

Enabling family connections through fluid play.

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MASTER THESIS

**Enabling family connections
through fluid play**

Freek Trimbach
April 2020

ABSTRACT

Smartphones and digital devices are ingrained within modern family life. While they provide many benefits they also create a social gap between parents and children. Interests of parents and children often do not align, as parents tend to prefer physical activities, showing a reluctance towards the preferred digital play of children (Hoika, E., Wu, Z., Alexander, J.J., & Thomsen, B.S., 2018). This creates a barrier in shared digital play. It would be valuable to break this barrier, as adults and children are more likely to be happy in general and feel more connected with their family members when they spend more time playing together (Ginsburg, K. 2007).

In order to achieve this goal, a promising area to explore is the type of play that involves the interest of both parents and children. By combining tangible and digital elements a type of fluid play can arise, capable of breaking the digital barrier, resulting in family connection.

UNGA is a loyalty campaign specialist which has shown interests in creating this type of play. Dutch loyalty campaigns, often targeted towards families and children, provide a context in which this fluid play will be explored, offering a platform to reach thousands of families.

This leads to the project assignment of **designing a fluid interaction with a smartphone to engage families in play, within the context of a loyalty campaign.**

Various design methods and tools are applied within this thesis, mainly following the research through design principles and exploring the possibilities of animation as a design tool.

After exploring UNGA as a company to define its context, insights on family connections from the perspective of Dutch families are gathered. Furthermore the context of fluid play is explored by hands-on experimentation and desk research.

By analyzing the results, a design focus is created, with the following design statement: **fluid family play should encourage “poking fun” at each other, where parents and children are equally involved in a personal & physical activity.**

Subsequently, concepts are developed through multiple rounds of experiential prototypes, involving internal and external stakeholders in the process.

“FliereFluiters” is introduced as the designed fluid play experience. By carefully utilizing tangible and digital elements in one fluid play experience, FliereFluiters compels to both children and adults, breaking the digital wall amongst family members. By combining a personal, physical and humorous activity within this experience, FliereFluiters manages to enable family connections, one surprise at a time.

A loyalty model is proposed in which the concept reaches families through multiple channels. Supermarket interaction and social media aspects are proposed as means to introduce the concept to consumers, while the involvement with the concept takes place primarily at home.

The design proposal is validated through the involvement of families and experts from different backgrounds. To fully validate the long term family impact of the concept however, a long term study involving the participation of Dutch families with a fully operational prototype is recommended.

ACKNOWLEDGEMENTS

Before kicking off I would like to take this time to express my gratitude to some very special people involved. Without them this project would not have been the same and I am very grateful for each and every one of them.

First of all I would like to thank my chair Niko Vegt for providing me with continuous support. Our meetings brought a sense of structure and reassurance to the project. Your calm and constructive feedback always made me leave the meeting with renowned motivation. On the other side I would like to thank my coach Ianus Keller for challenging me to think with a different mindset, providing me with prototyping inspiration and connecting me with valuable people during this project. Both of you have helped me to push myself while retaining a positive but constructive attitude, which I greatly appreciate.

Next I would like to thank Daniël Thomassen for providing me with the opportunity to graduate at UNGA and for your honest feedback. You always made sure to share your opinion from a company perspective. Our discussions always made an impact, challenging me to find the right balance between innovation and proven concepts.

A big thanks to the entire UNGA family. You have showed me how much fun a company can have while still working your butts off. Thanks for all the delicious meals, extraordinary parties and new friendships you have given me. Thanks to the entire design team for lending your help whenever I so desired it. Also thank you Manon for being my train buddy and Japanese teacher during my time at UNGA, Karendā-machidesu! In special I would like to thank Gloria van Vonderen for providing a listening ear, always trying to make my time at UNGA even better. Keep your positive attitude and outfits rocking!

Thank you to all the families involved. Your continuous collaboration from start to finish has kept motivating me greatly. All of this was made possible thanks to your hospitality, enthusiasm and patient attitude. A special thanks to Aleid, Walter en Savedin for being my movie stars. You did everything in your power to create the best movie possible, and your acting talents are the crème of the crop!

Thank you to my housemates, which were always cooperative to participate and provided me with plenty of entertainment during times of isolation.

A very special thanks goes out to Jordan Kelly, for going out of his way to help me bring this project to the next level. I could not have asked for a better camera man, housemate, sparring partner and friend.

I want to thank all of my friends who have undoubtedly made my life as a student the best period of my life. You know who you are. Bigs thanks to Astrid ten Bosch for providing me with the cutest visuals and Mark Janssen for being my design guru. My biggest thanks however can only go out to one person, Mathijs Bijkerk. Thank you for your eternal passion & commitment!

Lastly I want to thank my own family for their unconditional love and support for the past 27 years. Thank you Marion, Erik-Jan, Anne en Loek.

I wish you an inspirational read.

GLOSSARY

FLUID PLAY

Tangible

Perceptible by touch.

Physical

Relating to the body.

Fluid

Combining tangible and digital aspects.

AR

Augmented reality, referring to the integration of digital information with the user's environment in real time.

Unity

A cross-platform game engine developed by Unity Technologies.

Vuforia

Augmented reality software development kit for mobile devices that enables the creation of augmented reality applications

Image target

Image that Vuforia can recognize and track, in order to affix it with digital content.

Android

A smartphone operating system developed by Google using a Linux kernel.

DESIGN METHODOLOGY

RTD

Research through design, referring to the construction of a design artifact in order to generate relevant research insights.

MVP

A minimum viable product, referring to a version of a product with just enough features to execute its purpose and provide relevant feedback.

Rapid prototyping

Experiential prototyping technique in which a life-action video or animation is generated in order to portray parts of an interaction scenario.

Design statement

A statement defining various elements the design proposal should address, in order to reach the design goal.

Context factors

Influences that can have an impact on the intended design.

Interaction Vision

A metaphor of which interaction qualities are extracted and transferred to the actual context of the design.

LOYALTY CAMPAIGNS

Loyalty campaign

a marketing strategy designed to encourage customers to continue to shop at or use the services of a business, associated with that campaign.

Loyalty model

A model which specifies how customers interact and come in contact with aspects of the loyalty campaign.

Stamp & Redeem

A loyalty model characterized by the collection of stamps which can be exchanged for singular products.

Instant reward

A loyalty model characterized by rewarding customers with a small gift as part of a collection, for relatively low expenses.

Completer

An object involved in instant reward campaigns, providing a place and incentive to gather the entire collection.

READING GUIDE

1. 4 design phases are presented within this thesis. You can check which design phase you are currently in by checking the **chapter title's color**. Each color represents the following design phase.



2. At the end of each design phase, take-aways are presented in their corresponding color. Consider these as your personal cheat sheets.



3. Breakout birds provide additional information, videos or tips for the reader to utilize.



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I CONTENT



INITIATE

INTRODUCING THE PROJECT ASSIGNMENT AND DESIGN APPROACH

The project kicks off with an introduction of the project scope and approach taken within this thesis.

1 Introduction

- 1.1 Design brief
- 1.2 Project scope

2 Approach

- 2.1 Design approach
- 2.2 Design tools

1

INTRODUCTION

INITIATE

INTRODUCING THE PROJECT ASSIGNMENT & SCOPE

The first section introduces the project assignment through the design brief. Subsequently the project scope is defined.

Chapter Overview

1.1 Design brief

1.2 Project scope

1.1 DESIGN BRIEF

Relationships developed in families are crucial because these bonds play an integral part in learning how to function and interact in society (Kennedy-Eden, 2014). In the past, these bonds were strengthened by spending leisure time together as a family but now smartphone technology provides opportunities for individual entertainment, connecting on social media, and spending time physically together while being emotionally separated (Figure 1).

This comes as no surprise, as studies imply that children prefer digital entertainment over physical experiences. Also parents and children alike blame each others technology use as a cause of reduced play activity. Children's increased interest in digital play and social media and the distraction of emails and smartphones for parents could also be to blame (Hoika, E., Wu, Z., Alexander, J.J., & Thomsen, B.S., 2018).

Next to preferring digital play, children also report that they prefer real life interactions with other people over individual online play, whether physical or digitally. This suggests that digital play does not necessarily imply anti-social behavior (Hoika, E., et al. 2018). Parents however have shown to be reluctant towards digital play, preferring more physical and traditional types of play themselves (like rough and tumble play or hide & seek) as mentioned in the LEGO Play Well Report (2018).

Insufficient research on the effects of screentime has also kept parents reticent and controlling towards their childrens digital play, creating a barrier in shared

family play (Kervin L. 2014).

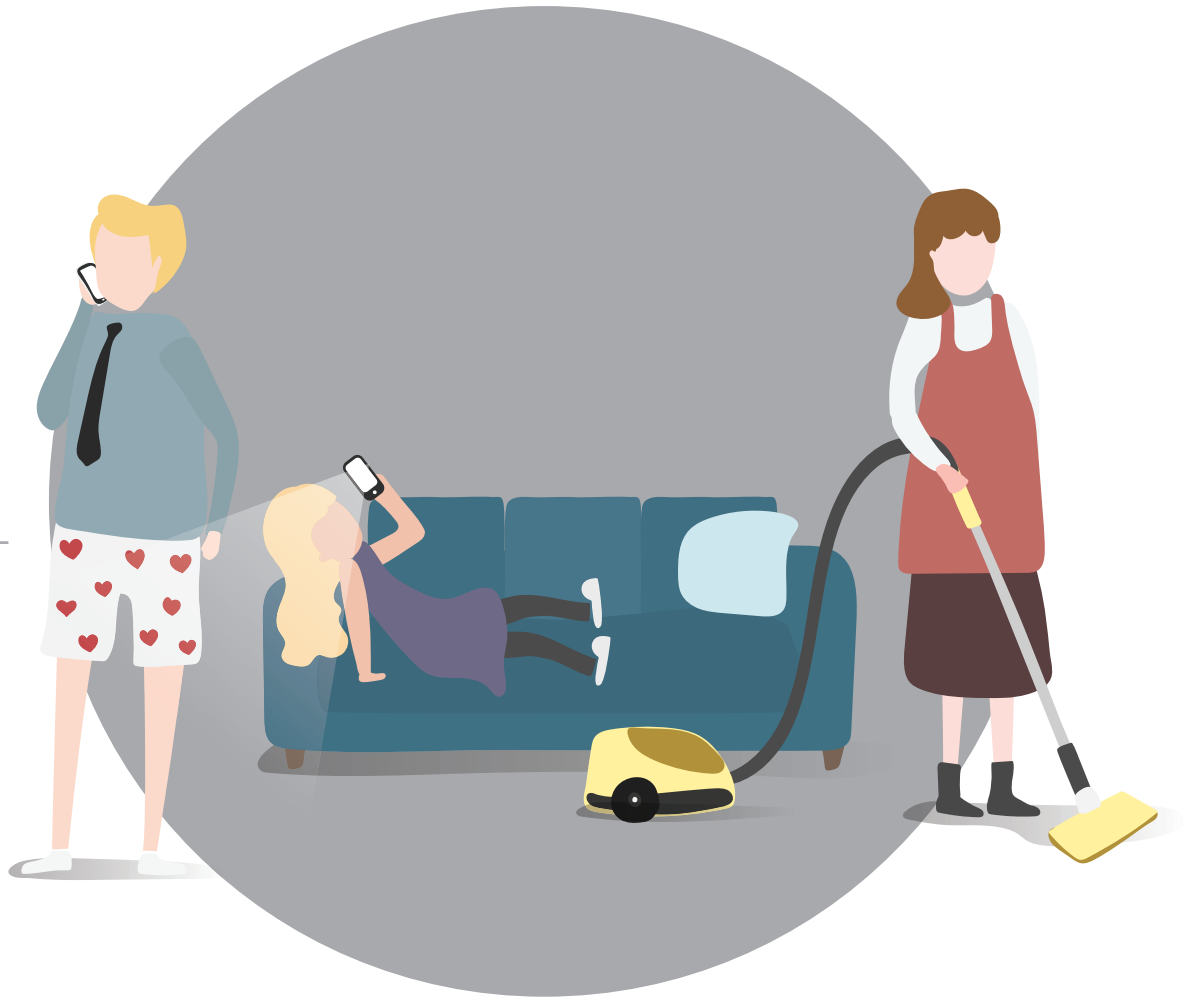
It would be valuable to break this barrier, as adults and children are more likely to be happy in general and feel more connected with their family members when they spend more time playing together (Ginsburg, K. 2007). Also it is shown that screentime activities like watching television can improve a child's cognitive abilities significantly more, when a parent is present in the activity (Jinjiu, Z. 2004).

Finding a balance between tangible and digital play is a way forward to providing a holistic experience the entire family can enjoy, which leads to the project assignment described to the right.

The intended outcome of this project is a fluid intervention that utilizes the capabilities of a smartphone combined with a tangible object, that engages families in play. The envisioned state of play is visualized in Figure 2. This intervention will have to fit within the context of a loyalty campaign for UNGA, and thus will have to be designed with this context in mind.

Design a **fluid interaction**
with a **smartphone**
to **engage families in play**,
within the context of a **loyalty campaign**.

CURRENT SIUATION



DIGITAL INTERACTION

Children interacting with their smartphones for individual entertainment.



INDIVIDUAL PLAY

Children are entertaining themselves and family members are not actively involved with one another.



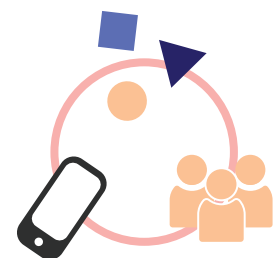
Figure 1. Antisocial behavior facilitated by smartphones, described as “alone together”.

ENVISIONED SITUATION



FLUID INTERACTION

Involving tangible and digitable aspects with the entire family.



FAMILY PLAY

Family members being aware and actively involved with each other through play



Figure 2. Fluid family play facilitated by smartphones and tangible objects.

1.2 PROJECT SCOPE

With the design brief set, an initial scoping is done to identify boundaries and relevant research questions to address within this thesis.

1.

UNGA

UNGA is the loyalty campaign specialists involved within this thesis, providing a context from the loyalty side of the project. In order to apply a loyalty campaign to enable family connections it is important to further define the context boundaries. Thus the research question needed to be answered is:

What defines UNGA and which boundaries should be applied when designing a loyalty campaign?

2.

FAMILY CONNECTIONS

The goal of the thesis is to contribute towards human wellbeing within a very specific context by designing for family connections. Understanding family connections itself is a crucial first step to accomplishing this goal. That's why the following Research question needs to be addressed:

In what ways can family connections be established and how can we design for them?

3.

FLUID PLAY

As fluid play is part of the means to an end, a closer look needs to be taken at the possibilities of fluid play. What is currently applied throughout the world and which elements can be applied towards reaching family connections. The Research questions formulated is as follows:

How can fluid play be applied to enable family connections?

2

APPROACH

INITIATE

EXPLAINING THE DESIGN APPROACH AND INTRODUCING DESIGN TOOLS

The design approach used to tackle the project is explained and some of the most important design tools used within the process are elaborated upon.

Chapter Overview

2.1 Design approach

2.2 Design tools

2.1 DESIGN APPROACH

A design approach is taken to create new and desirable solutions that meet the user needs and desires. For this project, the double diamond model seen in figure 3 is used as a guideline for the design approach (Council, D. 2015). It consists of 4 phases, each with a diverging and converging part.

Diverging parts are meant to create many ideas or a wide view on a research question or design goal. Examples of such activities are brainstorming, field research or rapid prototyping.

Converging parts are meant to take directions within distinct objectives or to come to general conclusions. Examples are clustering insights, analyzing results and visualizing conclusions.

