in order to check which activities they were motivated to do for the day. Although this proved to be not too much of an issue over the 6 week testing period, it is likely to affect stimulation and motivation over a longer period of time.

An overview of the findings and take-aways from both the explorative user test and the literature study is listed below. Keywords and -topics that arose from this overview were mapped into four categories important to designing chore motivational products and used as inspiration and guidelines throughout the ideation and concept development processes. The four categories are: attitude, stimulation, management and flow.

## Attitude

### Motivation, effort, responsibility, expectations, excitement

- The product/system should provide opportunity for giving responsibility to the children (and guidance regarding new tasks).
- Older children (12-18) are less inclined to contribute to the household. Persuasive mechanisms of competition, reduction and socially desired behavior.
- Younger children (4-12) are more enthusiastic about contribution to the household. Persuasive mechanisms of reduction, praise & reward and cause & effect.
- Effort of using/maintaining the product should be little; no text based input and no need for daily check-ups and alterations.

## Management

### Shared vs personal, maintenance, type/number of chores, appropriateness.

- The product should provide guidance relating to the number and type of chores that are appropriate for their children, as these are returning points of uncertainty for parents.
- Mothers play a key role in maintaining the system and setting the number and type of chores for their children.
- Different rules and values apply for the shared and personal spaces in the home. Subjective terms such as clean and organized are potentially to cause family conflict when expectations are not met.



## Flow

### Routines, breakdowns, stress reduction, perception of time

- The product should take into consideration the timespan and routines in which chores are addressed in the household.
- There are opportunities in making the product become an integrate part of existing family routines and habits, rather than new a routine to master in itself.
- Stresses caused by a need for having to remember to update or maintain the product should be avoided.

## Stimulation

### Location, attention, reward, praise, growth

- Activities are context specific and parents tend to give children age appropriate chores; mainly involving taking care of personal belongings and helping with domestic chores such as preparing the dinner table.
- Activities should address specific person(s).
- Avoid text based representations of activities; icon representations are clear to children of younger ages and require less effort to read and understand.
- Location of product is key; need for presence in home.
- For the purpose of reducing complexity in using and understanding the product a overview, either centralized or decentralized, is necessary.
- The product should provide opportunity for giving praise and reward; facilitated by the product through feedback on progress and effort of the children.



# IDEATION

Inspired by the findings and take-aways from both the explorative user test and the literature study, as well as by existing tools and methods for motivating children to make a contribution to the household, the ideation process of the project was entered. Insights and conclusions from literature and exploration user testing in the areas of teaching responsibility, motivating children and family routines and dynamics were used as guidelines throughout this ideation phase.

For the purpose of stimulating the exploration of various design opportunities, the ideation focus was kept broad at the start of the project, narrowing down further as interesting concept directions emerged. This section of the report will shortly describe the tools and methods used for developing ideas for enhancing the social role of parents in dual income families, followed by a description of the most interesting ideas

## 5.1 Sketching

As part of the ideation phase various sketches were made, approaching parents social role enhancement from different perspectives, such as communicating the whereabouts of the different family members, teaching responsibility to the children, activity planning and avoiding breakdowns in family routines. Focusing on these areas separately, rather than developing concepts that already integrate all relevant aspects to enhancing the social role of parent, stimulated the exploration of interesting design principals and additionally, allowed for linking concrete concept elements to conclusions from the literature study.

After analyzing and mapping the outcome of the various ideation sessions four idea categories showed, namely:

- **Planning and managing activities**
- **Avoiding breakdowns**
- **The gift of time and attention**
- **Values in the role of parent**

Taking a closer look at the principals behind these idea categories revealed a distinction between, on the one hand, ideas that focus on solving the issues at the cause of stress and breakdowns, and on the other hand, ideas that focus on opportunities for enhancing the social role of parent, looking at what they value and deem important.

This latter idea direction I found particularly interesting, as literature showed that having a feeling of control and satisfaction for parents is not solely dependent on being able to successfully managing family routines, but on the ability to carry out these routines in the way you want to as well. In other words, providing parents with opportunities for acting upon the things they value in the role of parent is likely to be of value to them. In addition, elements of teaching and preparing the children for future life (and success) are considered to be of high value to parents as well.

### 5.1.1 Direction

As the idea direction of enhancing the social role of parent by focusing on their values seemed to fit well with conclusions from the literature study, it was decided to further explore this direction by means of sketching. Reasoned by studies during the “Smart Homes, Families, and Control” project [4], which showed that parents would like to have more time for doing activities that they value in the role of parent, such as teaching their children responsibilities, the project continued in the direction of providing parents with opportunities for motivating their children to make a contribution to the household.

Other forms of explorations were used to further develop this idea direction. Descriptions of these explorations are discussed in following sections of this report. Below three of the most interesting idea categories within this direction are discussed.

## 5.2 Interesting ideas

### Planners and organizers

The first idea category consisted of ideas for planning and organizing the activities and chores that are part of (running) a family household. The ideas within this direction generally aimed at providing parents with opportunities for teaching their children principals of planning activities and scheduling time. Abstract notions of time, rather than concrete measures, such as hours, days and weeks, were used to make the concepts understandable for children of younger ages.

Additionally, communicating availability of different family members and mappings of who is responsible for which chore were part of this direction as well.

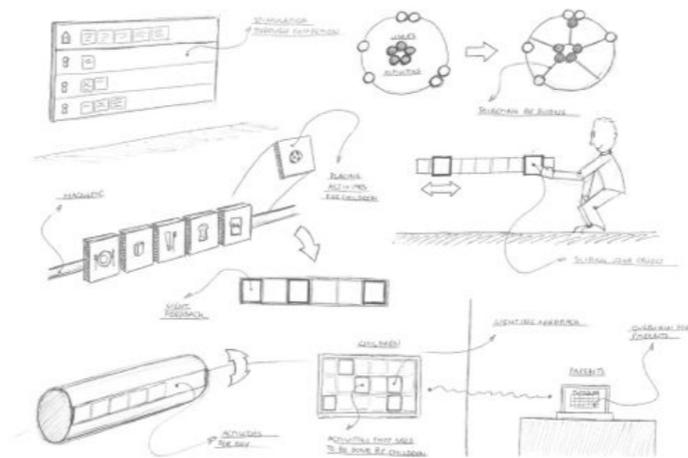
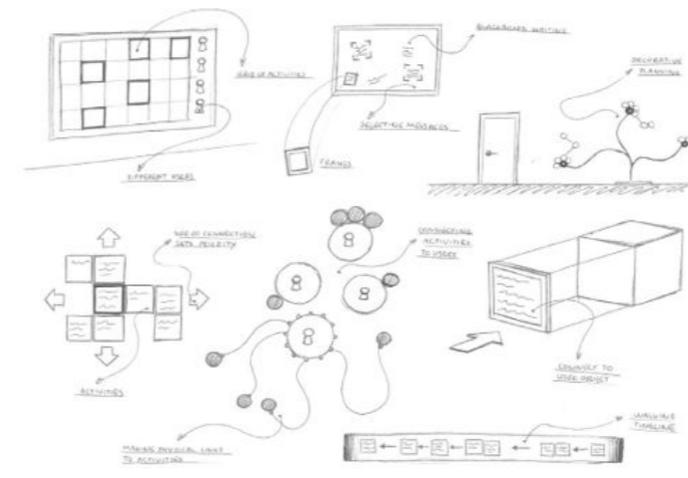
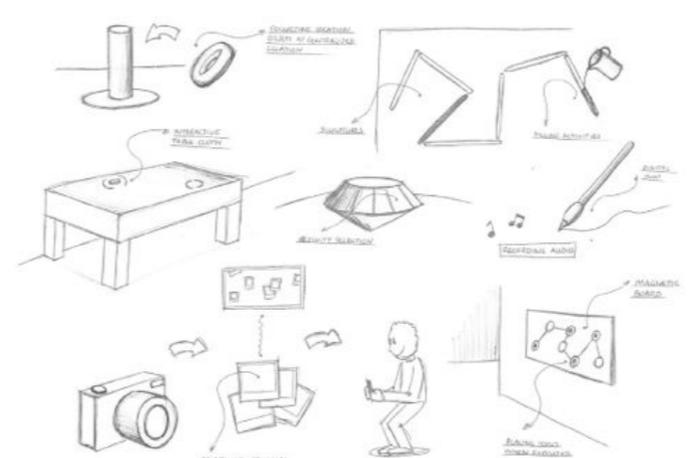
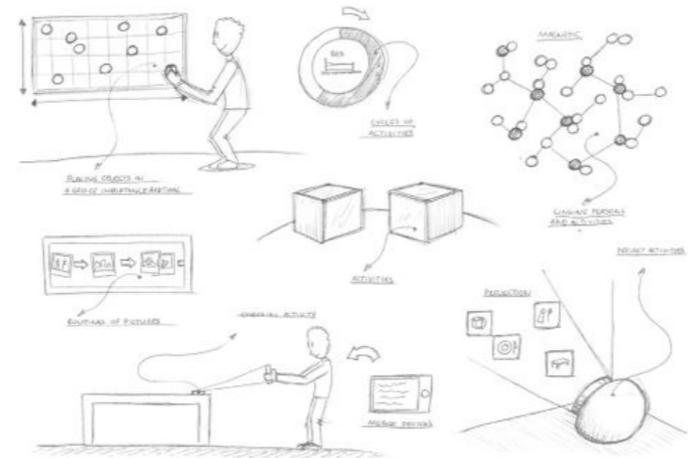
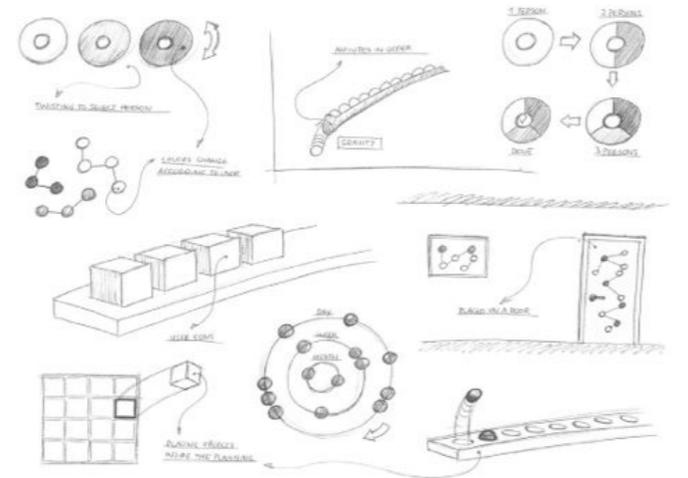
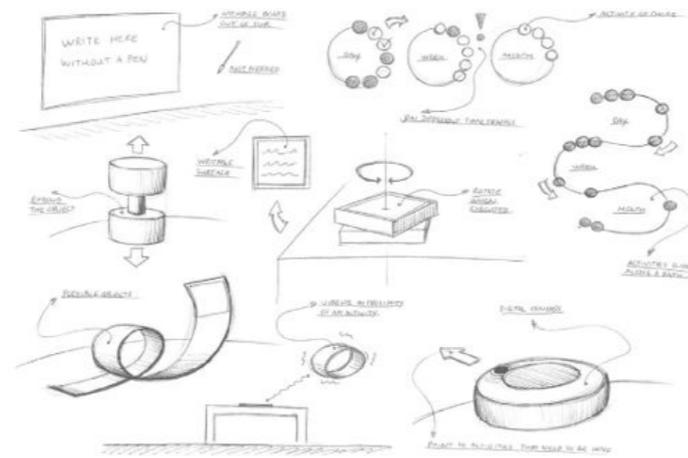
### Routines and activity cycles