It should be noted that even though this report is structured in a linear form (Figure 4), the design activities were not necessarily performed in that order. As designing comes down to an iterative process it always moves back and forth between all phases.

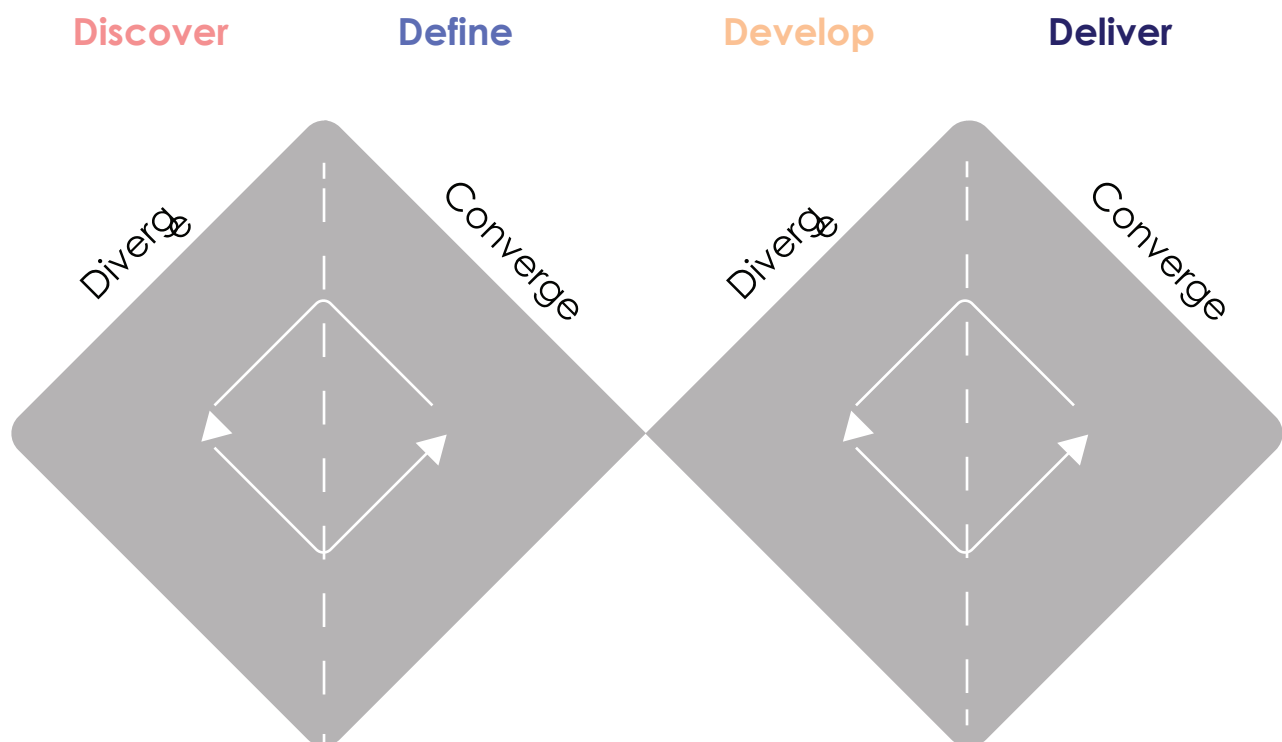


Figure 3. Double Diamond model created by the Design Council UK (2015).

Discover

UNGA's identity and loyalty models are explored and family connections are researched with the target group. Furthermore, the possibilities of fluid play are investigated. Most time is spend on empathizing with the target group and understanding famiy connections, in order to lay out innovative directions for fluid play.

Define

Insights regarding connected family moments and fluid play are analyzed and combined into a design focus. These involve several design parameters useful to kickoff the development phase.

Develop

Ideas are created by organizing creative sessions within the company and concepts are developed through individual conceptualization. Experiential prototypes are tested with and without the target group in order to iterate towards the final concept.

Deliver

The final design is proposed and validated by the target group and experts. Based on this, recommendations and limitations about the final concept are discussed.

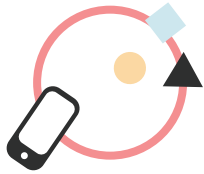
FAMILY INCLUSION

Within this thesis an approach is taken to continuously involve the same 4 families throughout the entirety of the project. While this approach limits this thesis in its quantitative value, it provides a qualitative look in family life at the basis of the involved design research.

Discover

Define

Develop



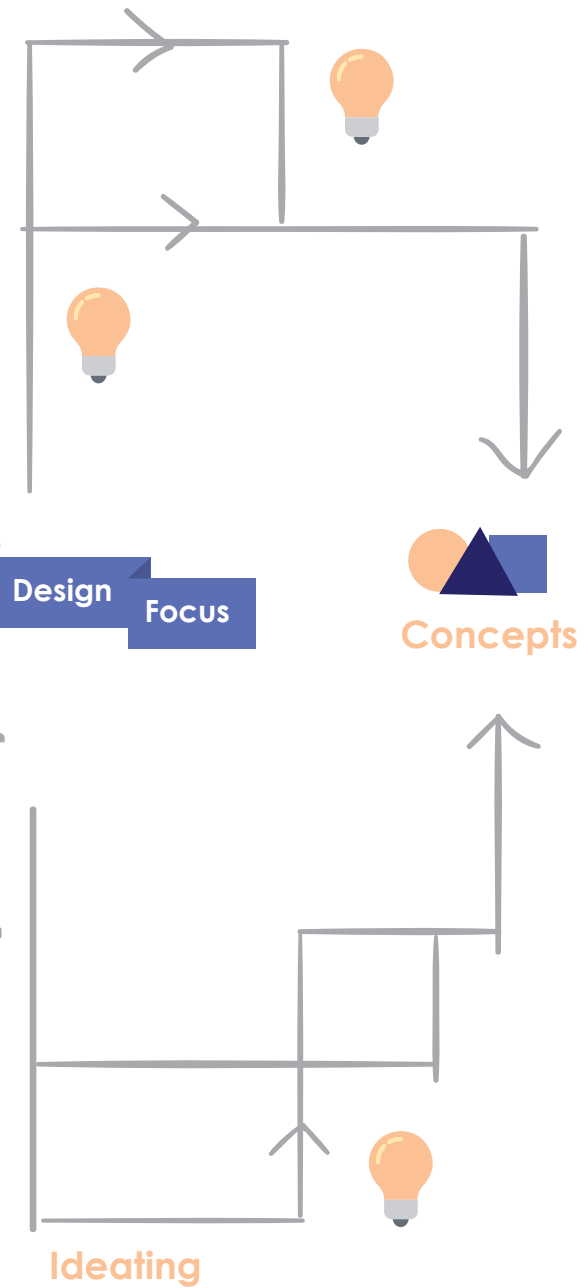
Tangible / Digital Toys

UNGA

Loyalty Campaigns



Family Play



Deliver

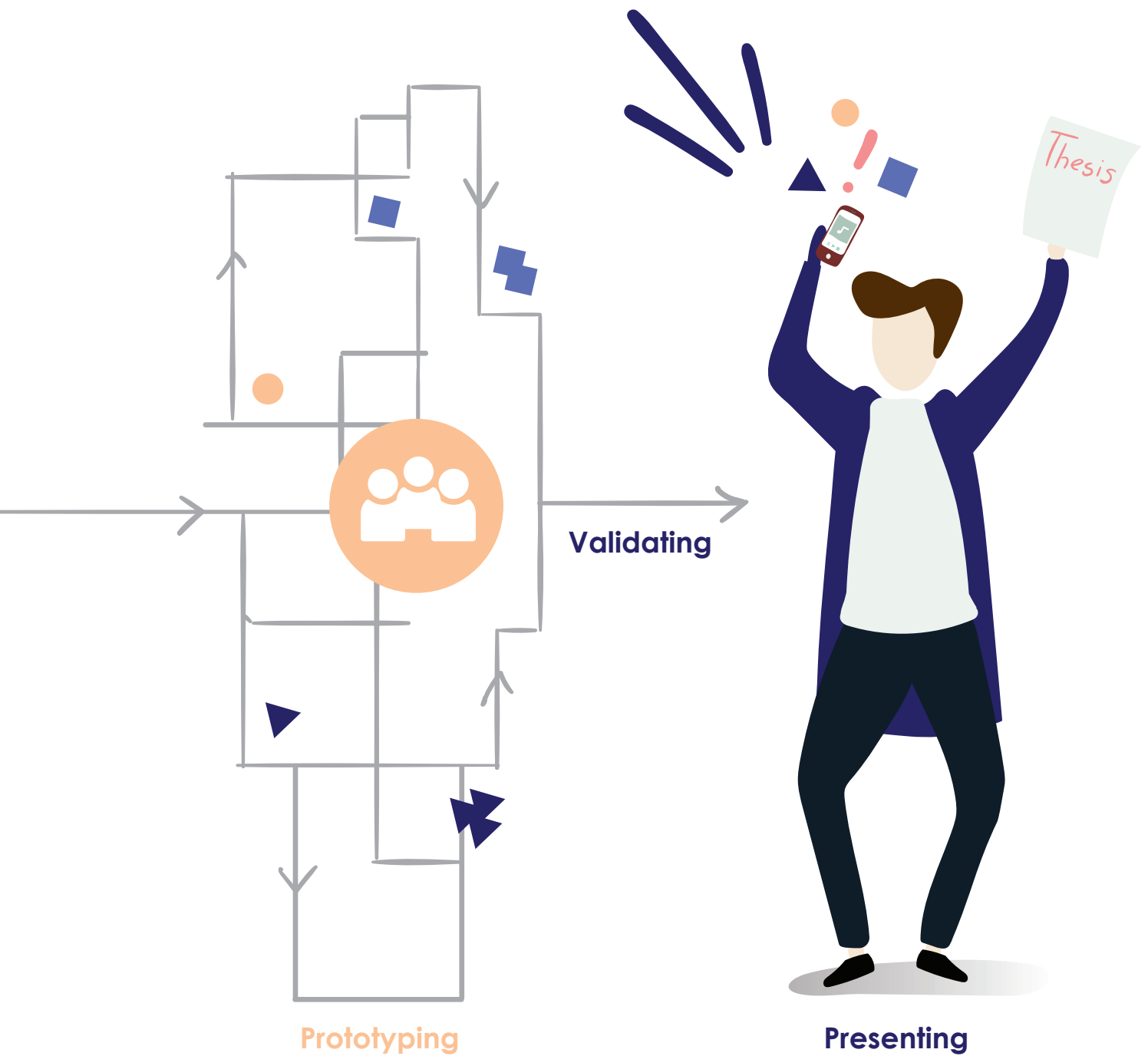


Figure 4. A visual representation of the design approach in a linear fashion.

2.2 DESIGN TOOLS

Next to a general design approach, many and diverse design tools and techniques are used within this Thesis. This chapter summarizes the main tools used and explored within this project.

1. CONTEXTMAPPING

context mapping techniques like the use of generative tools are used within this project to give families tools to express themselves, with the goal of capturing their underlying values and needs. (Visser, F. S., Stappers, P. J., Van der Lugt, R., & Sanders, E. B., 2005)



2. CREATIVE FACILITATION

In order to create a qualitatively sound product, a quantitative amount of ideas should be created. By facilitating the ideation process through an internal session, this was achieved within a small amount of time. Techniques and approaches are used based on the knowledge documented in Creative Facilitation (Tassoul, M. 2009).



3. RESEARCH THROUGH DESIGN

By continuously creating design artifact to test and learn from, design itself is involved in the research process. Design artifacts are brought to families within the study in order to gather valuable insights. Experiences from my own experiences and those of Pieter Jan Stappers (2017) are used as a basis for this type of research.



4. EXPERIENTIAL PROTOTYPING

One of the most well known tools of the RTD approach are experiential prototypes. These prototypes are design artifacts capable of letting the user experience a specific interaction without having to create the entire product. During the research phase multiple families are asked to interact with these types of artifacts.



5. RAPID VIDEOTYPING

As a type of experiential prototyping technique, this self-named tool tends to communicate an interaction through the perceived interaction of others. This Thesis further explores this technique by letting participants experience specific interactions themselves, through interacting with animation or video.





DISCOVER

DIVING INTO UNGA, CONNECTED FAMILY MOMENTS AND THE POSSIBILITIES OF FLUID PLAY

The first chapter of phase II takes a closer look at UNGA as a company. The second chapter provides an overview of what leads to connecting family moments from the perspective of Dutch families. The last part explores the existing possibilities and opportunities of fluid play and formulates a fluid play vision.

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- 3.1 UNGA Identity
- 3.2 Loyalty Models

4 Families

- 4.1 Family connection
- 4.2 Family & technology
- 4.3 Initial family feedback

5 Fluid play

- 5.1 Fluid play vision

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UNGA

DISCOVER

DISCOVERING UNGA'S IDENTITY AND LOYALTY MODELS

The first section explores who UNGA is as a company and what they stand for. The second section looks at their way of approaching loyalty and the models they apply. A scope is defined in which the future design proposal can operate.


Chapter Overview

3.1 UNGA identity

3.2 Loyalty models





 **Figure 5.** UNGA. Me working in the new office in Amsterdam

3.1 UNGA IDENTITY

In order to understand the possibilities within a loyalty campaign for UNGA, I performed an internal analyses and concluded opportunities for this project within UNGA.

WHO IS UNGA?

UNGA is a loyalty campaign specialist. They imagine, create and develop campaigns that are sold worldwide. The goal of these campaigns is to increase the customer loyalty, subsequently increasing the retailers revenue.

WHAT DO THEY CARE ABOUT

Unga has a design vision which is fundamental for all loyalty campaigns. In 2019 they launched their new company slogan "Play to grow". This new vision is focused on stimulating the growth of a child with the help of play.

THE CUSTOMERS

For UNGA the retailers are the customers. While UNGA has many different retailers across the world as their customers, the focus of this project will be on the standard Dutch supermarket (for example Albert Heijn). The target group for UNGA consists of families shopping at those supermarkets. More precisely families with children between 6 and 12 years old. The goal of their products is to attract as wide of an age group as possible, to create as much revenue as possible.

**“We care about
campaigns where
entertainment
and education
converge.”** - UNGA



■ Figure 6. Spontaneous excitement within family play.

3.2 LOYALTY MODELS

LOYALTY CAMPAIGN THEMES

A loyalty campaign from UNGA often falls within one of their 4 themes. These themes are based on what the retailers want. Family bonding is an obvious link between the retailers wishes and this thesis.

1. **Healthy food**
2. **Physical movement**
3. **Creating**
4. **Family bonding**

LAUNCH WINDOWS

A campaign is typically launched within one of 4 launch windows. The spring window takes place around April, the summer window in July, the "back to school window" in September and the Christmas window in December. Depending on the type of concept created, these time frames can potentially boost a campaigns success or slow it down tremendously.

LOYALTY CAMPAIGN MODELS

Loyalty campaigns can be divided into 3 categories (figure 7). Next to these categories, campaigns are often linked with a licensed brand like Disney or Marvel to create more recognition and demand among customers. This project will remain distant from a licenced campaign, as no licensed partner is involved. Examples of 3 loyalty campaigns from UNGA can be viewed in figure 8 to 10.



■ **Figure 7.** Loyalty models. Stamp & redeem, instant reward & hybrid loyalty models visualized.

Stamp & redeem

This model has customers collect stamps on a sticker sheet, which in turn can be traded for a more expensive product, also called a premium. Collecting stickers is done by purchasing products for a certain amount of money. Only a full sticker sheet can be traded and an additional fee is often required in order to receive the product.

Instant reward

This model has customers receiving a product right after spending a certain amount of money.