Building on the elements of time perception from the first idea category, the second idea direction involved family routines and the ways in which reoccurring activities have grown to become an integrate part of these routines. By providing the opportunity for including existing family routines the children are able to pick up certain activities after a period of using the product without the need of having to be reminded, thus allowing the product to grow with both children and family routines.

### Contextual stimulation

The third idea category focused on the location and type of product used for stimulation children to make a contribution to the family household. Existing tools and methods used for motivating children to do chores are usually bound to one fixed location in the home, affecting possibilities for providing reminders and motivation. The few commercially available products I was able to find were all based on week-planning boards with activity cards, additionally limiting the possibilities of use due to size constraints.

The ideas within this category involved ways of contextualizing the chore stimulation for children, decentralizing the way chores are addressed and provide motivation.



### 5.2.1 Selection

In setting a concept direction for the project to proceed in a combination of elements from all three idea directions was used. In particular the elements of contextualizing the chore stimulation and allowing for growth by adopting chores in existing family routines formed the basis for further concept development. The specific idea of contextual cubes on which related activities can be collected by the children formed the starting point for further exploration. A more detailed description of this final concept direction is provided in the next section of this report, followed by an overview of the explorations that were part of its development.

## 5.3 Exploration

By looking into various ways of adding representations of activities to a portable object the concept direction was explored further. Explorative user testing in an early project phase already proved that the use of icons as a way of representing household activities is an effective and understandable manner of communicating these chores to the children targeted by the project. Other ways of addressing chores and how they define and interact with the object that holds them were explored as well.

For the purposes of stimulating direct parent-child interaction and having the objects 'present' in the daily routines of both the parents and the children, portability and appropriate dimensions for the object were key. In particular the role and placement of the objects in the living environment of a dual income family were considered to be essence for the acceptance and integration of such a concept, with look and feel adding to this as well.





# CONCEPT

Inspired by elements from three ideation directions a final concept direction for the project was set. Characteristic for the concept direction are the decentralized way in which the chore stimulation for children is contextualized and the adoption in existing family routines. The following section provides a brief concept description followed by an in depth overview of its key elements.

## 6.1 Description

Aimed at providing parents opportunities for teaching responsibility a concept for stimulating their children to do chores around the house was developed. The concept consists of several portable objects that hold up to four contextually related activities, allowing them to be placed at locations in the home related to the activities the objects address. The concept thus allows for incorporation into existing family routines, rather than requiring a new routine to be adopted and learned.

Parents are able to set the chores in the form of weekly routines, reducing the effort of 'running' the product. Children are giving feedback on progress throughout the week by means of lights on top of the objects, which in turns facilitates praise and reward from parents when communicated by the children or object.

### Object

Each object holds several chores that are contextually related to one another. The objects and the chores which are connected to them are then placed at locations in the home that are specific to their context. Each child would have its own object as to decrease conflict. For example, you could have one object of a child placed in the living room area with chores ranging from picking up toys to feeding the dog, and another object in the kitchen area with chores such as helping with the dishes or putting away groceries. By having each chore in its distinct context the threshold to engage in action when stimulated to is lower in comparison to centralized systems.

Furthermore, stimulation provided by feedback on progress (e.g. acquired level and/or number of chores) at various locations in the home tends to have a higher motivational effect in comparison to centralized feedback.

### Use

The effort in setting up the chores is kept at a minimum. There is no need for parents to make daily updates and/or adaptations to the objects, as chores are addressed in weekly routines. Changes to these chore-routines can be made directly on the objects themselves, on which there are four sets of 7 sliders for selecting which days of the week a specific activity placed on a side of the object has to become active.

As the objects and their chores are placed directly in their corresponding contexts, chores can be divided as an integrate part of a family ritual. For example, after dinner parents can discuss and set who of the children will be responsible for helping clean the table and who for helping with the dishes.



### Growth

The objects are representations of the growth and progress of individual children, as the number and type of chores placed on the object are indications of the effort and entrusted responsibilities of the child. The chores themselves are divided into categories relating to the physical and cognitive abilities of the children as to provide guidance for parents in dividing chores, as well as to stimulate growth and motivation from the child's perspective. The persuasive elements of collecting new activities and/or new chore locations should stimulate children to contribute to the household both in short and long term.

In addition, by adding the concept of leveling in chores, an understanding is stimulated between effort children put in and the expectations parent have of the quality of the result.

### Routines

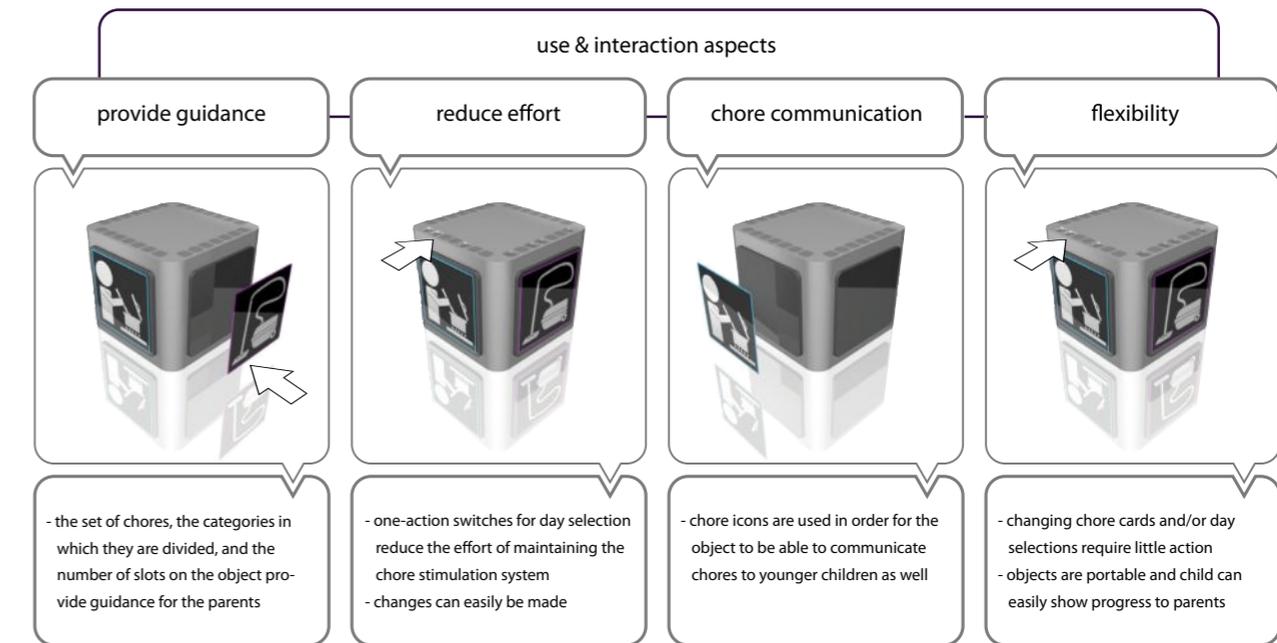
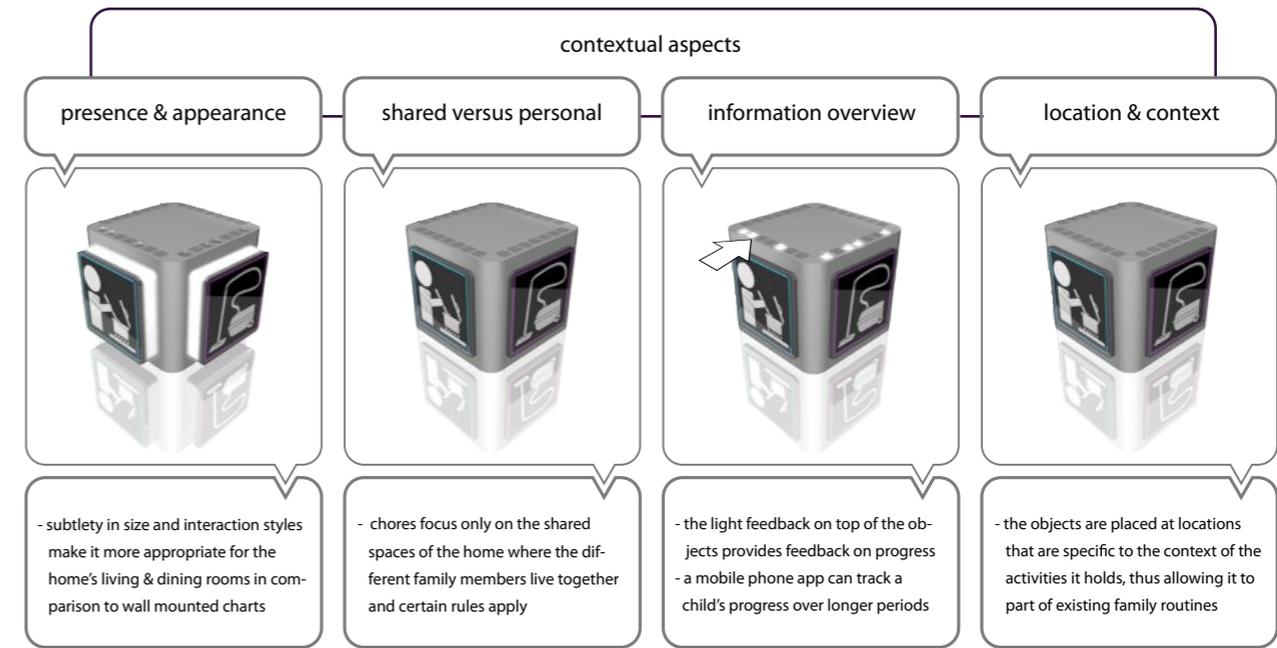
The complexity and demands of home life, work and enrichment activities in dual-income families are often compensated for by the establishment of routines, but even within these detailed routines breakdowns are inevitable. Addressing the contribution of the children to the household in the form of reoccurring chores not only teaches them responsibility and prepares them for future life, but add to the stressless 'flow' of family life and the diminishing of breakdowns as well.

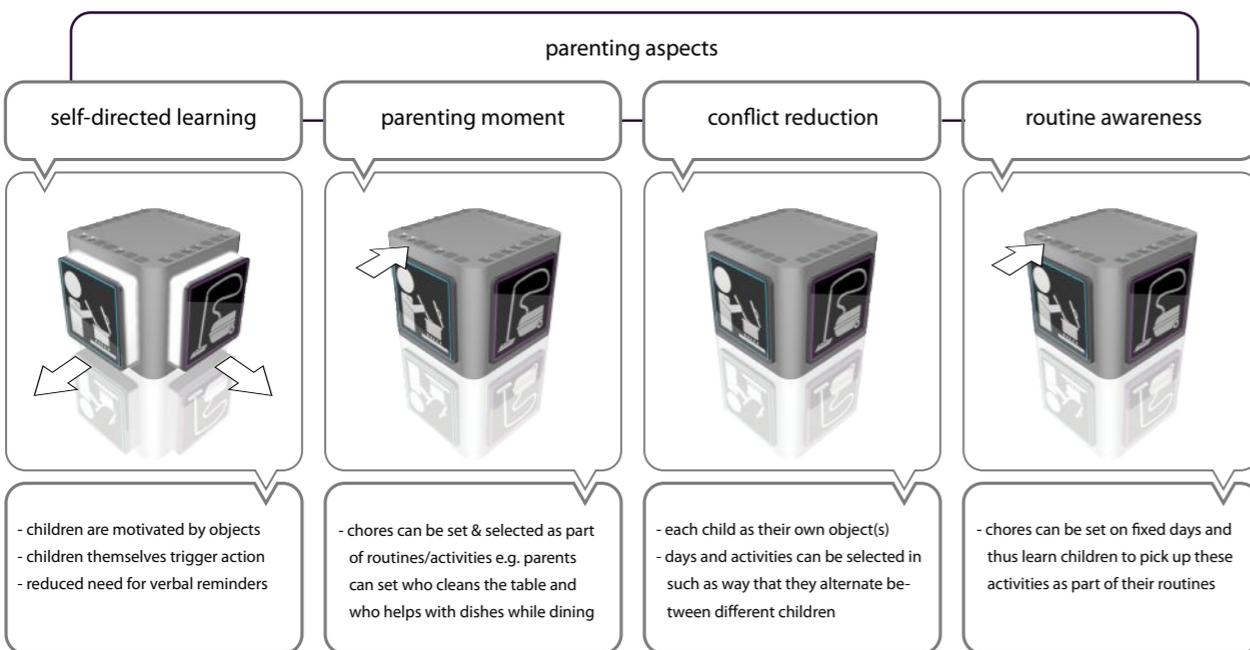
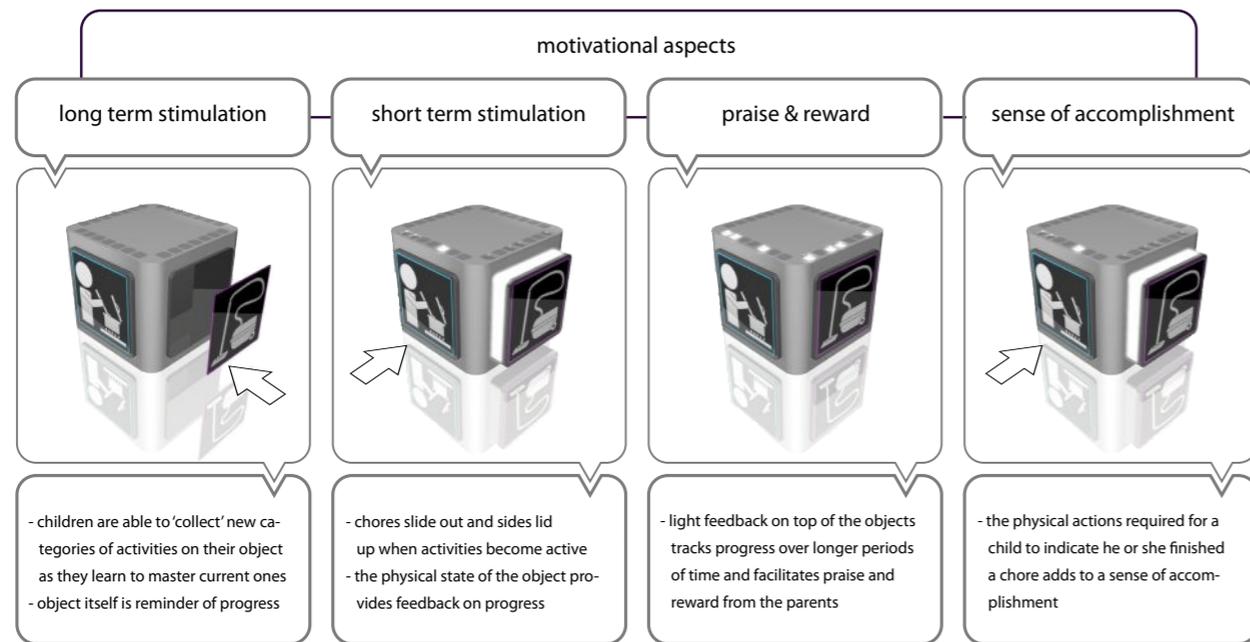
### Spaces

The objects are placed at locations specific to their context in the shared spaces of the home. These shared spaces generally consist of the living & dining rooms, kitchen, bathroom and garden. It was decided to focus on the shared spaces of the home, as for personal spaces such as the children's bedrooms tends to apply a different set of values. Whereas for family cohabitation in shared spaces certain rules and guidelines can easily be set, personal spaces are subject to the values and character trades of individuals, meaning that different views on subjects concepts such as clean, tidy and organized are potentially to cause family conflict as expectations are not met.

### Praise & reward

Feedback on the objects provide parents with information regarding the children's progress on the chores they were assigned/ stimulated to do, thus facilitating praise and reward from the parents' side without setting concrete standards. A combination of light and tactile feedback provide a mix of unobtrusive environmental feedback and more distinct object-physicality feedback. The tactile feedback and related interaction possibilities tend to accentuate the children's sense of accomplishment when selecting they have completed a chore. An additional mobile phone application is able to provide an overview of the children's progress over all objects and longer periods of time.