Hybrid

These kinds of campaigns are a combination of the two where customers collect stamps for a premium, but at the same time have access to instant rewards for a certain amount of money spent.



Figure 8. Marvel Super Heroes

Marvel Super Heroes
This is a set of 10 different marvel super heroes, turned into small soft pencil toppers.

Instant Reward



Figure 9. Little Shop AH

Little Shop
Little Shop Allows children to collect, share and play with their own mini versions of existing supermarket products

Instant Reward



Figure 10. Wish Buddies

Wish buddies
Help children make their dreams come true. Kids write their wishes down on a piece of paper, unzip the mouths of the Wish Buddies and pop it in! It makes them think about how they can achieve their wish and gives parents a sneak peak at their childs desires.

Stamp & redeem

SUSTAINABILITY

While not a market leader in sustainable products, UNGA is acting upon the demand from retailers and customers for more sustainable products. Product materials are altered to conform with the retailers demands, changing plastic materials into cardboard where possible. Within the company there is an active pursuit of sustainable materials and with the launch of little shop (eco edition) they have set their first steps into recycled plastics. For future campaigns sustainability will become more and more important, thus this has to be taken into account.

KEY TAKE-AWAYS

Play to grow

UNGA's design vision has to be at the center of any future loyalty campaign.

Dutch Families

UNGA's target consumers in the Netherlands are Dutch families with children 6 to 12 years old. Thus these families will be taken as the initial target group.

Launch window

The time frame in which a campaign can be launched can benefit or suppress the success of a potential loyalty campaign and should be kept in mind.

Unlicensed campaign

This project will focus on an unlicensed loyalty campaign as no licensed partner is involved.

Fit within loyalty model

The concept should fit somewhere within the current spectrum of loyalty models in order to reach the target group.

4

FAMILIES

DISCOVER

UNRAVELING THE INS AND OUTS OF FAMILY CONNECTIONS

The first section focuses on discovering when family connections occur, from the perspective of 4 Dutch families. Next the relation between family connection and digital devices is further explored. The chapter concludes with an initial reaction of these families on generated design ideas.

Chapter Overview

4.1 Family connections

4.2 Family & technology

4.3 Initial family feedback





■ **Figure 11.** Spontaneous excitement within family play.

4.1 FAMILY CONNECTION

GOAL

In order to understand how family play could contribute to the broad context of family connection, Connected family moments as a whole are analyzed. The following research questions stand at the base of the research:

RQ1: When do families feel connected with each other in daily life?

RQ2: Why do families feel connected in these moments?

RQ3: How do connected moments in the family take place?

RQ4: Who of the family is involved during these connected moments?

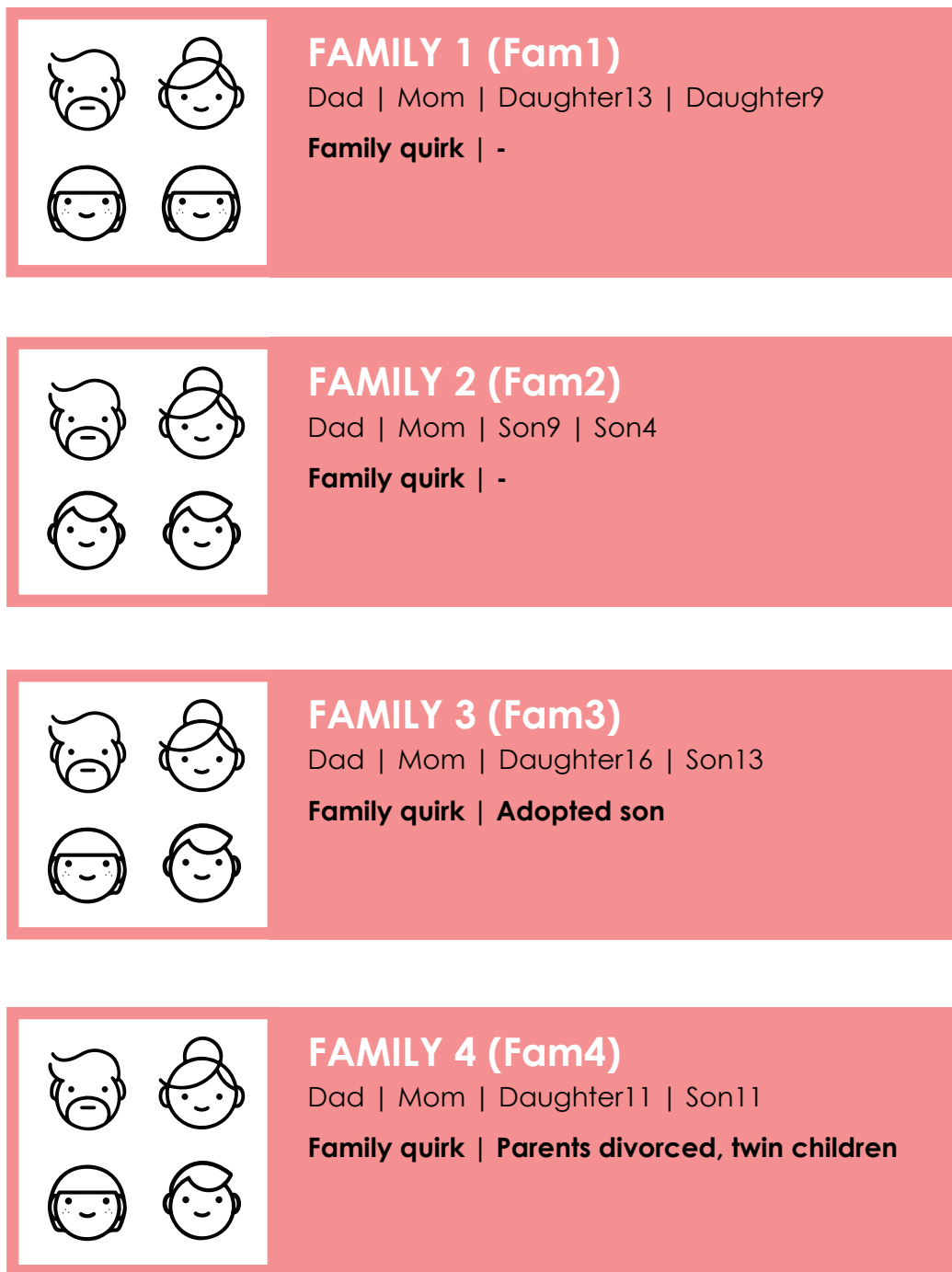
METHOD

A week long diary study (Figure 13) is conducted in which 4 families are asked to capture the moments they feel connected with their family members. While its result can be implemented quantitatively, the goal of the study is to let families think about their connected moments and allow for more meaningful conversations after the diaries are completed.

Families are selected based on the diversity of the children's age, to make sure the age group of 6 to 12 years old was captured within the research. A quick overview of the 4 families involved within this Thesis can be found in Figure 12. The families are provided with an abbreviation between brackets for future reference within this study. The number behind the son or daughter represents the age. As the age of parents is deemed less relevant within parent to child interaction, this is not included.

Guidelines from the Convivial toolbox (E.B.M. Sanders, 2013) are used to create the setup for the diary booklets. The main content of the diary involved a timeline for each day of the week, and questions at the end to discuss during the followup interview. A close look at the content of the booklet can be found in appendix 2C.

Every family member is asked to write each connecting moment inside the timeline, accompanied by a sticker that would best illustrate the situation or emotion felt by the participant. This is done to help recollect their memories during the followup interview.



■ **Figure 12.** Family compositions of the 4 families involved.



Figure 13. Diary study. Top: outer appearance of the booklet. Bottom: example of filled in time-line.

After one week interviews are organized to discuss the selected moments. The Interview setup can be read in appendix 2A. The Premo tool (Desmet, P. 2003) is used during the interviews to trigger more diverse emotional responses from the participants. During the interviews I introduced a making exercise (Figure 15) in order to capture the values of the "ideal family moment". Families are asked to make a collage from a diverse set of words and images that would describe their ideal family moment, as if there were no restrictions.

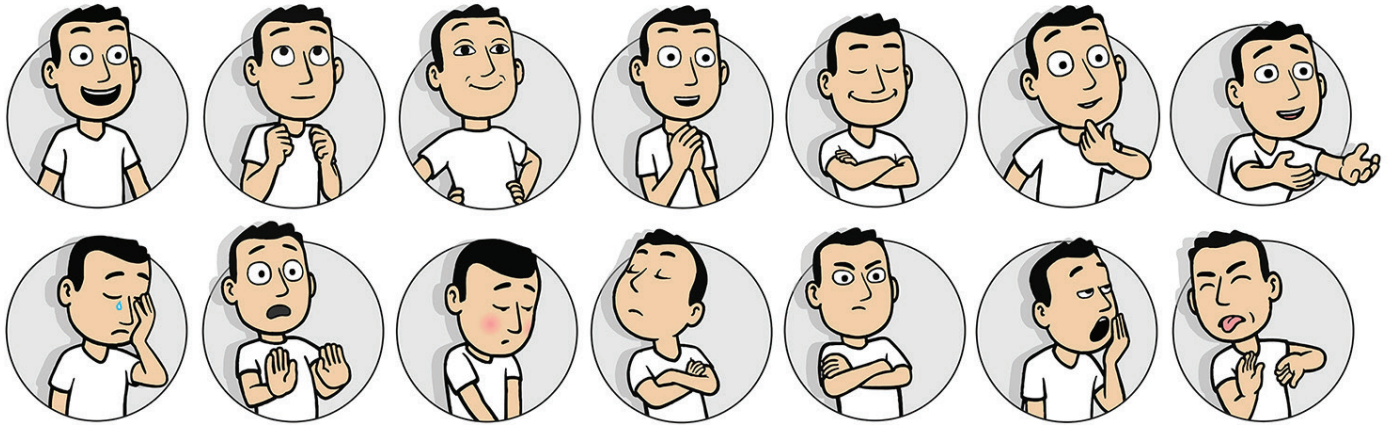


Figure 14. Premo tool. Used to help parents and children express more nuanced emotions.



Figure 15. A result of the making exercise. Families are stimulated to discuss about what would be their ideal family moment. A physical activity is something described by all families as desirable.

The interviews are recorded and transcribed to capture the richness of the interviews. Insights from the interviews are translated into hundreds of statement cards (Figure 16), which are analyzed and clustered, using “analyses on the wall” (Sanders, E. B. N., & Stappers, P., 2013).

Fam3, Moments

Being in an amusement park is enjoyed because you laugh all the time. Everybody is experiencing the same “emotional rollercoaster”. everybody getting wet was a negative experience which resulted in a positive humoristic atmosphere (shared schadenfreude)

[00:00:07.01] Mom: Als ze zouden mogen kiezen?

[00:00:22.02] Girl: Efteling, of disney.

[00:00:44.25] Girl: Achtbanen zijn zo leuk. Het om de attracties maar ook leuk om daar te zijn, je lacht heel de tijd.

[00:01:09.19] Mom: We hebben heel hard gelachen om dat water ding, want iedereen werd nat, echt een drama maar ook wel weer grappig (eerste emotie, heel hyper zijn ze dan)

Fam3, Moments

Giving advice during a sport can create a connection. Curiosity is felt towards the person explaining something.

[00:09:45.09] Girl: Mijn vader mag gewoon bij de loper staan.

[00:10:06.12] Girl: Als een wedstrijd te lang duurt dan heb je pauze enzo, dan geeft hij water enzo.

[00:10:26.29] Freek: Welke emotie zou je daarbij kiezen

[00:10:35.07] Girl: Deze (nieuwschierig) meestal doet mijn trainer dat dan maar dan legt mijn vader iets uit en dan luister ik daarna.

Figure 16. Two statement cards created based on the interviews with Fam3.



Figure 17. Exploring different ways of clustering all the insights gathered on the statement cards.

RESULTS

The results of the analyses are summarized in multiple visuals. The first word of the visual's title categorizes the family moments within 1 of 4 themes.

1. **Intimate**
2. **Supporting**
3. **Entertaining**
4. **Exciting**

The next word describes its specific type of family connection. Both combine for the scenario that is visualized.

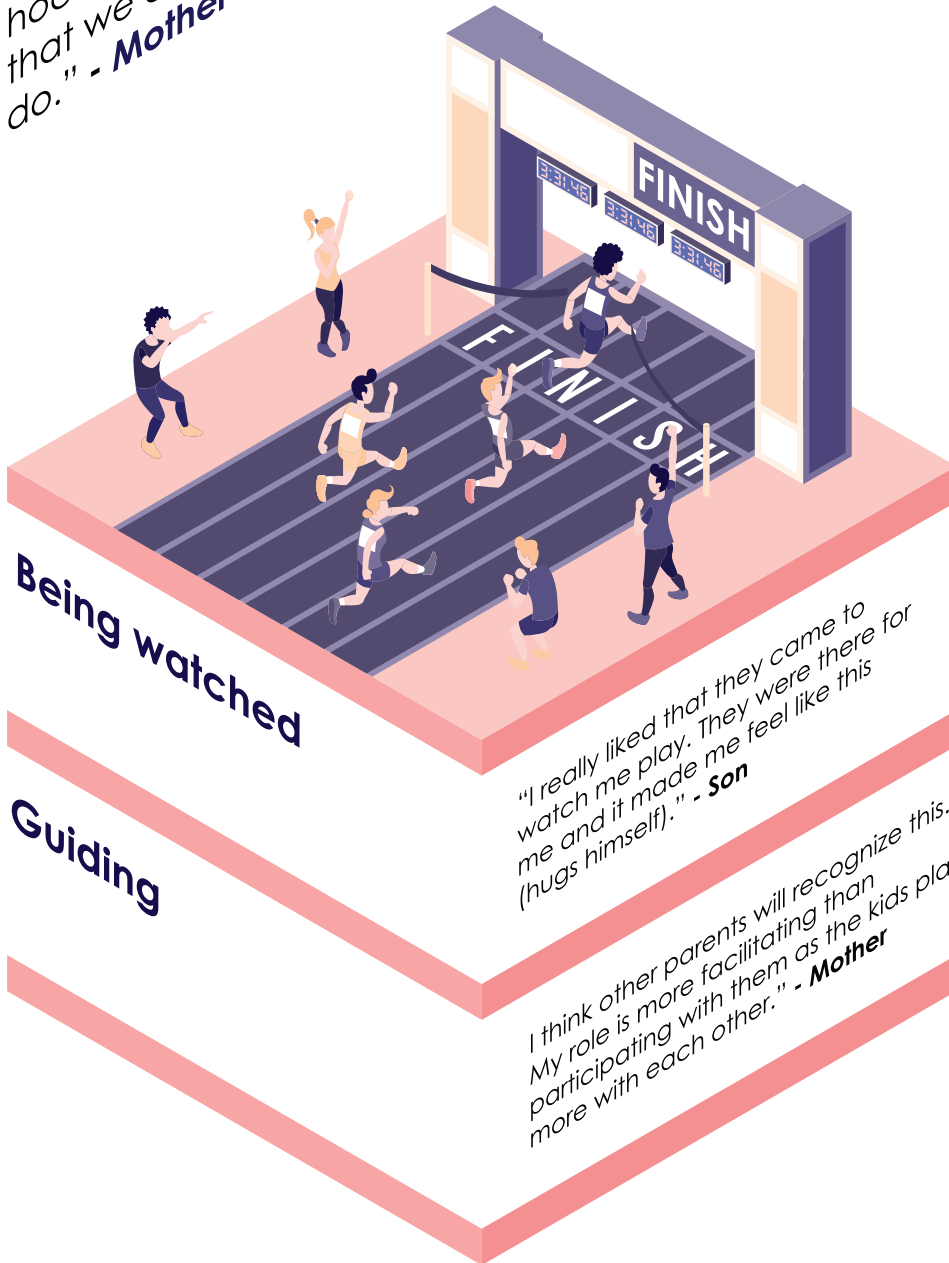
The visuals showcase the different kinds of connected family moments as well as what kind of elements they can consist of. These are the “building blocks” the visual consists of.