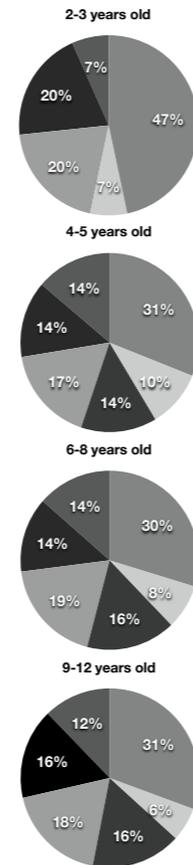
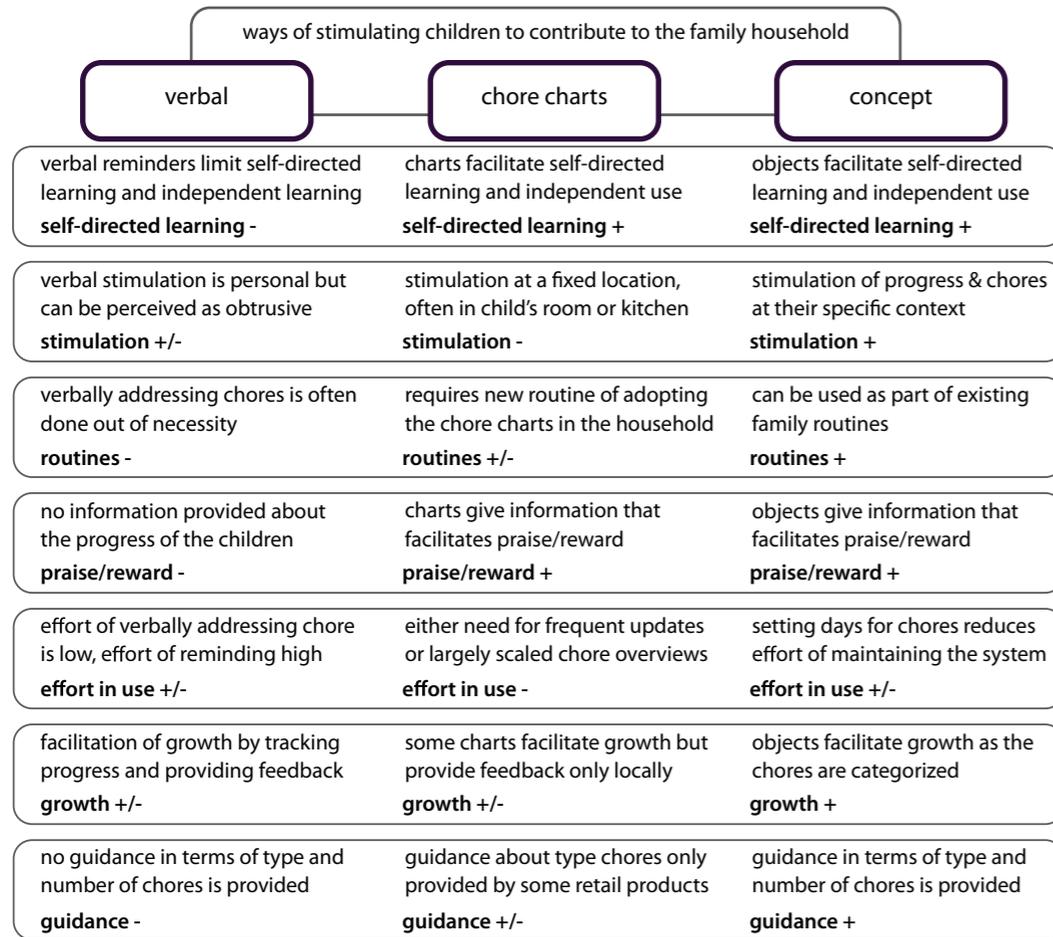


### 6.1.1 Concept in key statements

- Concept is an integrate part of existing family routines.
- Stimulation is provided at context of activities.
- Parent-child interaction is stimulated through feedback.
- Objects are representation of child's progress
- Objects facilitate praise & reward through light feedback.
- Stimulation for children is provided by elements of collecting new (categories of) activities.
- Interaction styles add to sense of accomplishment.
- Minimal effort required to maintain and set the objects.
- Parent guidance relating to the appropriate number and type of chores is provided.
- An additional mobile phone application allows for a complete overview of the children's progress.

### 6.1.2 Comparative overview

For the purpose of evaluating how my concept compares to other methods for stimulating younger children to make a contribution to the household a comparative overview was made. Seven aspects key to this aim were identified, namely self-directed learning, stimulation, routines, praise & reward, effort, growth, and guidance. In particular the concept's relation to the available commercial chore charts was of interest, as these seem to fail in the areas of effort and stimulation over longer periods of time.



### 6.1.3 Chore categories

As to provide guidance for parents in setting chores for the children, the chores are divided into 5 categories relating to the physical and cognitive abilities of the children. From the perspective of the children these categories provide stimulation and allow for growth as well. The persuasive element of collecting new activities on an object and/or new chore locations in the home should stimulate children to do chores both in the short and long term.

The five chore card categories are color-coded, as to add visual clues to act as a representation of a child's progress to the object. The activities they hold are based on recommendations from experts in the field of parenting and child care. Age labels are included for the purpose of guiding parents in chore assignment. Example chores and an overview of the main chores included with the objects are shown below.

	living	dining	kitchen	laundry	room	outside
2-3 years	help feet pets water plants get the mail books in rack pick up toys and games help dust help swipe mess	help set the table		help sort laundry dirty clothes in hamper laundry to laundry room	help make own bed help undress and dress pick up toys and games	help wash car
4-5 years	dust feed pets help vacuum and sweep help care for siblings	help clear the table clean table after meal	help storing groceries help doing dishes help with dishwasher help meal preparation	fold laundry put away laundry sort laundry	make own bed undress and dress help clean room	water the garden/lawn help sweep/rake outside help grocery shopping
6-8 years	train pets wash pets vacuum and sweep	set the table clear the table	take out garbage make own sandwich	use washer and dryer clean the bathroom	hang up clothes clean room	pull weeds sweep/rake outside
9-12 years	take care for siblings clean furniture clean up after pets scrubbing floors		dishwasher doing dishes storing groceries prepare school lunch meal preparation get own snacks	simple ironing fold blankets	pack own bag change sheets homework	take pets for a walk wash the car

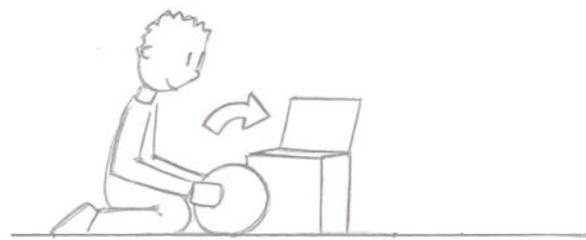
Besides the five chore categories a distinction between 6 different areas of context in and around the home was made in order to get a feel for the way in which the chores are distributed over these different areas of context. In order to do so, the number of activities associated with a specific context was identified, as to represent the diversity of activities characteristic for this given context.

Furthermore, a distinction between families with and without pets was made as a significant number of chores for children focuses on care of pets.

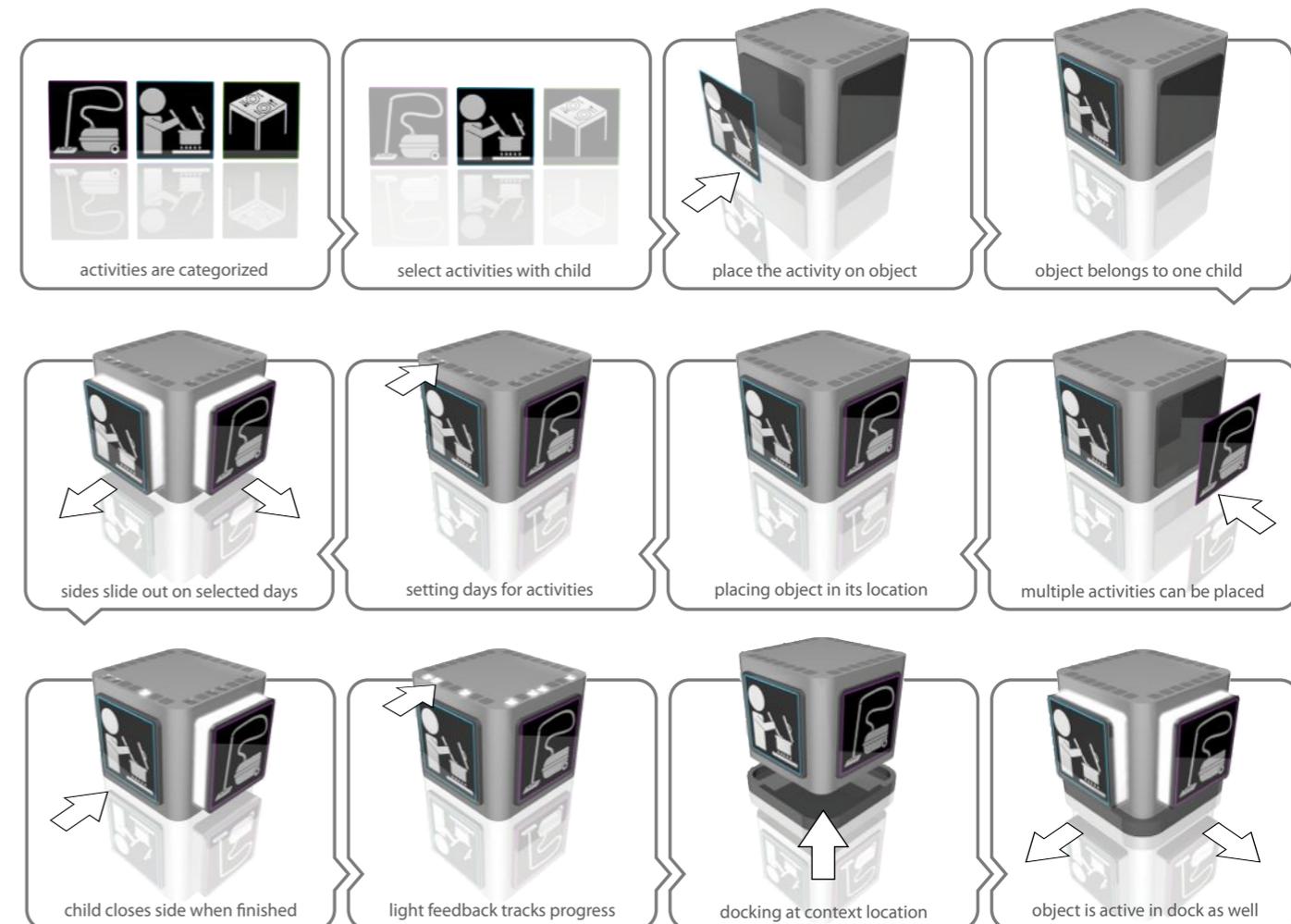
It was interesting to discover how chore assignment for the various areas in and around the home grows over time. Most noticeable was the absence of the kitchen context for children in the youngest age category, as chores associated with the kitchen domain are more likely to be labelled hazardous in comparison to other context areas. The mapping also showed a relatively equal distribution of chores over the different context areas, meaning that whichever context areas are selected by parents for the children to do chores in, there is always a decent number and variety of possible chores.

#### 6.1.4 Interaction scenario

For illustrating the functionality of the objects and its basic scenario of use an interaction schematic was made. The different steps in the schematic chronologically illustrate the action possibilities of a user. Although various scenarios of use are possible, the interaction schematic should provide some insight into these possibilities. Object-parent interaction, object-child interaction, and the stimulation of parent-child interaction are discussed in the following section. The different steps in the interaction scenario, alongside an example scenario of use are shown on these pages



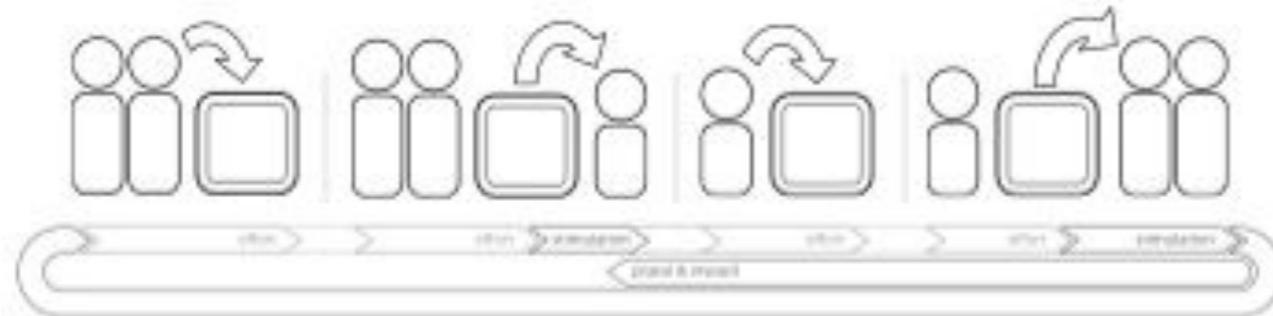
As chores are mastered, new ones are earned and placed on the object.



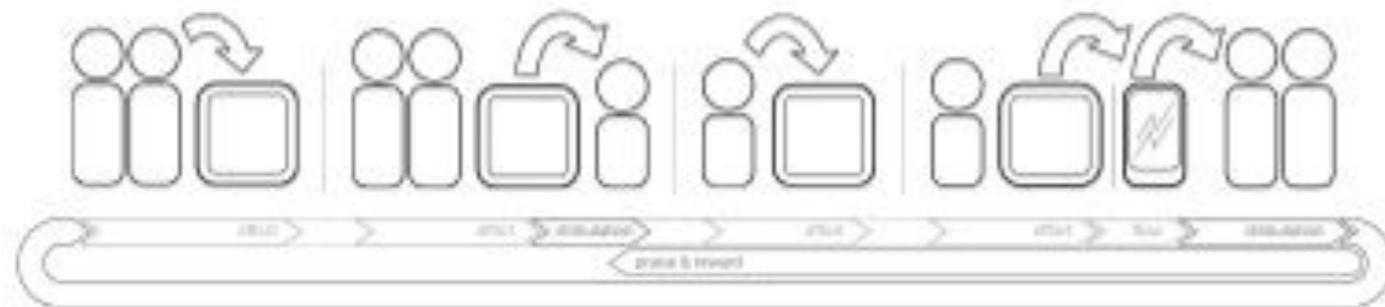
### 6.1.5 Motivation and information flow

In order to get a feel for the relationship between the effort put in during product interaction and motivation provided by both the object and the users, it was decided to analyze how the concepts of motivation and information flow between objects and users. Schematics were made in order to do so, describing the three main phases of the concept's cyclical use:

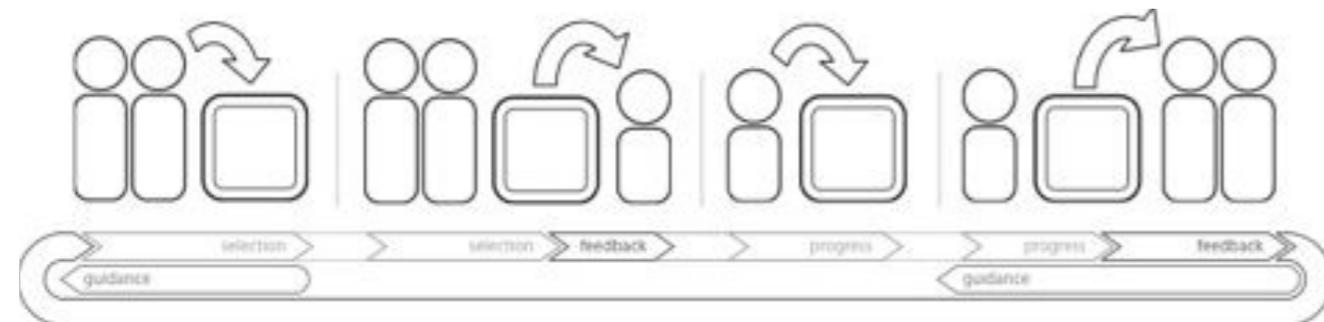
1. **Parents set the chores and days at which they become active, after which the object is handed to children.**
2. **Child uses the object and inputs his or her progress.**
3. **Object provides feedback on progress of the child, facilitated by either the child or parents.**



Information flow without application



Information flow with application



Motivation flow without application

The first of the schematics provides an overview of the effort both parents and children put into using the product in relation to the stimulation provided by product, children and parents. The overview shows how the effort put in by both parents and children is compensated for in the form of respectively the effort the children put in and the praise and reward both the parents and object itself provide.

An additional schematic, including a mobile phone application for providing an overview, was made for the purpose of analyzing whether this inclusion strengthened or disrupted the flow of motivation. Although the mobile phone application works on top of the above mentioned scenario of use, it does not directly stimulate parent-child interaction when feedback on a child's progress is communicated through the application. However, as the application allows for a complete overview of the children's progress over longer periods of time and at moments away from home, it is compensated for and considered to be of added value.

In addition to the first schematics, a second set of overviews was made for the purpose of understanding which types of information transfer between objects and users over these different phases of use. It made clear how for every input made by either parent or child feedback and/or guidance was provided by the object or by the parents. The feedback relating to the chore/day selection of parents and the feedback relating to the child's progress are both communicated through the objects themselves. Guidance in the areas of the type and number of chores for the input required by parents is provided by the object as well. Guidance for children on how to execute specific chores or when new chores can be earned is provided by the parents.