All visuals are supported by quotes directly taken from the analyses.

It is important to note that these elements are not exclusive to one type of family moment, but can play a part in many different types of moments. These visuals conclude this research into connected family moments.

Distant support

"I watch my daughters playing hockey to give them the feeling that we care about what they do." - **Mother**



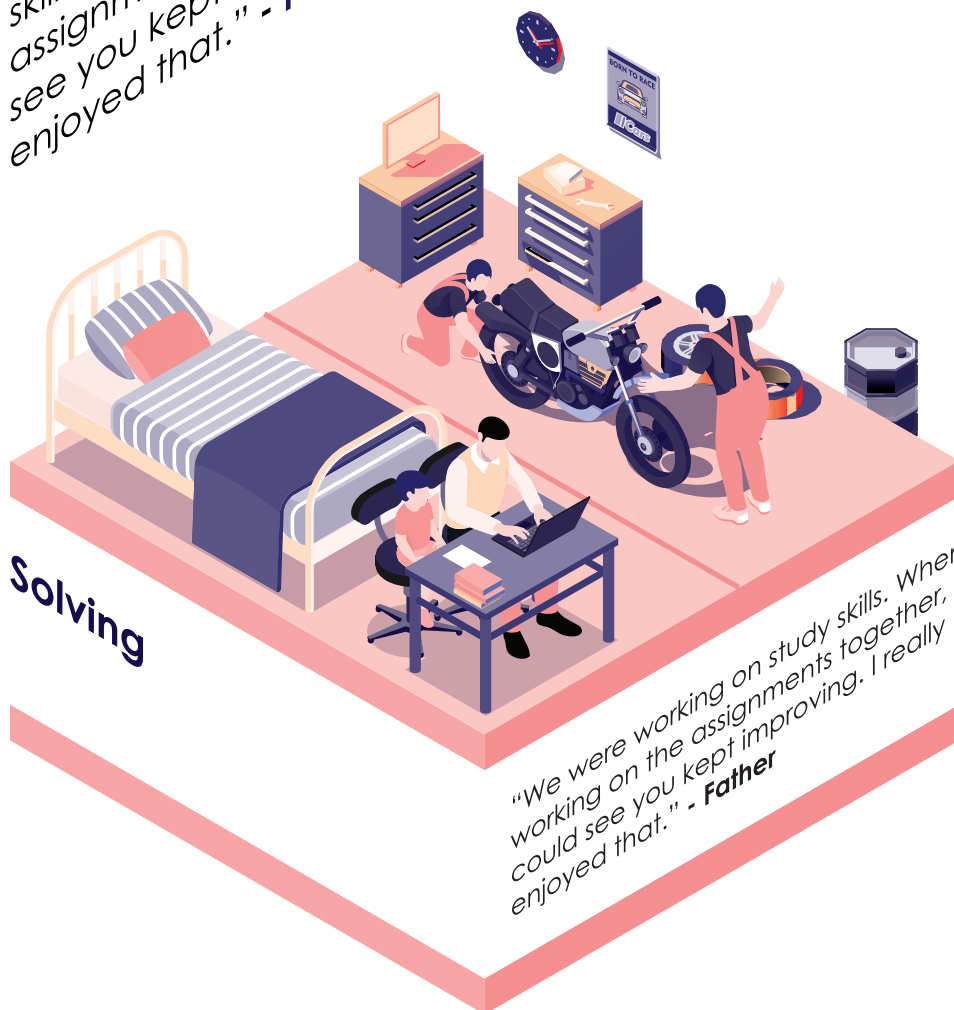
"I really liked that they came to watch me play. They were there for me and it made me feel like this (hugs himself)." - **Son**

I think other parents will recognize this. My role is more facilitating than participating with them as the kids play more with each other." - **Mother**

Figure 18. Distant support explained.

Co-operative support

"We were working on study skills. When working on the assignments together, I could see you kept improving. I really enjoyed that." - **Father**



Solving

"We were working on study skills. When working on the assignments together, I could see you kept improving. I really enjoyed that." - **Father**

Figure 19. Co-operative support explained

Voluntary support

"My daughter suddenly started baking pancakes so I didn't have to do anything. That was a pleasant surprise." - **Mother**



Generosity

"I mopped the floor for my mother. I didn't enjoy it but I knew mom would be very happy with it." - **Daughter**

Appreciation

"I received breakfast on bed from dad. That was sooo nice of him." - **Daughter**

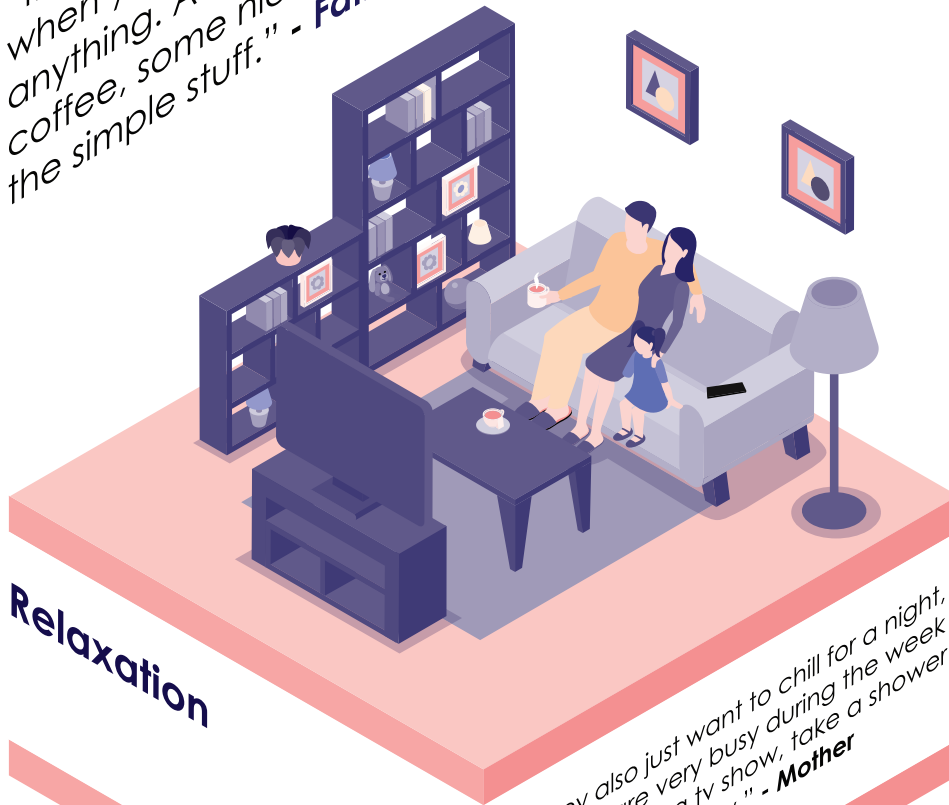
Proudness

"I baked some eggs for me and my mom. It made me feel proud as I never managed that before." - **Son**

Figure 20. Voluntary support explained.

Small Intimacy

"It's about the small interaction when you're not doing anything. A conversation, a coffee, some nice music. Just the simple stuff." - **Father**



Relaxation

"They also just want to chill for a night, as they are very busy during the week ends. Watch a tv show, take a shower. It's just always busy." - **Mother**

Shared Emotion

"When watching tv and someone wants to go to the toilet and says: Nooo, pause it please it! We share the tension together." - **Mother**

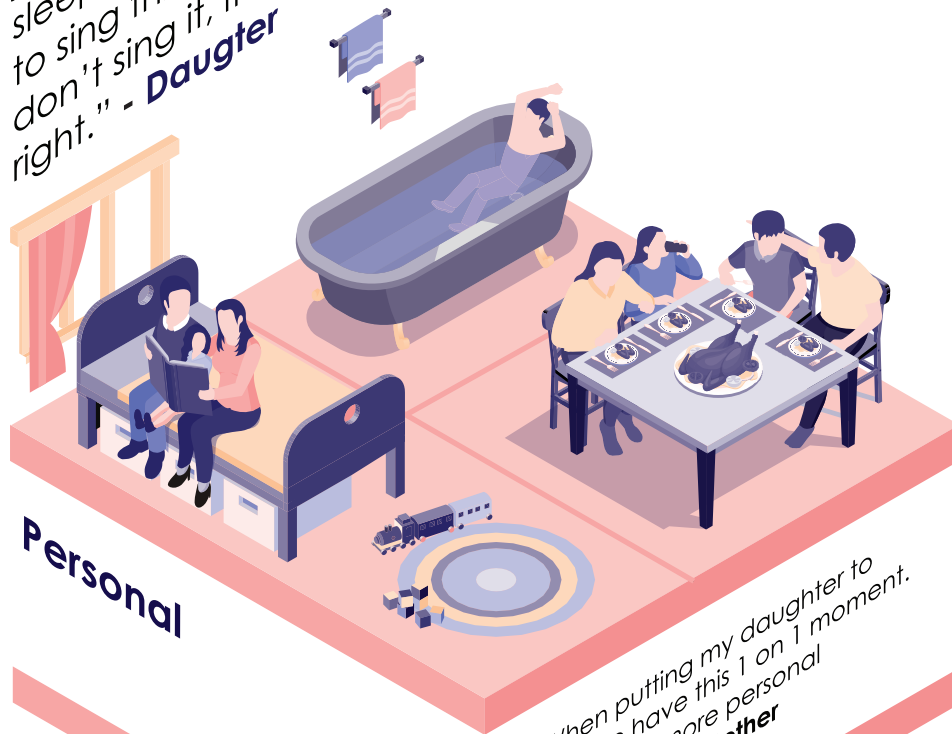
Physical Contact

"When you're literally against each other, me in the middle and them leaning against me." - **Mother**

Figure 21. Small intimacy explained

Repeated Intimacy

"Mom and dad always join us before we go to sleep, and then they have to sing this song. If they don't sing it, it doesn't feel right." - **Daughter**



Personal

"When putting my daughter to bed, we have this 1 on 1 moment. We have a more personal connection." - **Mother**

Rituals

"When putting my daughter to bed, we have this 1 on 1 moment. We have a more personal connection." - **Mother**

Figure 22. Repeated intimacy explained.

Forced Intimacy

"I really enjoyed going into the forest. At first I'm never into it but in the end I feel excited." - **Daughter**

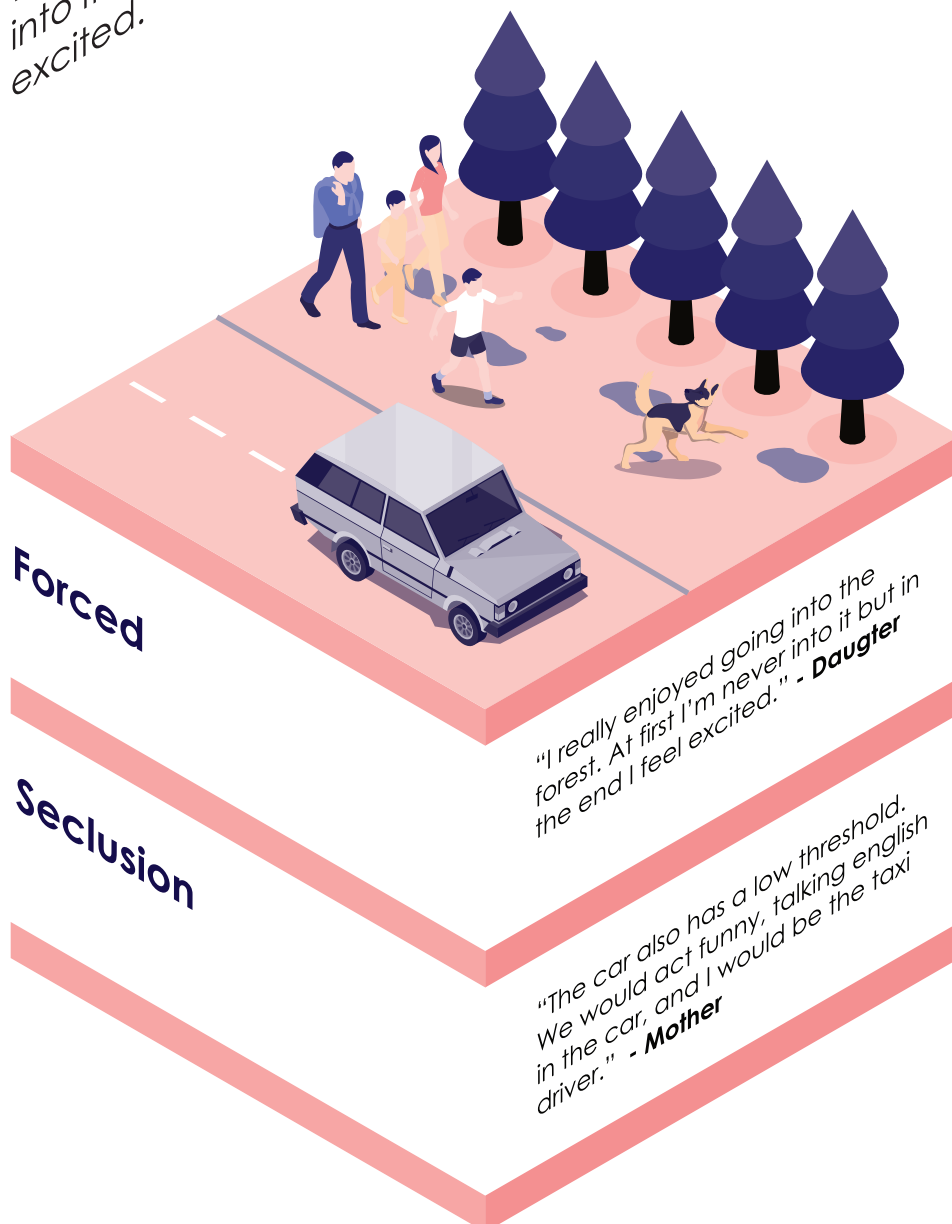
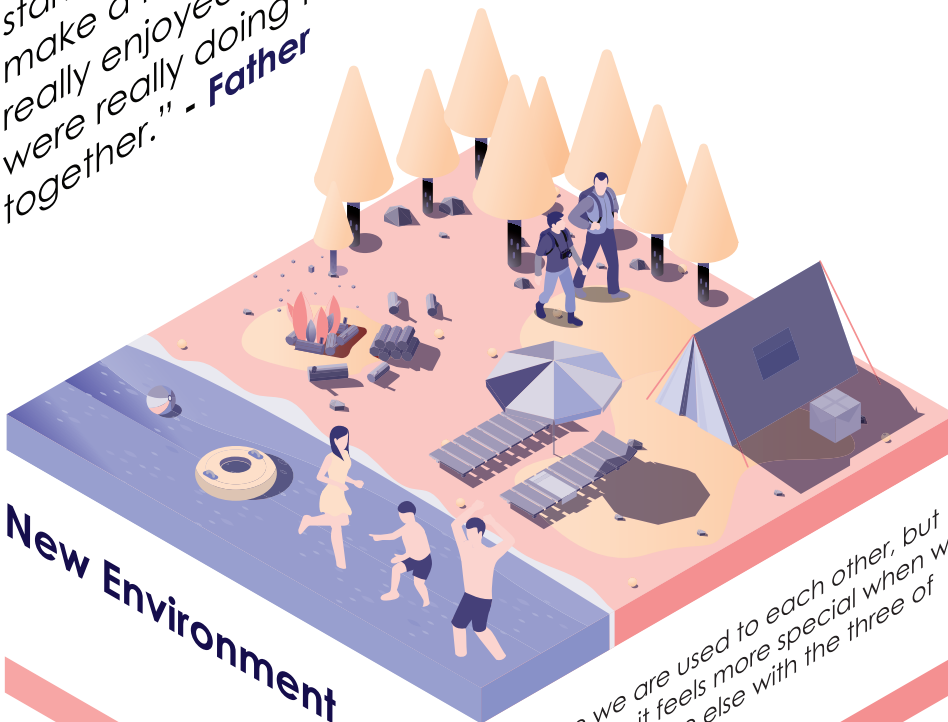


Figure 23. Forced intimacy explained.