### 6.2 Design

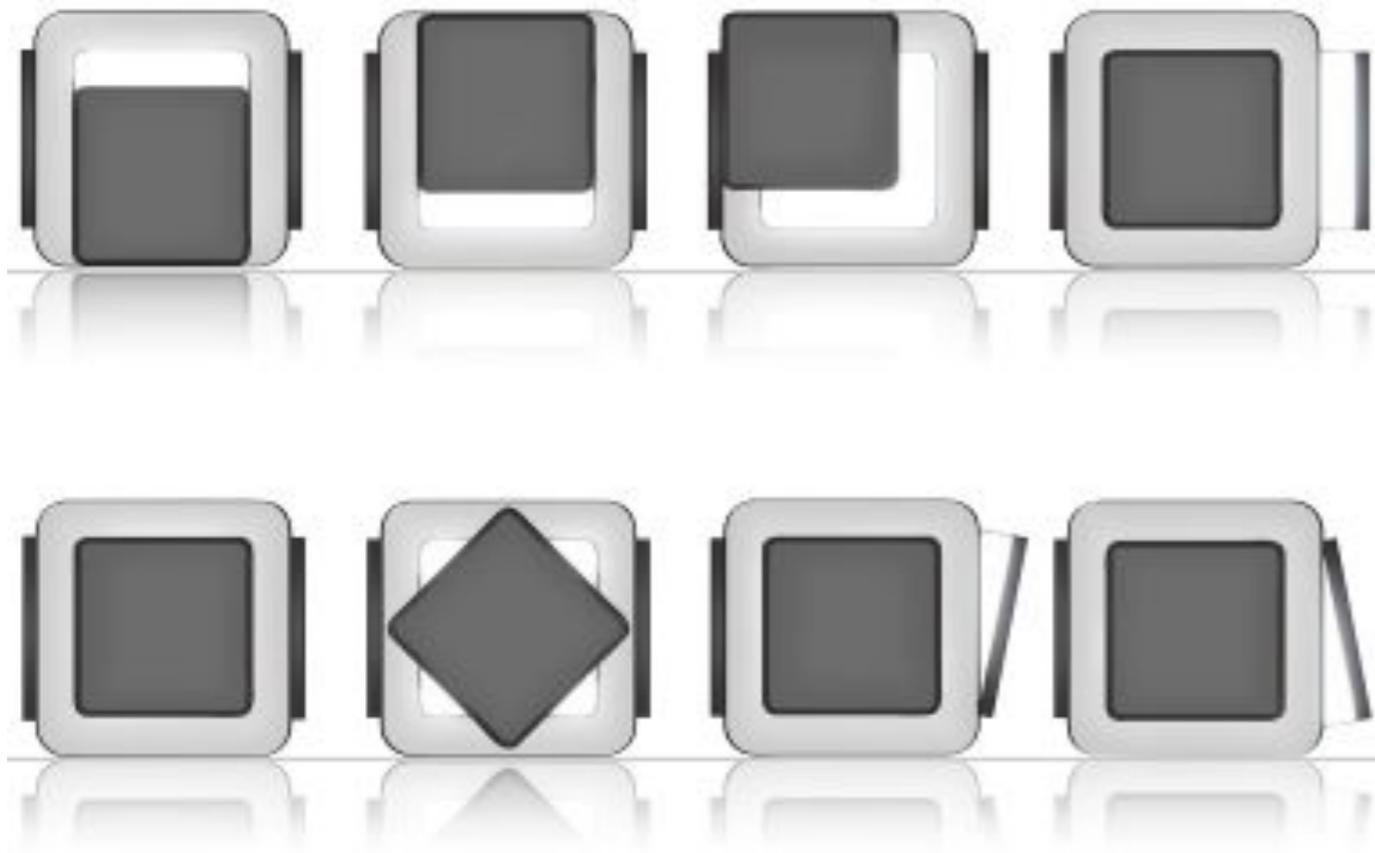
The characteristic cubical form of the objects was a result of aims in making the concept both portable and direction-independent. Being able to freely place the objects on different pieces of furniture while still being able to perceive when chores become active were essential to this concept direction. Additionally, as it was decided to opt for chore cards, because representing activities by means of pictograms proved to be easily understandable for children, some flat surfaces for attaching them to were desired. Size-wise it was a key aim to make the objects small enough for them to comfortably fit in the hands of children around the ages of 4 to 5 years old. Another size determining factor was the understandability and visibility of the chore cards attached to the object. Exploration in the areas of interaction, materials and color further shaped the concept's design. These explorations and their effects on form, function and interaction are discussed below.



### 6.2.1 Interaction explorations

For the purpose of determining how children interact with the activities on the object for selecting when they have finished an activity, various interaction styles were explored within the set design direction. From the explorative user test it already showed how physical movement of the activity cards added to the children's sense of accomplishment after completing a chore. Furthermore, a change in the object's physical state for indicating which activities the child is motivated to do, is an elegant way of adding environmental presence to the object.

As the positioning of the activity cards should represent both when a chore is active and when a child has completed it, it was decided to look at opposite movements. On the next page an overview of several different interaction possibilities is shown. It was decided to opt for the sliding variant, as the opening up of the object for indicating which chores are active has a certain elegance to it without disrupting the visibility of the activity cards attached to the four sides of the object.



### 6.2.2 Color explorations

In comparison to most existing chore charts and -boards, which are either placed in the children's bedrooms or the kitchen area, the portable concept of this project is likely to be used in the living room area of the home as well. Early explorative user testing showed how the larger boards and charts of commercially available solutions for motivating children to make a contribution to the household withhold parents from placing them in more prominent locations in the home, with style and size being key factors.

As the objects are already of substantially smaller size than chore boards, some of this unwillingness of parents for placing such a product in the living room area of the home is accounted for. Exploration of color and material sought to further add a homely character to the objects while still appealing to children and highlighting functional aspects of the design. Some of these explorations are shown below.



## 6.3 Prototype

In order to be able to evaluate the concept direction of teaching responsibility through stimulating children to make a contribution to the household, a fully working prototype for user testing was essential. To this end one object and one dock were made. The following two sections of the report will discuss the prototypes from both an engineering and electronics perspective in more detail.

### 6.3.1 Engineering

Through a process of several prototyping iterations the dimensions and mechanical working of the various parts of the model were optimized. The model itself consisted of different layers MDF and perspex, laser cut to correct size. For the bottom level of the prototype holders for the batteries and servo were constructed. The top level features a similar construction for holding the electronics located in the top of the object.

A cross section in the center of the object holds the mechanism for sliding the four sides with the chore cards attached in and out. A set of four rack and pinion gears was designed for transferring the rotary motion of the servos into a linear movement. Attaching the chore cards on the sides of the object is made possible through a combination of metal strips and magnetic tape. The cards themselves are made out of 1mm plastic sheet on which the chores are printed. Spray paint was used to finish the prototype.

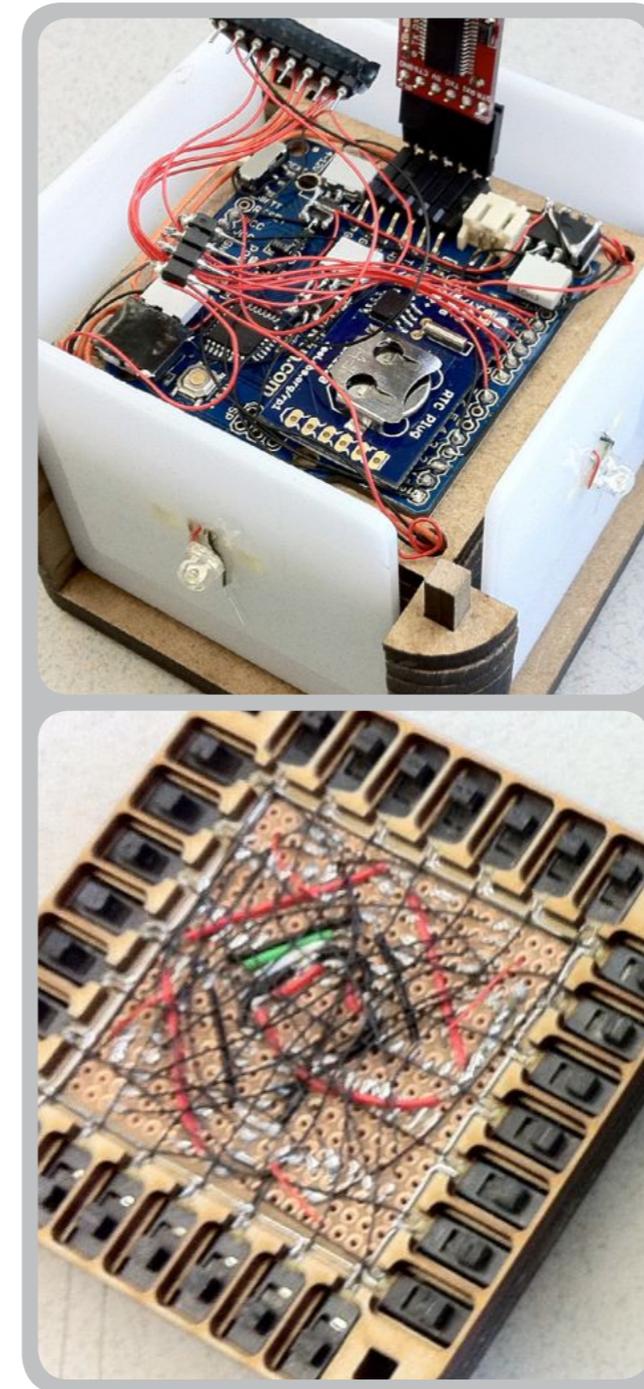
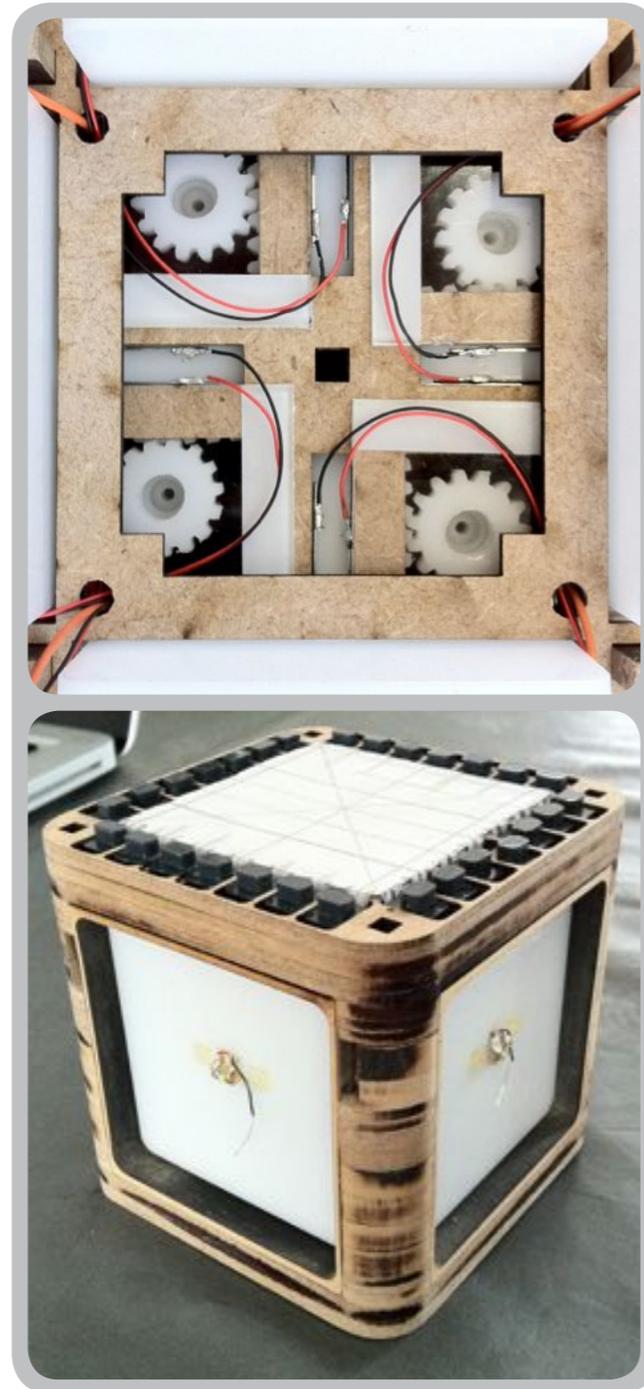
### 6.3.2 Electronics

For pushing the activity cards outwards when they are active, each object contains a set of four servos. Capacitive touch sensing on each of the four sides is used for selecting when one or more chores are completed, triggering the servos to move the sides of the object holding the chore cards back inwards. In the top layer of each object a set of 28 slider switches for day selection is located. Alongside these switches an additional set of 28 LED's provides feedback on a child's progress, lighting up when he or she completed the chore(s) set for a specific day. Through a series of eight shift registers the sets of switches and LED's are connected to an Arduino circuit board. Furthermore, a Real Time Clock plug with internal battery is used for keeping track of time even when external power is turned off.

Powering the electronics are four AA NiHM rechargeable batteries placed in the bottom layer of the object. A dock including a charging circuit is used for charging the batteries and powering the object when it is placed in the dock.

### 6.3.3 Issues

In the process of building the prototype to the size and feel as conceptually envisioned for evaluative purposes, all internal components had to be positioned compactly, as to fit within the relatively small available space. In doing so, some interference with regard to the touch-sensitive wiring emerged. Electric current running through the wires of various components, such as the servos and switches, kept interfering with parts of the circuit used for detecting touch. As it was not possible to reroute the cabling for touch sensing in such way where it did not cross or come



in close proximity to other parts of the electric circuit, quite some time and effort in exploring various sensitivities and positioning of the touch-IC's was needed in getting the prototype to function correctly.

Furthermore, there were some additional issues concerning the information passed through the shift registers used for connecting all 28 LED's and 28 switches of the top layer to the circuit board at the centre of the prototype. However, as they turned out to be caused by faulty wiring connections, no troublesome issues were encountered in fixing it.

With regard to programming the functionality of the prototype the main challenge showed itself in the area of communicating the in- and outputs of respectively the switches and LED's to one another, bit-shifting this data back and forward between the eight chained shift registers. Once this was figured out, these parts of code could be linked and adjusted to the parts used for tracking time and controlling the positioning of the four servos.









# EVALUATION

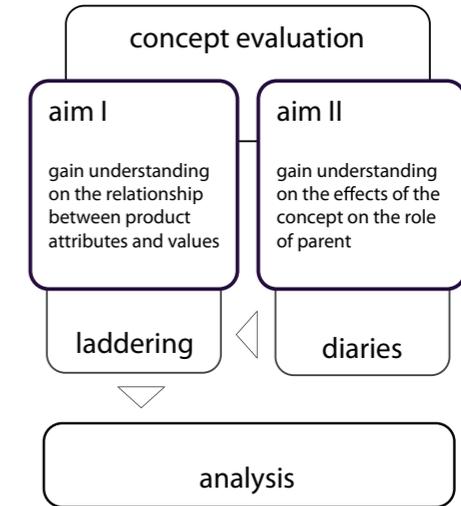
For the purpose of evaluating the concept the use of a scenario based value laddering methodology was employed, combined with additional user diaries for gathering information. The idea behind the concept was to provide parents in dual income families with opportunities for teaching responsibility to their children by means of stimulating the children to make a contribution to the household. As the concept direction of the project directly involved the both relationships and communication between children and parents, it was determined to evaluate the tool within a dual income family setting I was already familiar with, as to be able to put some of the findings of the user evaluation into perspective. The same family as for the explorative user testing at the beginning of the project was used for the final concept evaluation, as to be able to compare the concept to the previously set up chore card method as well. The aims of the evaluation were to gain understandings in:

1. *The effects of using the prototype on the role of parent.*
2. *The relation between product features and user values.*

## 7.1 Set-up

The user evaluation was introduced with a short intake, during which the purpose, set-up and duration of the test were explained to the participating family. The family was then asked to use the concept for a duration of three weeks, during which the parents would assign a variety of chores for their children. A combination of both familiar and new chores were included as to evaluate and compare elements of motivation and reminders provided by the object.

As the timeframe of the project only allowed for the design and build of one physical prototype, both children used the object individually for a duration of one-and-half weeks. Throughout the three week evaluation the parents were free in deciding the type, number, frequency and possible forms of reward and/or praise.



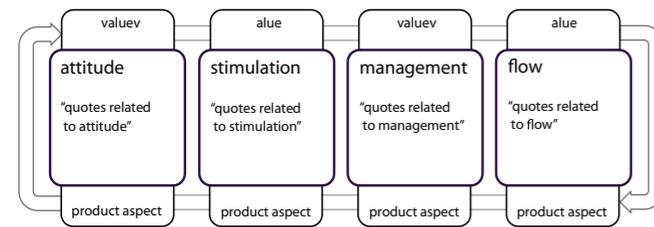
Weekly discussions, user diaries and concluding interviews with both the parents and the children were used for gathering quotes and user insights for evaluation using the laddering approach.

### 7.1.1 Participants

Participating with the concept evaluation of the project was one dual income family with two girls, aging 5 and 11 years old. It was decided to test with only one family for the remaining time of the project, instead of two or three families for shorter durations, as the explorative user evaluation at an earlier phase of the project showed how valuable findings (related to elements of motivation, reminders, and updating) only started to show after a period of two weeks. Although a user testing set-up with one family for a duration of three weeks is still short for validly evaluating the concept, it did offer opportunities for gaining insights in the areas of parent-child interaction, short term motivation for both children and parents, and what role such a product could fulfill in existing family routines.

## 7.2 Method

The concept and its effects on the role of parent in a dual-income family were evaluated by means of analyzing the quotes mentioned during the evaluation's discussions and interviews for which the laddering interview technique was used, a method that is particularly helpful in eliciting goals and underlying values, and therefore of particular value for user experience research. Additional user diaries were employed for gathering information with regard to possible changes in parent-child interaction over the period of using the prototype in the home. Alongside the insights gathered from earlier discussions with the different family members this information was used as input for the laddering interviews.



### 7.2.1 Laddering

First introduced by clinical scientist in the 1960's, the laddering technique was used as a method for understanding people's core values. The laddering technique is well established in the field of psychology, but has more recently been adapted by market research for use in consumer and organizational research as well. In addition, these early marketing practitioners conceived a model for describing the links between consumer values and their buying behaviors, the **Means End Chain** theory, providing frameworks for both capturing research data and assessing consumer values [13].

The Means End Chain describes a hierarchy of consumer perceptions and product knowledge, ranging from (1) attributes to (2) consumption consequences to (3) personal values, making up a chain that indicates the relationship between a product attribute and a core value [13].

- Attributes** - Individual recognizing attributes of a product or system. For example, "I like this car, because it is a convertible."
- Consequences** - Attributes have consequences for the individual. For example, the convertible car makes the individual feel young and free.
- Values** - Each consequence is linked to a core value of an individual's life. For example, the sense of youth makes the individual feel attractive.

These ladders can be collected and mapped, typically containing many product attributes, linked to a smaller set of consequences, which in turn are mapped to a core set of individual values. The real value of the laddering approach is that it emphasizes the why and how products are important in a person's life, going beyond functional descriptions of product attributes.

In conduction the laddering interview techniques it is commonly accepted to first ask participants what kind of features are useful in or distinguish different products, for the purpose of eliciting main product attributes. Based on initial responses you can next turn to questions that address the consequences of these attributes. Force them to think about the reasons for their attribute preferences; Why is this important to you? What does this mean to you? To uncover the personal values you next ask the same type of why-questions. For example:

Q: "Why did you select those wedding invitations?"

A: "I really liked the traditional design and the heavy card stock."

Q: "Why is the heavy card stock important to you?"

A: "The heavy card stock makes the event seem more formal and substantial."

Q: "Why is it important that the wedding be more formal and substantial?"

A: "My friends had fabulous weddings, and I really want to do something on par with them."

### 7.2.2 Diaries

For the purpose of gaining insights in the effects of introducing the prototype on the role of parent in the participating family, user diaries were employed. The parents were asked to keep track of noteworthy changes in routine in terms of parent-child interactions, paying particular attention to the following aspects:

- Frequency of parent-child interaction.**
- Topic and/or content of parent-child interaction.**
- The attitude towards interaction of parents & children.**
- Initiation of parent-child interaction.**
- Levels and ratios of praise and critique.**
- Parenting activities**

For each day of the evaluation period the parents were able to comment on notable deviations for these six elements characteristic for parent-child interaction in the context of this project. Although the parents were not obliged to write daily diary entries, they were stimulated to be aware of changes in the ways in which they interact with the children prior to the use and adoption in family routine of the prototype. The outcome of these user diaries was used as input for the laddering interviews.