Adventurous Excitement

"A while back we went camping in The Hague. You start doing things outside: make a fire, cut some sticks. I really enjoyed it because we were really doing things together." - **Father**



New Environment

"Here we are used to each other, but somehow it feels more special when we are somewhere else with the three of us." - **Mother**

Improvisation

"Something unplanned always happens when we go camping. Making a fire or a spontaneous nature walk." - **Father**

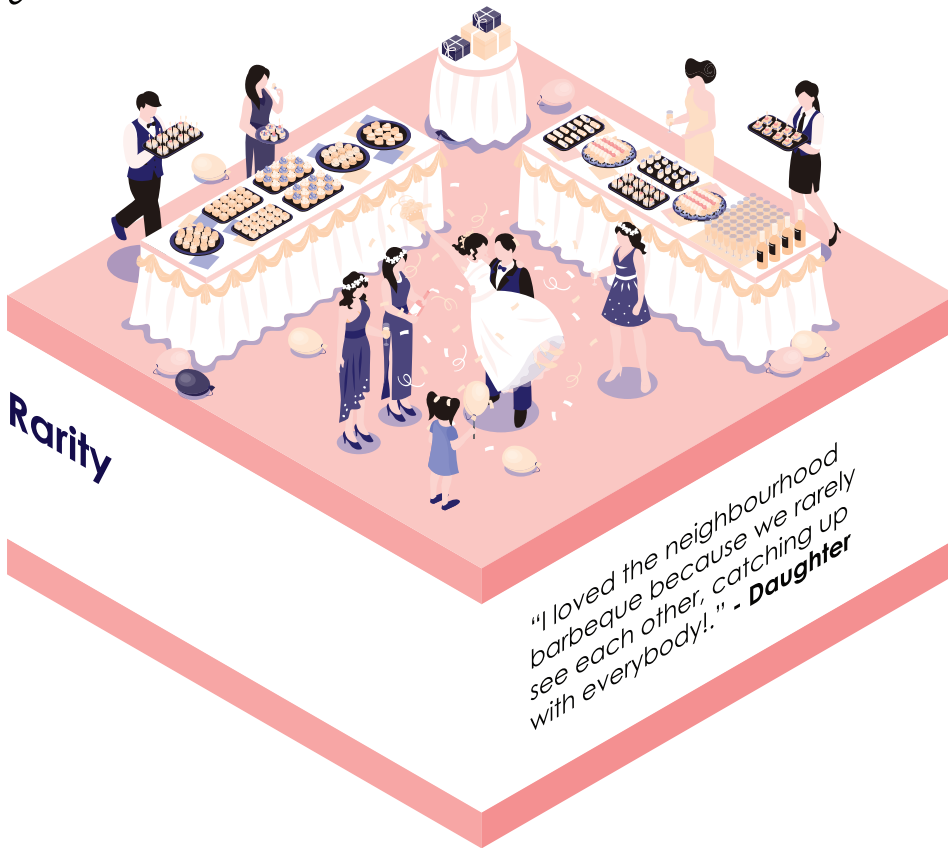
Outside activities

"When I am physically doing an activity with the boys, I enjoy myself very much." - **Father**

Figure 24. Adventurous excitement explained

Festive Excitement

"The garden celebration was full with tasty food. I really enjoyed it because I spoke with family members I hadn't seen in a while." - **Son**



"I loved the neighbourhood barbeque because we rarely see each other, catching up with everybody!." - **Daughter**

Figure 25. Festive excitement explained.

Planned Entertainment

"Monopoly I find very entertaining. You are all sitting at the same table and that's when you start talking with each other."
- **Mother**



Schadenfraude

"I enjoy it when we make a deal where I already know the other person is going to lose because of it, muhahahaha."
- **Daughter**

Competition

"Competition is a big thing here. Also with hockey you always have to win. There always has to be a game element to it." - **Mother**

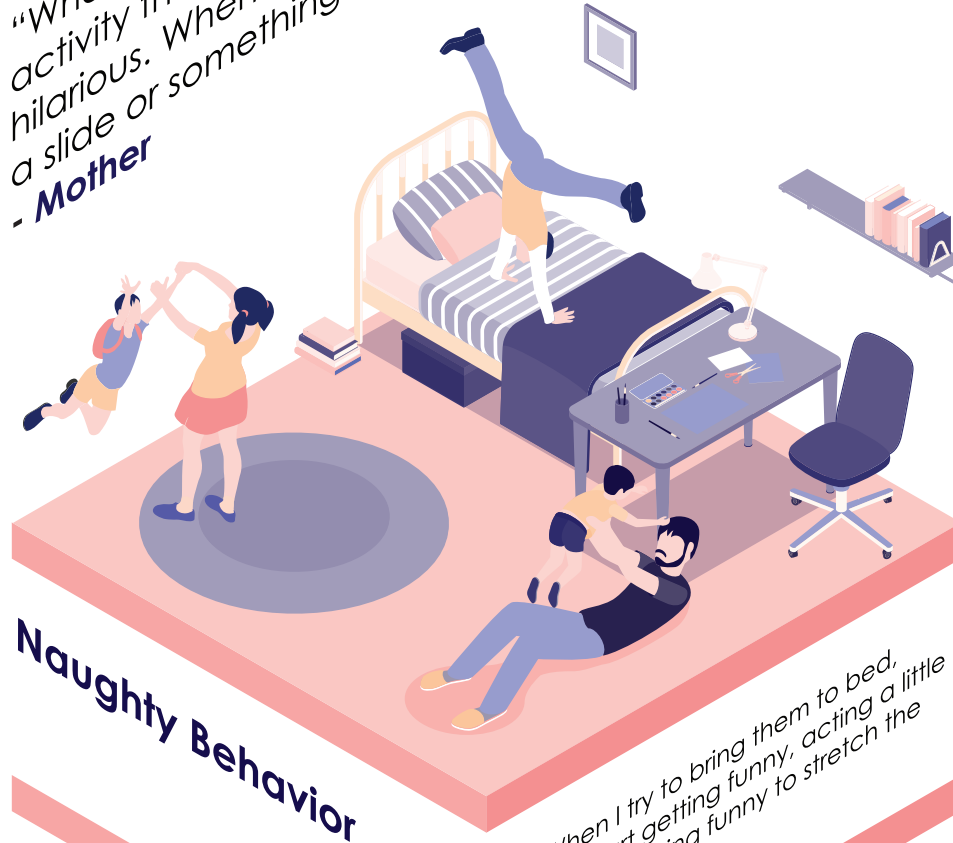
Discussion

"The fun thing about monopoly is that you are sitting there, yelling at each other: this isn't right, that ain't right, blablabla." - **Mother**

Figure 26. Planned Entertainment explained.

Spontaneous Entertainment

"When I join them in an activity the kids also find it hilarious. When going from a slide or something."
- **Mother**



Naughty Behavior

"When I try to bring them to bed, they start getting funny, acting a little naughty. Being funny to stretch the time" - **Mother**

Parents being kids

"When I join them in an activity the kids also find it hilarious. When going from a slide or something."
- **Mother**

Humor

"Humor is very important to us. I think we all have it ofcourse. It helps to put things into perspective which is pleasant." - **Mother**

Figure 27. Spontaneous entertainment explained

KEY TAKE-AWAYS

Connecting family moments often occur when families are physically together, doing the same activity and are able to exchange their feelings and thoughts.

However, there are distinct differences to be found amongst them, depending on a multitude of different elements.

Family life = Busy life

While families often spend a lot of time together, they are always on the move. The time they spend valuing each other's company is often based on small interactions due to the nature of their lifestyle.

Humor = key

Laughing with each other is an element that returns throughout multiple connecting family moments. This laughter is often based on schadenfreude, naughty behaviour and parents joining in on childish activities.

Physical activity

Physical activities where the family is outside, and doing things together are highly valued by both parents and children.

Before and after

Connecting family moments can occur before and after the actual activity. This provides opportunities for smartphones to be used in different areas of the collective experience.

Personal connection

Parents and children enjoy activities that are specifically about themselves. 1 on 1 moments where children are put to bed allow for a more personal connection.

4.2 FAMILY & TECHNOLOGY

After gaining a better understanding of family connections in general, a closer look is taken at the impact of technology on family dynamics.

GOAL

Because the final design will involve smartphone use within families, it is valuable to get a global view of what role the smartphone plays in Dutch families. The following research question is leading throughout this research:

RQ5: To what extent are smartphones or similar technologies involved in family interactions?

METHOD

I conducted Interactive Interviews with 4 families (appendix 2B). Next to general questions about smartphone use, Figure 28 and 29 are used to spark conversation about collective and individual smartphone use amongst family members known as “alone together” (Turkle, S. 2017). The interviews are transcribed and translated into statement cards, which after clustering lead to the main insights.

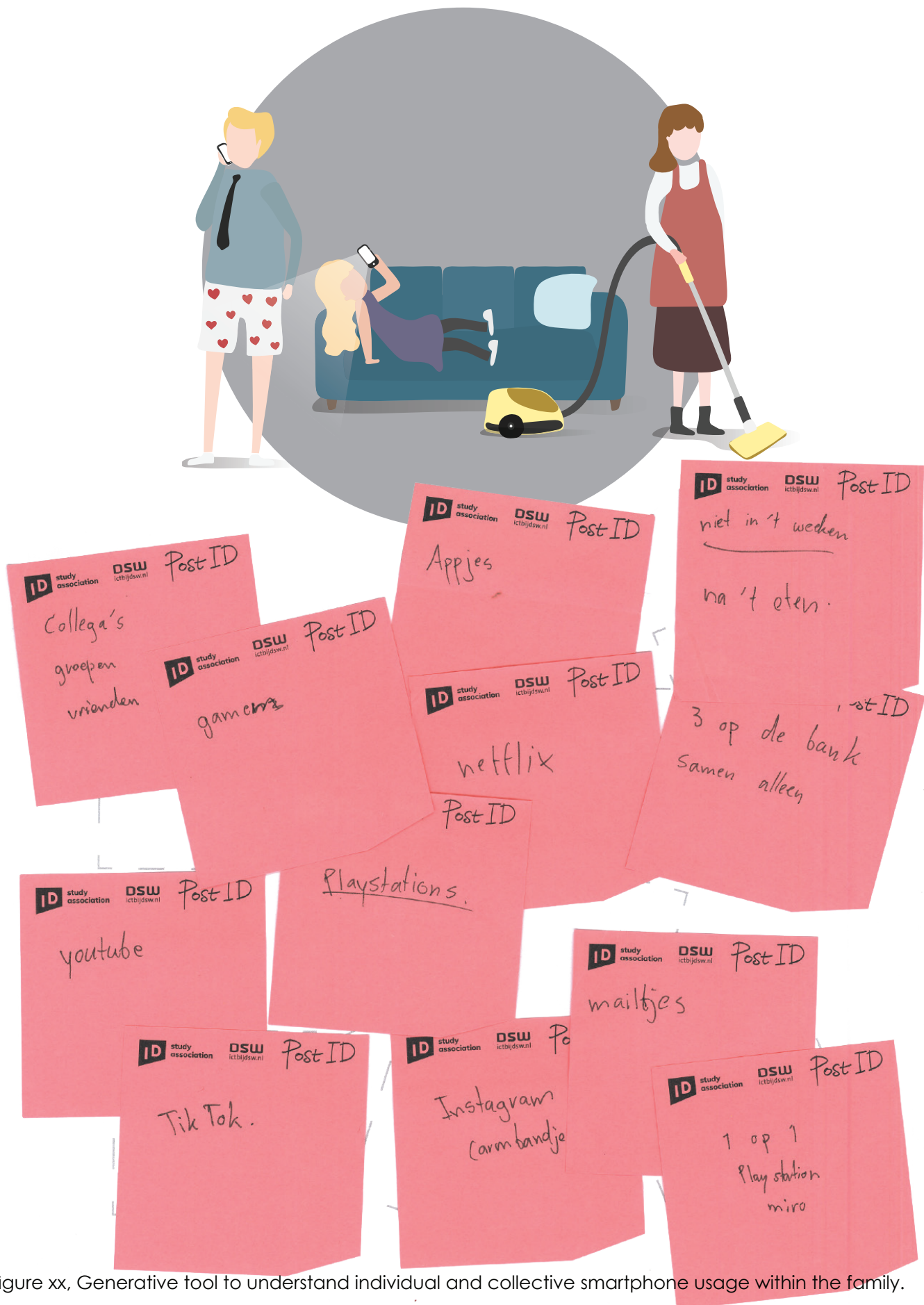


figure xx, Generative tool to understand individual and collective smartphone usage within the family.

Figure 28. Generative tool to uncover individual smartphone behavior within families.



figure xx, Generative tool to understand individual and collective smartphone usage within the family.

Figure 29. Generative tool to uncover collective smartphone behavior within families.

RESULTS

Children smartphone use

The things children do on their smartphone mainly revolve around social media apps. They enjoy the conversations with friends through apps like snapchat, Whatsapp and Instagram. Games and streaming applications are also used, but are preferred on the iPad. With older children, school related programs are also accessible online, and thus through the smartphone. Lastly video and photo taking is used to capture moments and to share them with others.

Children Gaming Preference

Games are played either on the iPad or on a gaming system like the playstation (mostly boys). When asked to explain their favorite games and what they like about it, several elements can be identified:

1. **Variety**
2. **Collecting**
3. **Instant reward**
4. **Progressing**
5. **Breaking records**
6. **Solving**
7. **Relating**
8. **Competing**

Parents smartphone use

While children have a more entertaining need, parents use their phone mostly as a functional aid. Their smartphone usage is (mostly) work related (e-mails and apps), news related or social (keeping contact with family members and friends).

Collective smartphone use

Smartphone activities and technologies that are currently shared by both children and parents have multiple things in common.

Enable conversation
(Facetime, Whatsapp)

Involve a common interest
(Movies & TV Shows)

Are humouristic
(Nintendo Wii, Snapchat, filming each other)

Are personalized
(Kahoot, viewing pictures, sharing music)

Technological friction

A technology that causes friction between parents and children is the gaming devices. Parents notice that the games their child plays on other mediums like the playstation are individual and inaccessible for them. Even when the child would want them to join, the threshold for understanding the game is often too high.

Smartphone rules

Families all have different, but similar rules regarding the smartphone use of their children. Often the screentime is restricted to a certain amount of hours and the smartphone is prohibited in certain areas of the house or during specific activities like sharing dinner. Some children are not allowed to have a smartphone at all while others have had them since a young age. The probability of children owning, or having access to a smartphone, increases with age however. Online security is very important for parents, as they do not want their child to be the target of cyberbullying or other negative experiences. When confronted with the question if the screentime restriction would be valid if the smartphone would facilitate a more social and family experience, parents unanimously replied that the rules would be more flexible.

Alone together

According to K. Mullan (2019), the time families spend together on their phones has increased. When talking about this phenomenon with families, they do say they recognize this behavior. However, they also notice that these moments are also a moment of relaxation and personal time.

Smartphones are a hindrance in communication

Smartphones are seen as a hindrance in communication. According to multiple family members they do not view the smartphone as something that is beneficial for family communication.

“I think it will be very hard to turn the smartphone into something that connects the family, because I am 100% sure it does the opposite right now”

- DadFam1

KEY TAKE-AWAYS

Parents and children can enjoy digital activities together if the activity has a low threshold.

Rules

Screen time rules apply in different kinds of families.

However, if the smartphone interaction has a positive influence on the child, the screen time rules are more flexible.

Alone together

While together moments are individual, they are not necessarily something negative, as they also provide for a moment of “rest”, as a personal “recharge”.

Family differences

While children value the entertainment a smartphone provides, parents have more functional needs from the device. Both have the need for social connections however.

Tablet as a family device

While not all children owned a smartphone, every family had a tablet that was used for video streaming and games.

4.3 INITIAL FAMILY FEEDBACK

GOAL

I share existing ideas with families regarding fluid play to get their early feedback on possible design directions. This feedback is meant to give insights into what family members value within this type of play.

METHOD

Research through design is applied in the form of visual prototypes. 3 ideas are proposed to the 4 families as possible design outcomes for the project. These ideas are created within a generative session during the course creative facilitation (appendix 1). The families are asked to share their opinion on the concepts and to explain their reasoning. The interviews are transcribed and translated into statement cards. These cards were clustered, leading to the following insights:

RESULTS

Achieving the right difficulty is important to involve parents

It has to become harder the further you progress. - MomFam1

Long or flexible playtime is preferred

Or a game which you can just leave and continue later on. – Daughter13Fam1

Parents don not want to use their phone in ways it could possibly harm it

Well, you know...if you have to do it quickly, the danger exists that you will drop your phone...I'd rather not have that. - DadFam2

Phone to phone interaction could make a game more challenging

You could turn it into a proper hard puzzle if you could slide the pieces between the phones. - DadFam4

Families prefer to have real human contact

But here you do not have to be physically together. That you can do it separately I do not really like. - MomFam3

Working together towards a common goal is appreciated by the family.

It is really cool that you can all add something to the result – MomFam3

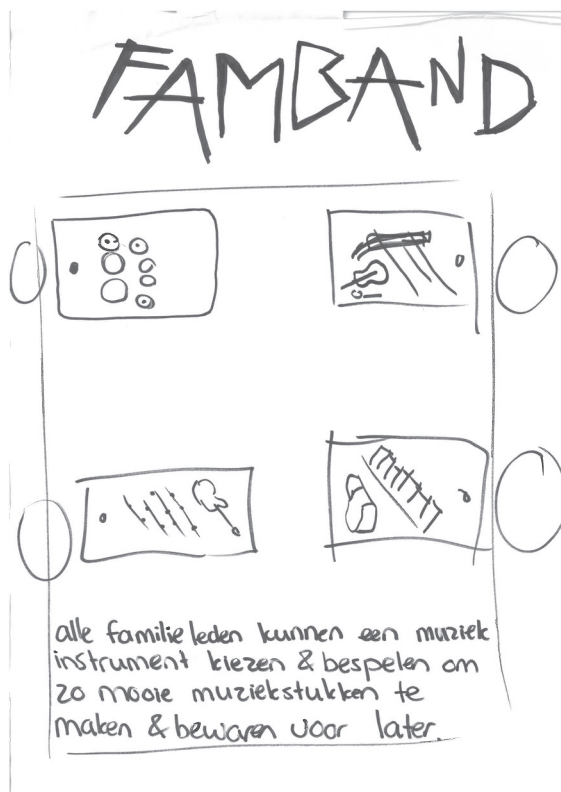


Figure 30. Famband.

Parents care about the educational value.

When they have to practice calculus they prefer to do it on the iPad. I let them do it because it motivates them. For me it has to support their general development. – MomFam4

The game can be a family ritual

"With wordfeud for example, you are putting a letter in the game everyday. That is the fun part, that you are working towards something day by day. That would be fun. – MomFam4

Parents do not always enjoy (childish) games

"I do not like games, you know that right? – MomFam2

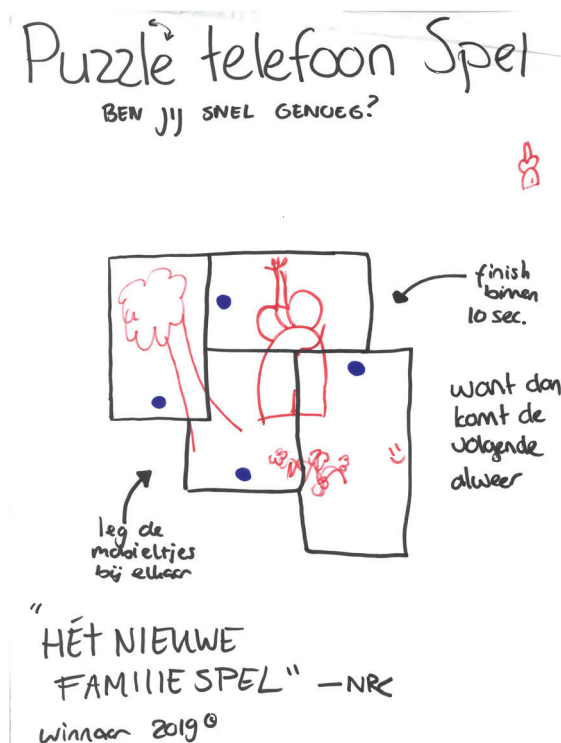


Figure 31. Puzzle phone game

Smartphones can act as a unifier of the family

That the phone will tell you: you are all in the same space working with me, shall we do something together? – DadFam3

Phone can give the feeling of being together, when you are apart

"When dad's at work, and you can give comments on something, that's a good one. – Daughter13Fam1

Music is something everybody can enjoy.

Ooh I like this. Me too! Me too! – Mom, Daughter, Son11Fam3

Doing something physical outside is preferred by families.

Then you turn something bad into something good. When they are outside, I find it a positive thing. – DadFam1

DadFam1

Thinking and strategy is enjoyed by kids & parents.

I like the strategy, the negotiating. If I do this and this, I can prevent the other from doing that. Thinking 3 steps ahead. – DadFam1

Variety is enjoyed in kids play

I also like monopoly because it has multiple aspects. First a street, then a hotel. – Daughter9Fam1

When they have to practice calculus they prefer to do it on the iPad. I let them do it because it motivates them. For me it has to support their general development.

- MomFam4

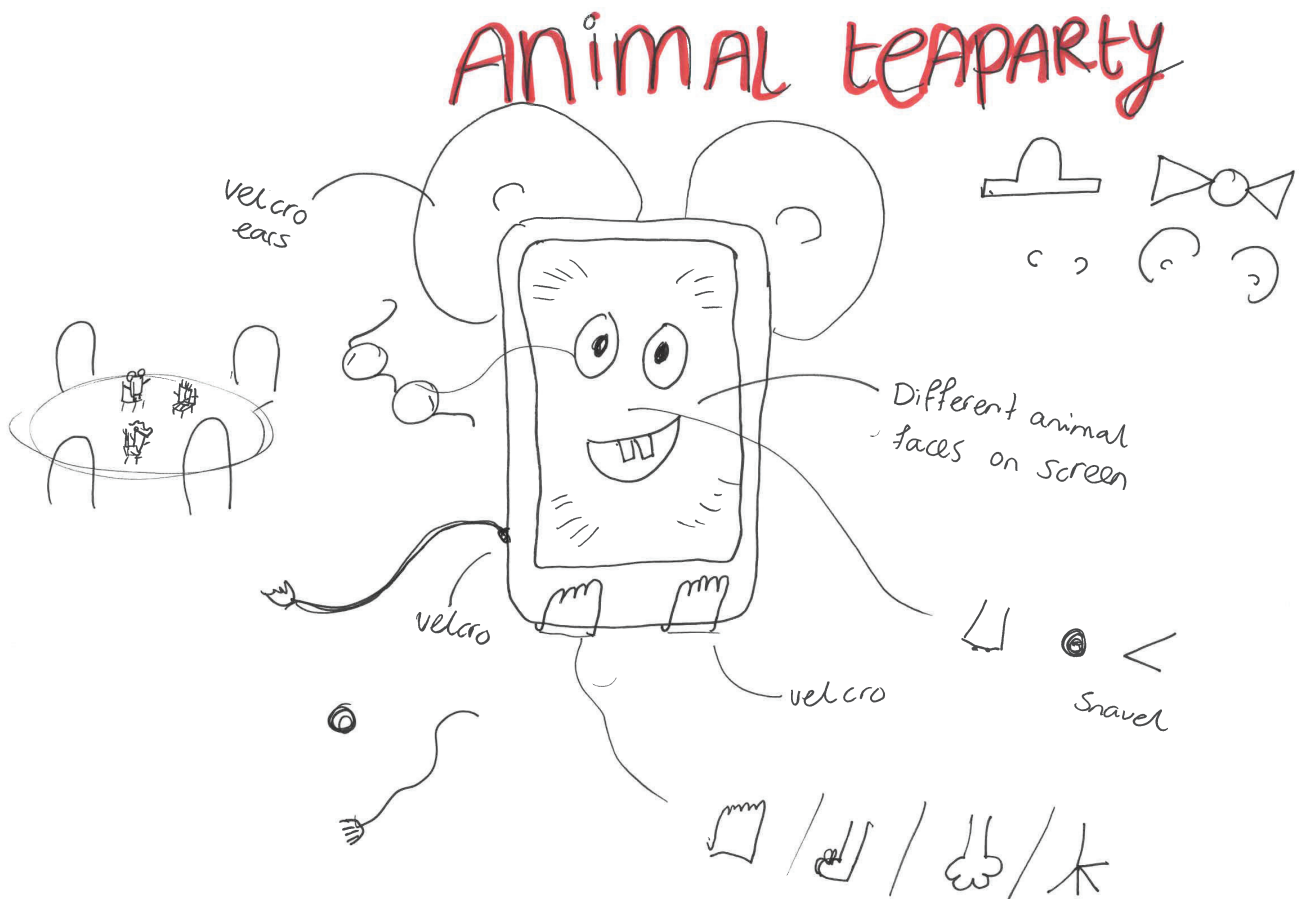


Figure 32. Animal tea party.

KEY TAKE-AWAYS

Families prefer to have real human contact.

But here you do not have to be physically together. That you can do it separately I do not really like. – Mom

Phone can give the feeling of being together, when you are apart.

“When dad’s at work, and you can give comments on something, that’s a good one.” – Daughter

Parents care about the positive effect of the game, like physical movement.

Then you turn something bad into something good. When they are outside, I find it a positive thing. – Dad

Parents do not always enjoy (childish) games.

I do not like games, you know that right? – Mom

Long or flexible playtime is preferred.

Or a game which you can just leave and continue later on. – Daughter

5

FLUID PLAY

DISCOVER

CREATING A VISION ON FLUID PLAY

Existing examples of fluid play are explored both in relation to loyalty campaigns and individual products. By analyzing or experiencing them, a fluid play vision is created.

Chapter Overview

5.1 Fluid play vision





Figure 33. Nintendo Labo. Variety Kit.

5.1 FLUID PLAY VISION

Having closed off elaborate research with families for now, a switch is made towards exploring the final aspect of the project scope.

GOAL

A look is taken into existing tangible & digital toys to find inspirational elements and guidelines to create a vision on fluid play. Physical movement is included within this research, as this is something both children & parents value.

METHOD

Web research is used to find inspiring toys, games, loyalty campaigns and literature involving fluid play, in order to spark inspiration. I gained hands-on experience with some of the toys encountered, to further immerse myself in the possibilities of fluid play.

RESULTS

Results are showcased with short summaries of what the products manages to do with relation to fluid play.

As mentioned by Phil Stuart (2016), founder and creative director of PRELOADED, real successes require the digital and physical to be symbiotic, adding significant value as a combination to the separate experiences.



Nintendo Labo – Nintendo

A **unique** concept that combines a **making** activity, followed by an immersive **playing** experience by smartly utilizing digital technologies. All of this comes with an **eco-friendly** image.



Figure 34. Nintendo Labo. Variety Kit.

Tech is te gek - &Ranj

Uses **AR** and **personalisation** of a dancing robot to **teach** children how to program.



Figure 35. Tech is te gek.

Top Insecten – Albert Heijn

Transforms the image of insects by **educating** children and sending them on a **nature exploration**.



Figure 36. Top insecten.

Osmo Detective Agency

Helps you to solve mysteries by **searching** for objects. Smartly utilises **digital technology** to recognize **physical attributes**.



Figure 37. Osmo. Detective Agency.

Pokémon Go

aids you in **collecting** Pokémon with the help of navigation & AR, getting people **active and outside of the house** all over the world.



Figure 38. Osmo. Detective Agency.

Tangible Reminders

Did you know the value of tangible play was rediscovered in families as a side-effect of my family visits? Multiple families mentioned to me over the phone they had participated in more tangible play than usual. This reminded me of my job at Emotion Studio and one of the main projects I worked on, called tinytask. This tangible task reminds people of a small activity they can do to boost their happiness. Its tangible properties are backed by scientific research (Desmet, P. M., & Sääksjärvi, M. C., 2016) and can be of great value to fluid play.



KEY TAKE-AWAYS

Examples of physical and digital play are many and diverse. The products I found to be most inspiring were ones that combined both aspects in a seamless experience, hence why the following fluid play vision is created.

Fluid play should enable an intuitive interaction where the tangible and digital world naturally blend in and out of each other, adding significant value as a symbiotic experience.

Tangible object reminders

Tangible objects can be used to influence people's behavior (Desmet, P. M., & Sääksjärvi, M. C., 2016).

Phase II

Take aways

UNGA

A scope is defined in which the design proposal will operate.

This project will focus on applying the design proposal to an unlicensed loyalty campaign for a hypothetical Dutch supermarket comparable to the Albert Heijn. The target audience of this loyalty campaign will be Dutch families with children aged 6 to 12 years old. Furthermore the concept will use the standard loyalty models as a starting point for the campaign.

FLUID PLAY

A fluid play vision is defined.

Fluid play should enable an intuitive interaction where the tangible and digital world naturally blend in and out of each other, adding significant value as a symbiotic experience.

Opportunities for tangible objects within fluid play are found.

physical objects could remind people of doing certain activities, which can be applied within fluid play.

FAMILIES

Specific elements with regards to family connection & technology have been identified that can shape the interaction of the design proposal.

Humorous Interactions are at the center of many connecting family moments where family members poke fun at each other.

Activities that are centered around the personal family members themselves are valued highly.