### 7.2.3 Analysis

Conclusions about the use, effects and implementation of the prototype were based on a combination of the analysis of the quotes gathered and my experience in both the role of family acquaintance and designer. Below a summarizing overview of the start topics and questions that were addressed during the laddering interviews is listed.

#### Children

- How did you feel about doing the chores on the cube?
- How did you feel about the chores that were selected?
- When did you look if there were new chores on the cube?
- What did you do when you finished an activity?
- How did you experience pushing the sides of the cube to indicate you finished an activity?
- How did you feel when you finished (all) activities that were active on the cube?
- How did you feel about the lights on top of the cube?
- If so, why did you show the object to your parents?
- Where was the cube placed in the home and why?
- If so, what kind of praise did you receive?
- Did you feel the cube was yours?
- Did you sometimes forget to do the chores on the cube?
- Which card colors did you have on your cube?
- If so, why did you try to collect new cards?
- If so, why did you feel there were too many cards?

## Parents

- How were the chores selected?
- Why did you select those activities?
- Why did you select that number of activities?
- Why did you select those specific routines for the activities?
- If so, why did you make changes to these routines?
- Why did you place the object at that location in the home?
- How did you experience using the object in terms of effort?
- Did you understand what the pictures on the cards were?
- How often was progress of children being communicated?
- What was being communicated related to the object?
- How did you feel about the children doing (or not doing) the chores set on the cube?
- How did you feel about stimulating the children to do these activities?
- How do you feel about allowing the children to do the activities independently?
- What is important to you in the role of parent with regard to your children?

## 7.3 Results

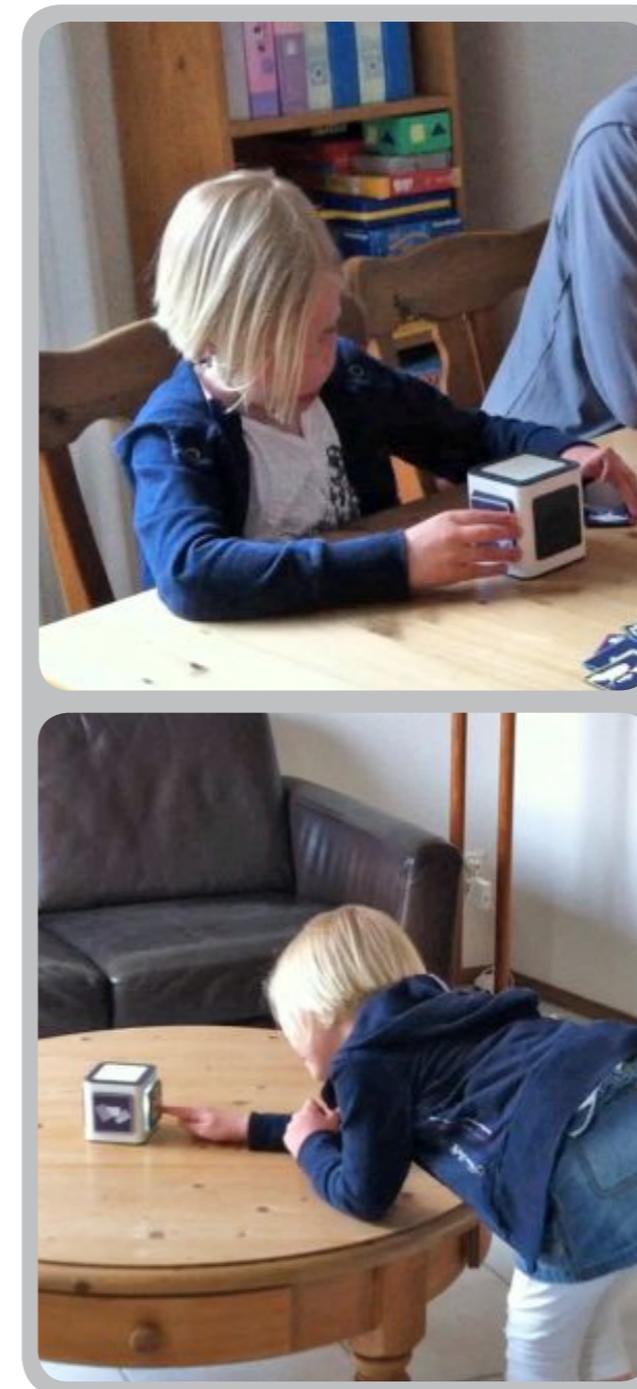
The insights and conclusions from the user evaluation will be discussed in the following report sections. These conclusions were based on a combination of the participant quotes gathered from the laddering interviews and my experiences in the roles of designer and acquaintance of the family. Choices made by the family regarding the implementation and use of the concept during the three week evaluation period will be analyzed as well, in order to put specific comments and experiences mentioned during the interviews into perspective. As this project report was due one week prior to the interviews concluding the user evaluation, it was not possible to include the outcome of both the interviews and a full analysis of the results within this report. These will however be addressed during the final graduation presentation. If needed, a follow-up report section discussing the outcome of the interviews can be provided after the official report deadline.

### 7.3.1 Conclusions

Below the most relevant and interesting conclusions from the weekly discussions are listed. These conclusions were analyzed further in preparation for the concluding interviews of the evaluation, addressing the reasoning (in the form of both values and product attributes) behind earlier statements. Take-away for possible further development of the concept based on the insights and conclusions from the weekly discussions will be addressed in the final discussion of the report. The outcome of the interviews and user diaries will be discussed during the presentation.

### 7.3.2 Conclusions

- **The object was noticed and interacted with more frequently throughout the course of the day than the previously tested chore board, by both the parents and children.**
- **In selecting the activities the children's interest for specific activities was a predominant argument in making the choices; it was about making a contribution and learning new skills.**
- **Children again showed enthusiasm in doing the chores, in particular to newly introduced activities.**
- **Children showed the progress they have made with the object to their parents almost on a daily basis, initiating parent-child interaction.**
- **Setting specific activities in the form of weekly routines provided additional opportunities for notifying or reminding parents about important events.**
- **There was no daily input required for keeping the product running, allowing for a focus on parent-child communication rather than a need for remembering to update.**
- **The loose magnetic connection between the cards and the object, causing cards to fall off when touched or hit in certain places, caused some inconveniences in handling the object.**



## 7.4 Further development

Based on early conclusions from the user evaluation, as well as insights gained during the concept development phase of the project, some recommendation areas for further development of the concept were identified.

- Exploring the ability of the objects to change the context of the activities it holds depending on its location in the home.
- Exploring ways for a small portable object to hold over four unique activities.
- Evaluating the principals behind the concept direction with multiple objects and multiple children in a family.
- Exploring additional uses and ways of implementing the concept in family routines, such as placing the object near activities to draw even more attention.
- Exploring the added value of mobile applications for keeping track of progress and/or setting the activities.



## DISCUSSION

Following a **Designing for the Self** approach to design, this **Final Master Project** aimed to provide parents in dual income families with the opportunity and time for doing parenting activities in the way they aspire them to do. It was suggested that providing parents in dual income families with opportunities for teaching responsibility to their children made them less inclined to feel anxious or apprehensive with regard to not living up to their ideal of how parents should behave. The project aimed to do so by designing a product that stimulates the children to make a contribution to these highly structured and demanding households. A working prototype was designed to evaluate the concept.

### 8.1 Concept

For the main purposes of lowering the threshold for engaging in action and increasing the environmental presence of the concept for motivational reasons, it was chosen to make the objects small and portable. In following this approach, the resulting freedom in use and freedom in implementation in family routines proved to add significant value to this concept direction as well, in particular when compared to existing ways of stimulating children to make contributions to the family household. When positioned on top of its dock, the object is to a degree bound to a fixed area of context in the home environment, in which it raises subtle awareness of chores to pick up in the household through its light feedback and moving sides. However, additionally being able to reposition the entire object to another activity-related location, allow parents to more obtrusively stimulate children to do specific activities as well.

Another interesting element to the concept showed during a discussion with a primary school teacher about the values and opportunities of introducing the concept at primary schools as a tool for allowing children to work independently. In order to do

so, the way of setting routines would require a time set-up aimed at hours and minutes rather than days. As the button set-up on top of the object as it is now is focused towards weekly routines, it would not be possible to introduce the concept as it is now in new application areas with slightly different ways of incorporating the timing element of it. However, this can be overcome by introducing a set of different tops for the object, including various ways of addressing routines, for example hourly changes. These tops can be connected to the base of the object and have their input being communicated to additional parts of the software.

An integrate part of developing a concept for stimulating children to pick up chores was the development and design of a set of chore cards. For the purpose of providing guidance for parents in selecting the appropriate type and number of activities, four chore categories were introduced, linking specific chores to physical and cognitive abilities of children in different age categories. This proved to be much needed and appreciated support, as uncertainty towards the type and number of chores suitable for different children is likely to negatively affect the ways in which parents carry out and feel about their role as parent. An additional aim the project attempted to achieve through the introduction of the chore categories, was motivating children to keep making a contribution to the household in the long term as well. By being able to grow in the type of activities you are allowed to do, it was aimed to motivate children to earn and learn new activities, keeping the use of it interesting over longer periods of time.

The object and the colour-coded chore cards they hold are thus also representations of the progress children show over longer periods of time. Although the evaluation I was able to conduct was too short of duration to comment on the children's motivation in the long term, it was promising to see a level of interest and curiosity as to what "all the other" activities involved.





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