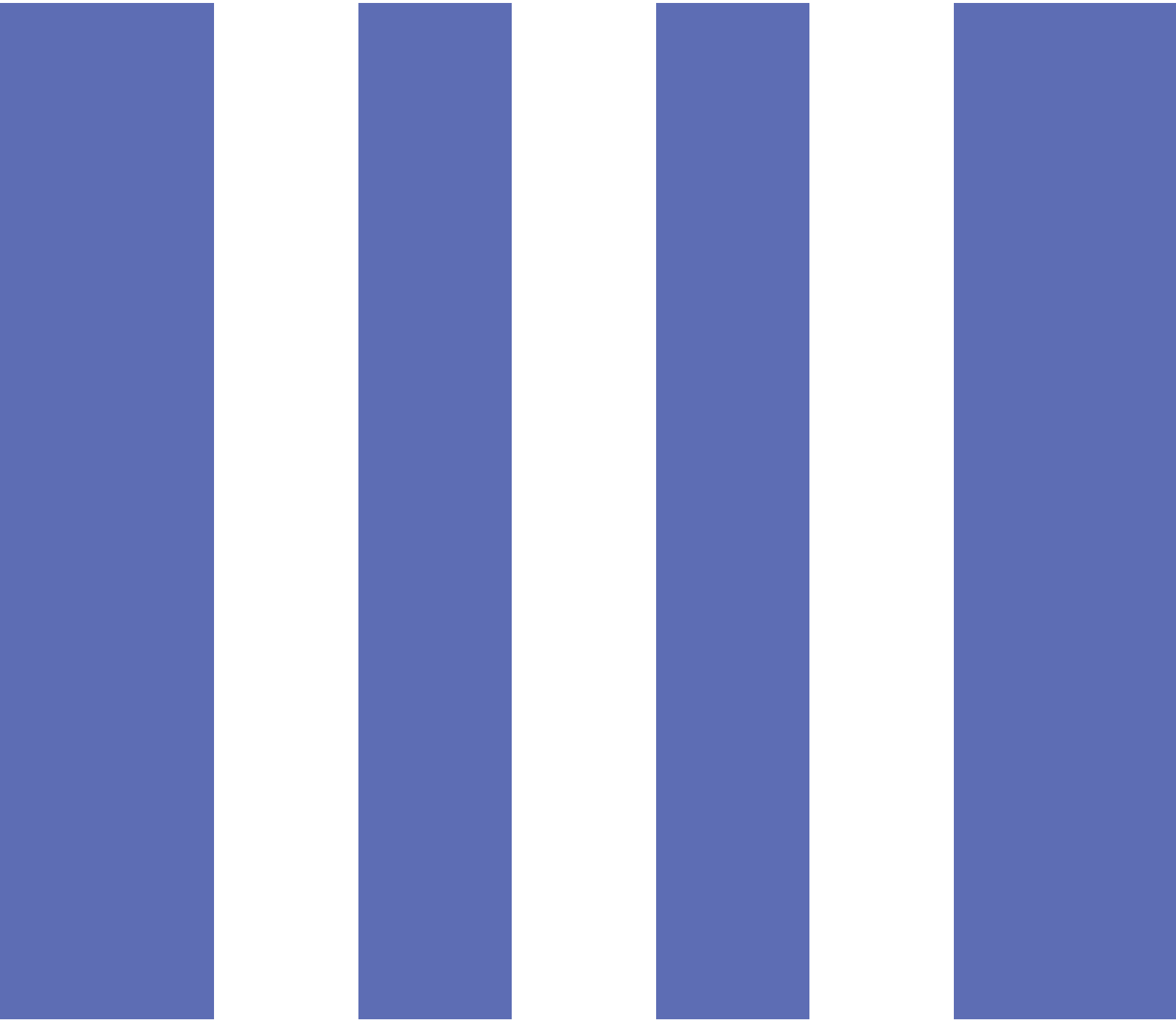
A physical activity where the family can actually move their bodies is often appreciated by child and parent.

When parents and child are equally involved in an activity, it is often regarded as one of the most connecting moments within the family.

The time families value each other within their daily lives is often based on small interactions.

The tablet is viewed as a family device and is often present in Dutch families.

The digital needs of parents and child are often not aligning, satisfying a more functional need for parents while having a more entertaining value for the children.



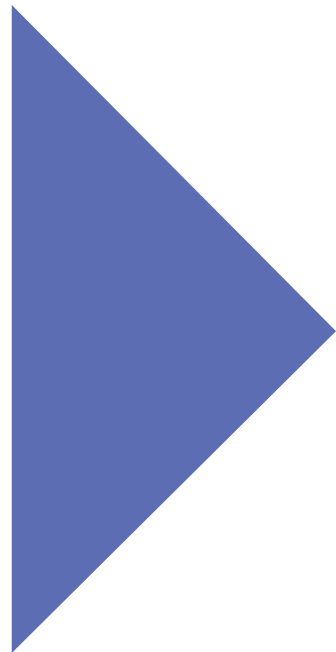
DEFINE

FORMULATING A DESIGN FOCUS BASED ON THE GATHERED INSIGHTS

With all the insights gathered so far, a design focus is formulated involving a design statement, context factors and an interaction vision.

6. Design Focus

- 6.1 Design statement
- 6.2 Context factors
- 6.3 Interaction vision



6

DESIGN FOCUS

DEFINE

FORMULATING A DESIGN STATEMENT, CONTEXT FACTORS & INTERACTION VISION

With the insights surrounding the project scope gathered during the research phase, the chapter opens by formulating a design statement. Next, context factors are introduced which define important elements to consider. Finally, an interaction vision is fabricated as a means to provide inspiration.

Chapter Overview

- 6.1** Design statement
- 6.2** Context factors
- 6.3** Interaction vision





Figure 39. UNGA. View from my workspace at UNGA Design Team.

6.1 DESIGN STATEMENT

Fluid family play should encourage **poking fun** at each other, where parents and children are **equally involved** in a **personal** & **physical** activity.

The initial challenge is to design a tangible & digital interaction with a smartphone to engage families in play, within the context of a loyalty campaign.

Based on the research that has been done so far, I formulated the design statement above which further defines how this “family play” should look like.

A short summary of the substantiation of the design statement can be viewed at pages 80 to 83.

Encourage poking fun at each other

Humor showed to be a reoccurring element throughout many activities during the qualitative interviews. It can be achieved before, during or after the actual activity and has shown to strengthen intimate relationships (Hampes, W. P., 1992). Seeing humorous interactions take place during the actual interviews has also been an inspiration for this direction. Poking fun is at the core of the envisioned interaction.

Equally involved

Parents participating in the same activity has shown to have a positive effect on the children, who enjoy the activity more when their parents actively join in. Literature research also suggests that collective play supports the growth of children compared to individual play.

Personal

Experiences that are centered around the individuals of the family are likely to cause a humoristic reaction, as humor at the expense of others (schadenfraude) is enjoyed in all families.

Physical activity

Families repeatedly expressed their need and appreciation for physical activities with regard to their family connection. While children prefer digital play, parents' number one type of play is in fact physical. This provides an opportunity to utilize the two types of play that are preferred within the entire family. Parents react positively to digital games that have achieved similar things in the past, like Pokemon Go or Wii games. Lastly, physical movement has a low threshold and also provides a clear positive effect of the game, as desired by parents.



■ **Figure 40.** Focus up ahead.

Poking fun

Many moments of poking fun were caught during the connected family moments interviews.

It is present in many kinds of different family interactions.

Poking fun is often present in existing forms of digital family entertainment.

Based on Hampes (1992) suggesting humor supports intimate relationships.



■ **Figure 41.** Design statement parameter elaboration. Poking Fun.



Equally involved

The lego play report suggests that parents joining in on children their activities contributes to their growth.

Children repeatedly noted that when their parent would join in on one of their activities, they would enjoy it intensely, causing for much laughter as a result.

■ **Figure 42.** Design statement parameter elaboration. Equally involved.

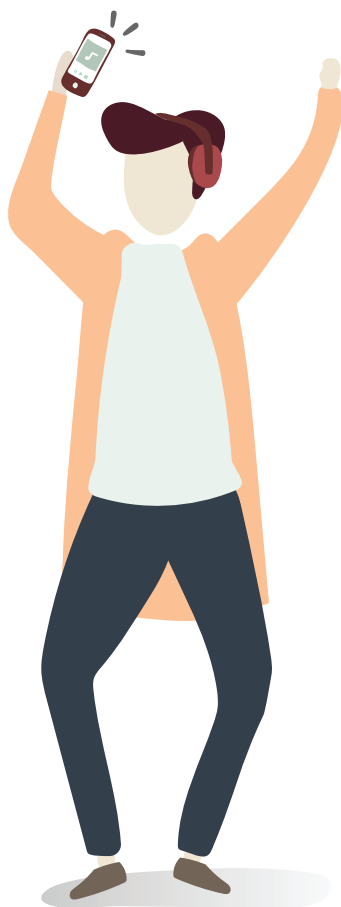
Personal

Poking fun at each other is often present in existing forms of digital family entertainment as a result of the activity involving the person itself.

In the family moments research, parents and children have indicated to connect with a family member when it's really about them.



■ **Figure 43.** Design statement parameter elaboration. Personal.



Physical

Physical play is the preferred kind of play of parents, which counterbalances the digital preference of children (Hoika, E., et al., 2018).

The making assignment showcased the desire of parents and children to do physical activities together.

Physical activity is a clear positive effect that parents find important when digital play is introduced.

■ **Figure 44.** Design statement parameter elaboration. Physical.

6.2 CONTEXT FACTORS

Based on the research done, a few insights of high importance are to be kept in mind within the design focus, in relation to the context of family play.

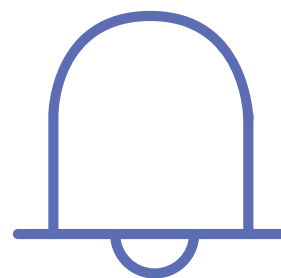
Time well spent

Using the time people are not together to play as well or creating a game where playing time is more flexible can be a huge benefit. All families from the diary research have indicated that time is an issue when it comes to family play. This is backed up by the Lego Play Well Report (2018) which suggests that a lack of time is the number one cause of reduced family play. Technology can also play a role in this, as families indicated they feel connected to their family members when receiving personal messages when they are not together. Next to this, pre-activities and after-activities can be designed accordingly to extend the positive effect of the activity in itself. This way the effects of hedonic adaptation can be delayed (Desmet, P., Jimenez, S., & Pohlmeier, A., 2015).



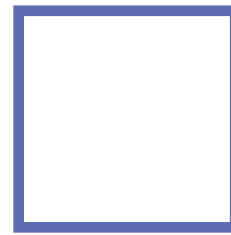
Tangible object reminders

The value of tangible play was rediscovered in families as a result of my research. Multiple families mentioned they participated in more tangible play than usual. A physical object could also remind people of doing certain activities as proposed by Pieter Desmet (2016). A loyalty campaign can provide many opportunities in this area, as families can be reminded of playing every time they receive an object from the retailer.



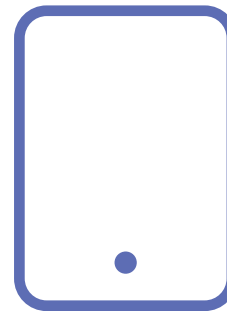
Low floor - High ceiling - Wide walls

Designing for children's play has developed tremendously over time. With many researchers and designers gaining new experiences (me as one of them) I have decided to take inspiration from the main guidelines proposed by "Some reflections on designing construction kits for kids" (Resnick, M 2005). It proposes a type of play that has a low threshold (low floor), a high skill cap (high ceiling) and many ways to play or explore (wide walls). These principles have since been applied by many and will help me not lose sight of the children's wishes.



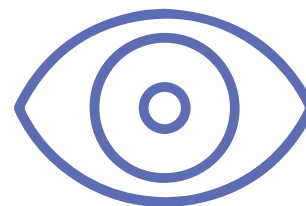
One main device

Families involved in this thesis have shown to apply different rules regarding smartphone usage. One thing they have in common however is their tablet. While not all children have access to a smartphone, the tablet is used mainly as a gaming and streaming device for children of all ages. Being able to play with only one smartphone or tablet provides an opportunity to include more families within the scope of the project.



Fluid play vision

Fluid play should enable an intuitive interaction where the tangible and digital world naturally blend in and out of each other, adding significant value as a symbiotic experience.



6.3 INTERACTION VISION

Spontaneous

Naughty

Open-Ended

Dynamic

Improvisation





Figure 45. Interaction Vision. Taking inspiration from a pillow fight.

To design with the design statement in mind an interaction vision is created (Figure 45) to inspire new ideas and concepts. This vision takes the form of a family pillow fight. I extracted 5 interaction qualities based on this vision. These can be used to inspire and evaluate future concepts.

Phase III

Take aways

DESIGN FOCUS

A design statement is formulated as to identify how family play should look like in order to achieve the desired family connections.

Fluid family play should encourage poking fun at each other, where parents and children are equally involved in a personal & physical activity.

Context factors are defined which introduce key elements to be aware of.

Using the time people are not together to play as well or creating a game where playing time is more flexible can be a huge benefit to families, as a lack of time continues to be the number one factor to reduced family play.

Utilizing tangible object reminders as a means to initiate the interaction can be of great value towards a fluid play experience.

Providing an experience that has a low threshold, high skill cap and many ways to play increased the chance of it being successful with children.

While not all children have access to a smartphone, the tablet is used for children of all ages. Being able to play with one smartphone or tablet provides an opportunity to include more families within the scope of the project.

Fluid play should enable an intuitive interaction where the tangible and digital world naturally blend in and out of each other, adding significant value as a symbiotic experience.

To design with the design statement in mind an interaction vision is created to inspire new ideas and concepts.

The interaction vision takes the form of a family pillow fight.

Five interaction qualities are extracted based on this vision: spontaneous, naughty, open-ended, dynamic and room for improvisation. These can be used to inspire and evaluate future concepts.



DEVELOP

CREATING IDEAS, CONCEPTS & EXPERIENTIAL PROTOTYPES

The first chapter revolves around the ideation and conceptualisation with and without fellow designers from UNGA. It concludes with a selection of a concept. The second chapter explores aspects of the selected concept with experiential prototypes.

7. From idea to concept

- 7.1 Internal session
- 7.2 Individual conceptualisation
- 7.3 Concept selection

8. Experiential prototyping

- 8.1 Playtesting
- 8.2 Seeking Exploration
- 8.3 Family Testing
- 8.4 AR exploration

7

FROM IDEA TO CONCEPT

DEVELOP

CREATING IDEAS AND DEVELOPING CONCEPTS BASED ON THE DESIGN FOCUS

The chapter starts off with an ideation, throughout a creative session with fellow designers from UNGA. The second section elaborates on this session throughout individual ideation and conceptualisation. The chapter concludes with 5 concepts possibly able to address the design statement.

Chapter Overview

- 7.1** Internal session
- 7.2** Individual conceptualization
- 7.3** Concept selection





Figure 46. Internal session in full force.



Figure 47. Internal session. Developing final concepts

7.1 INTERNAL SESSION

With the design focus clarifying design parameters, enough is known to start a guided ideation. Before converging too much into one specific area however, it is chosen to start the ideation with a diverging session.

GOAL

I initiated an in-house creative session to come up with as many ideas as possible regarding my initial design goal: design a fluid interaction with a smartphone to engage families in play.

The session also functioned as a method to involve employees within the project to accommodate future communication.

METHOD

8 employees, mostly from the UNGA design team, are invited for an in-house creative session.

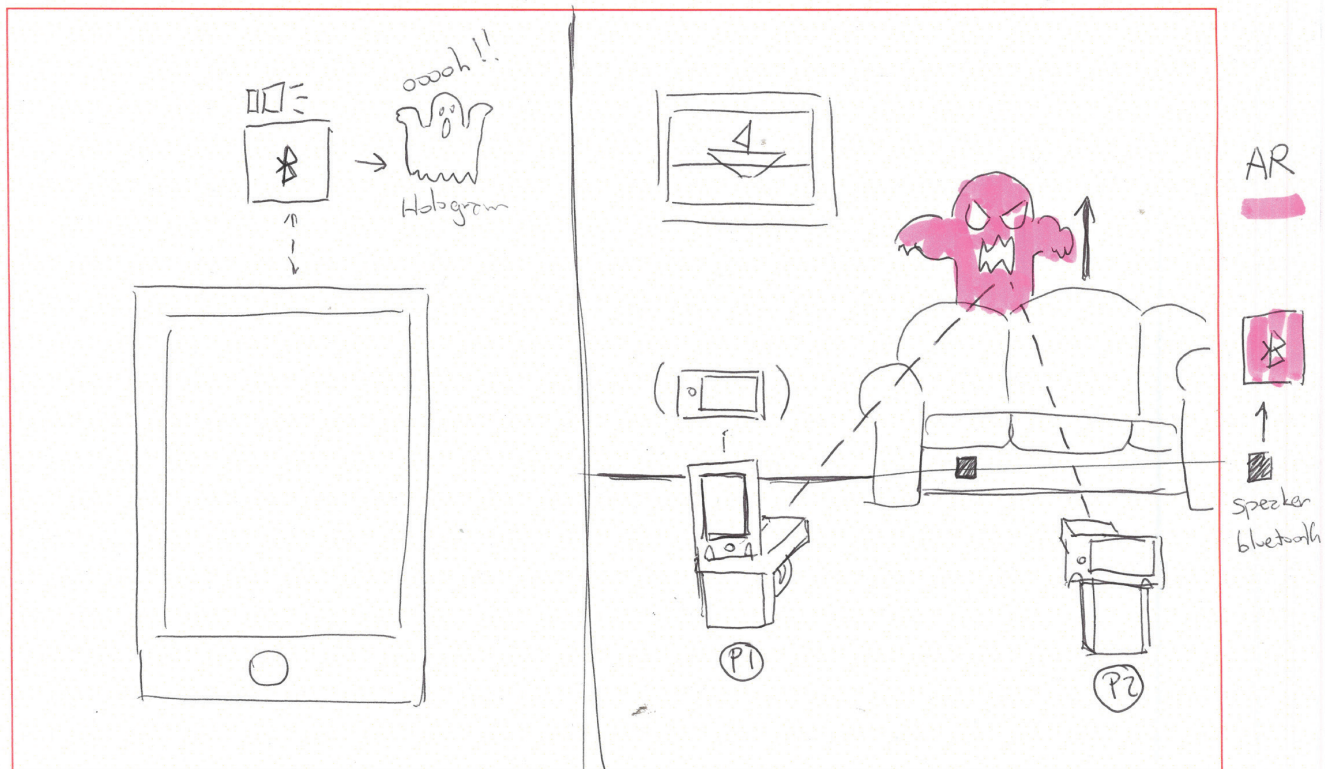
A design space is prepared with post its, flip-over sheets, pens and markers. Results from the research phase are put up on the wall and a presentation is prepared that controls the pace of the session and communicates the research to the participants with videos.

I functioned as the facilitator of the session and prepared a session plan (appendix 3) based on the tools and techniques of Creative Facilitation (Tassoul, M. 2009) and the Delft Design Guide (Boeijen, A., et al., 2014).

RESULTS

From all the ideas that are generated, 3 are selected and further developed into concepts by the participants. These are presented to the entire group at the end of the session.

Titel Ghost trackers



Connects the family by:

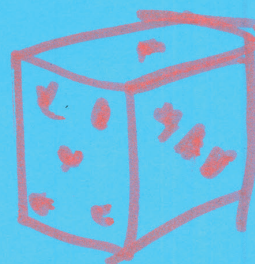
Working together (co-op) ghost/monster hunting. Both need to lock
Making the house safe again. or to defeat it

using the smart phone by:

AR tech / bluetooth / music | smartphone becomes your visor/
Sounds is made when ghost appears. | reveals enemies

Need overcome
some hurdle
together

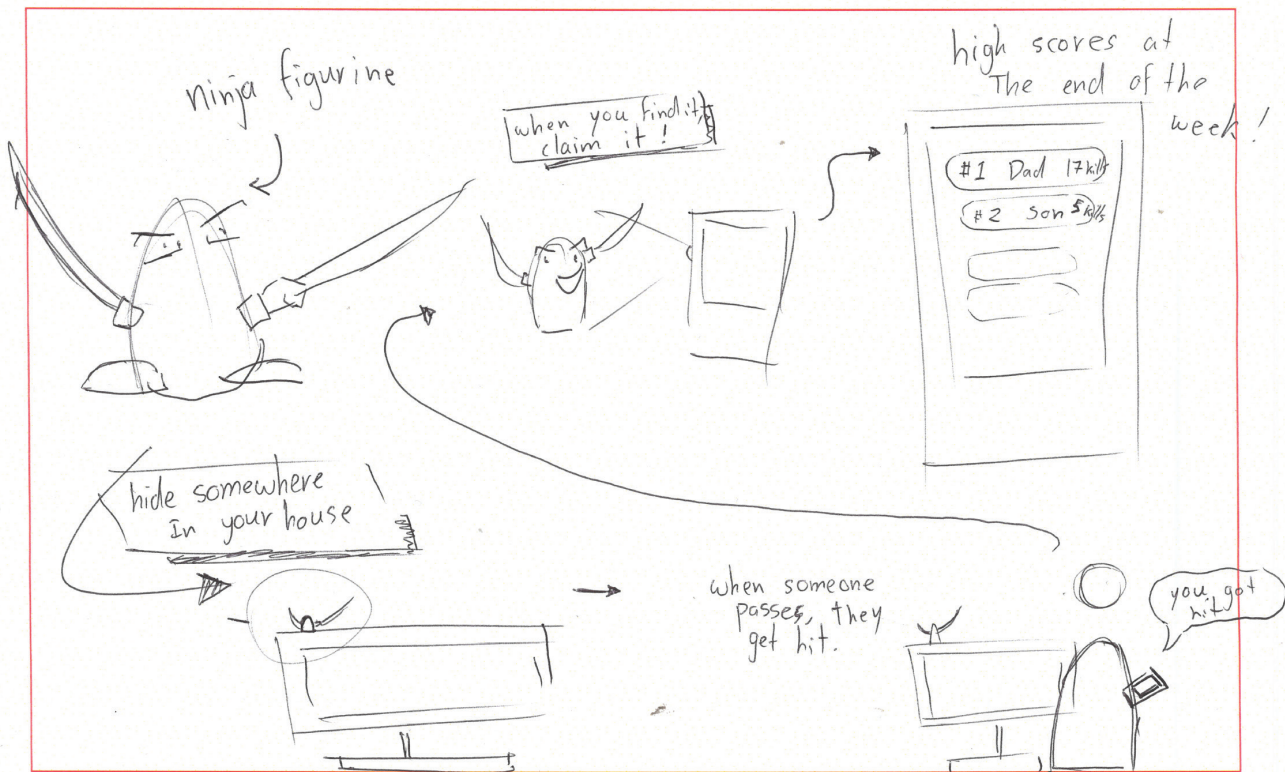
Shiper
option
is dope



fluid family play facilitated by smartphones and physical objects.

Figure 48. Ghost Trackers.

Titel Family Ninja's !



Connects the family by:

Using the time they are not together for the game

using the smart phone by:

Location Gps / NFC , remote tracking

use
make dangerous
characters



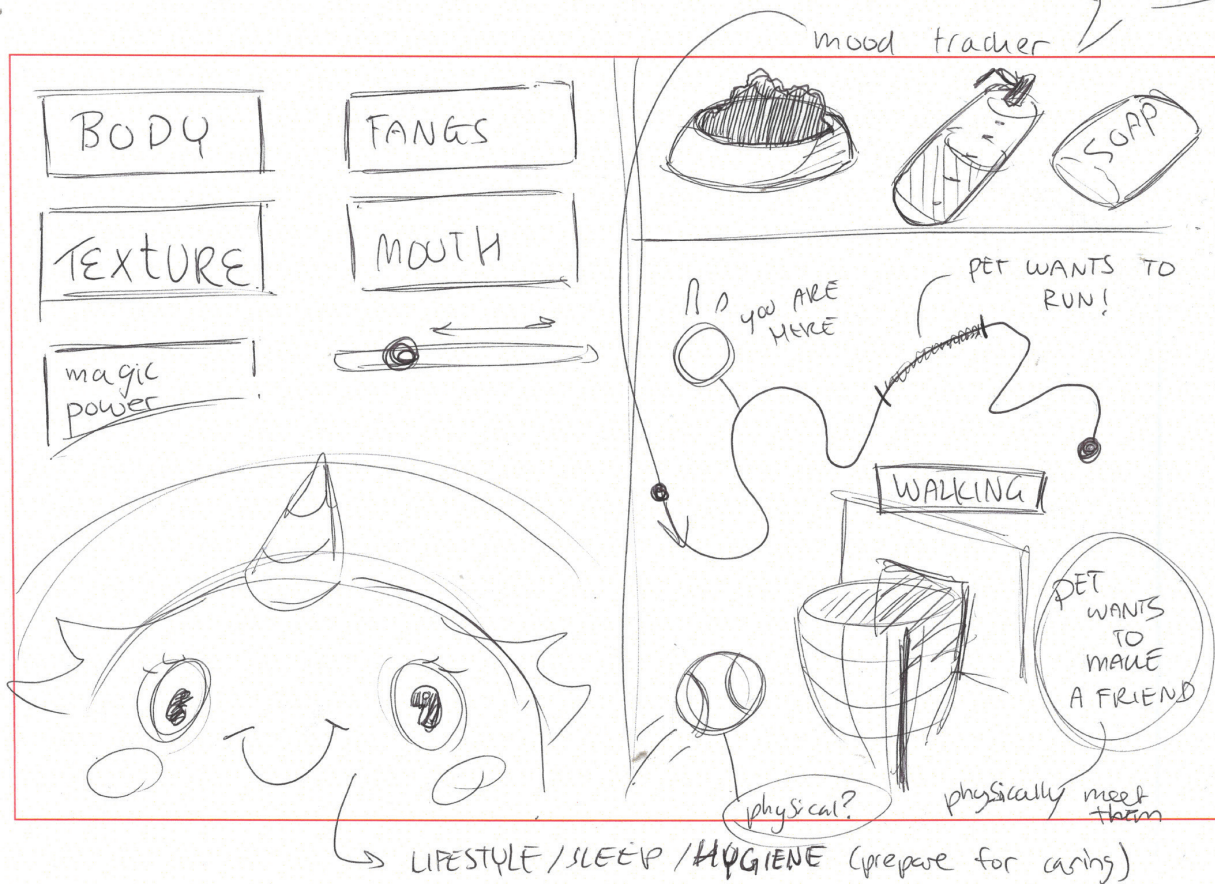
Location

That's it
It is
Intuitive

Figure 49. Family Ninja's!

Titel Gochitama

I WANNA GO TO THE BEACH TODAY.



Connects the family by:

Creating a virtual pet together and taking care of it.

as preparation / substitute pet / fun.

using the smart phone by:

tracking & creating care, creating the pet, mini games, cooperating.



GETS KIDS
"OUT
THE
HOUSE"

AR

PETS-ANIMACS

Figure 50. Gochitama

7.2 INDIVIDUAL CONCEPTUALIZATION

With a multitude of ideas and three more defined concepts, time is taken to internalize. Individually the ideas and concepts are further developed.

GOAL

Elaborate and expand on ideas and concepts generated from the internal session and create multiple concepts with regards to the design brief.

METHOD

Ideas from the creative session relating to family play and mobile phone use are expanded upon using how to's and brainwriting (Boeijen, A., et al., 2014). Categories of family moments that were not covered during the internal session are also ideated upon in the same matter. Subsequently, the ideas are used to generate new concepts. The concepts are then related back to the design focus. Interaction qualities are assigned to the concepts to compare them with the interaction vision.

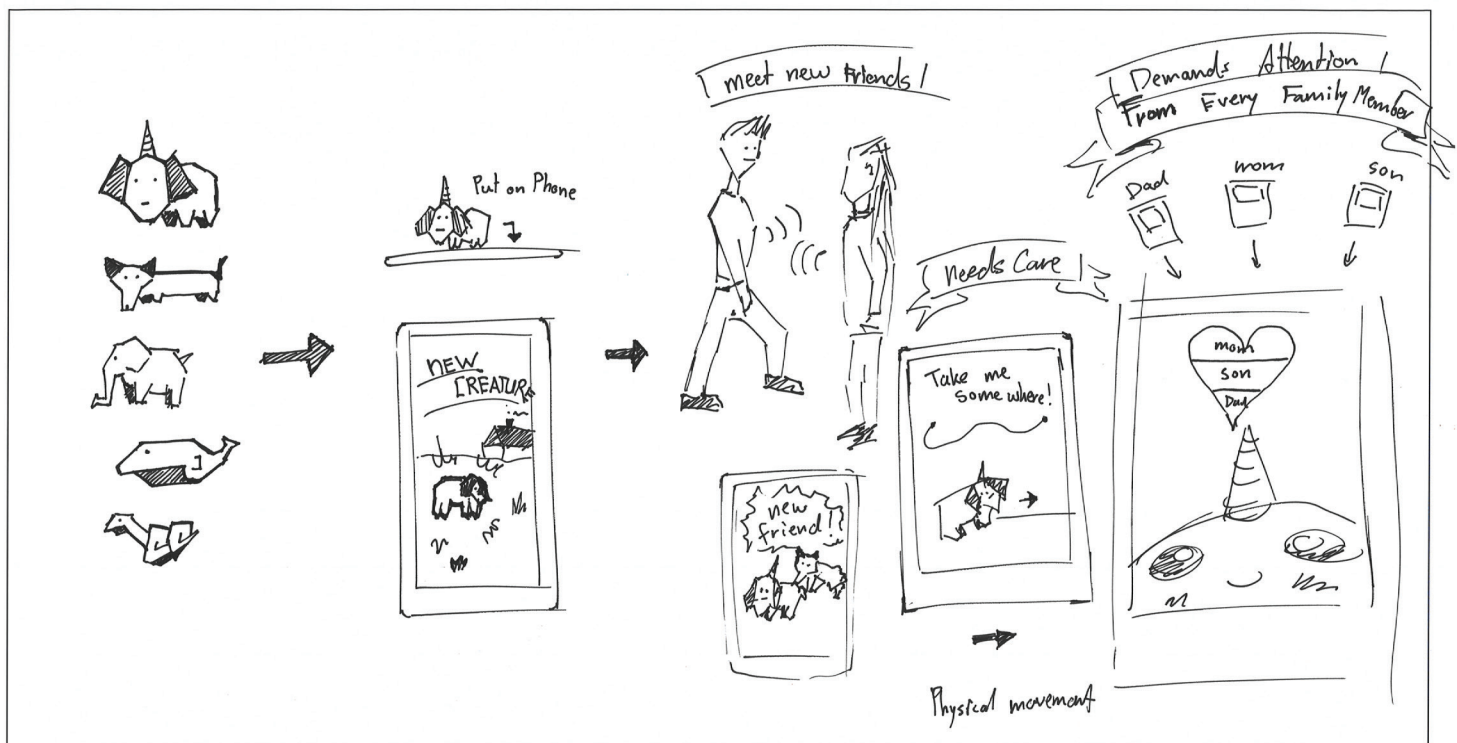
RESULTS

I generated 10 different concepts of which five are selected based on their coherence with the design focus. These can be viewed on the following pages.



Figure 51. Individual master student. Helping me out with individual conceptualization.

Title Catch Catch



Catch Catch

Fluid play interaction

Collectible animal figures can be transferred to your phone or tablet. The animal will ask for attention from each family member and will frequently ask to be walked around in the real world. When crossing other people with an animal, new breeds will be added to your phone. The love and growth of your animal is based on how much the whole family takes care of it.

Interaction qualities

Caring, Physical, Supporting, Responsible, Communal

How does it poke fun?

You can interact with animals ways that will make them show funny and strange behavior.

How does it create physical play?

The animal asks you to take it out, forcing you to physically move outside of the house.

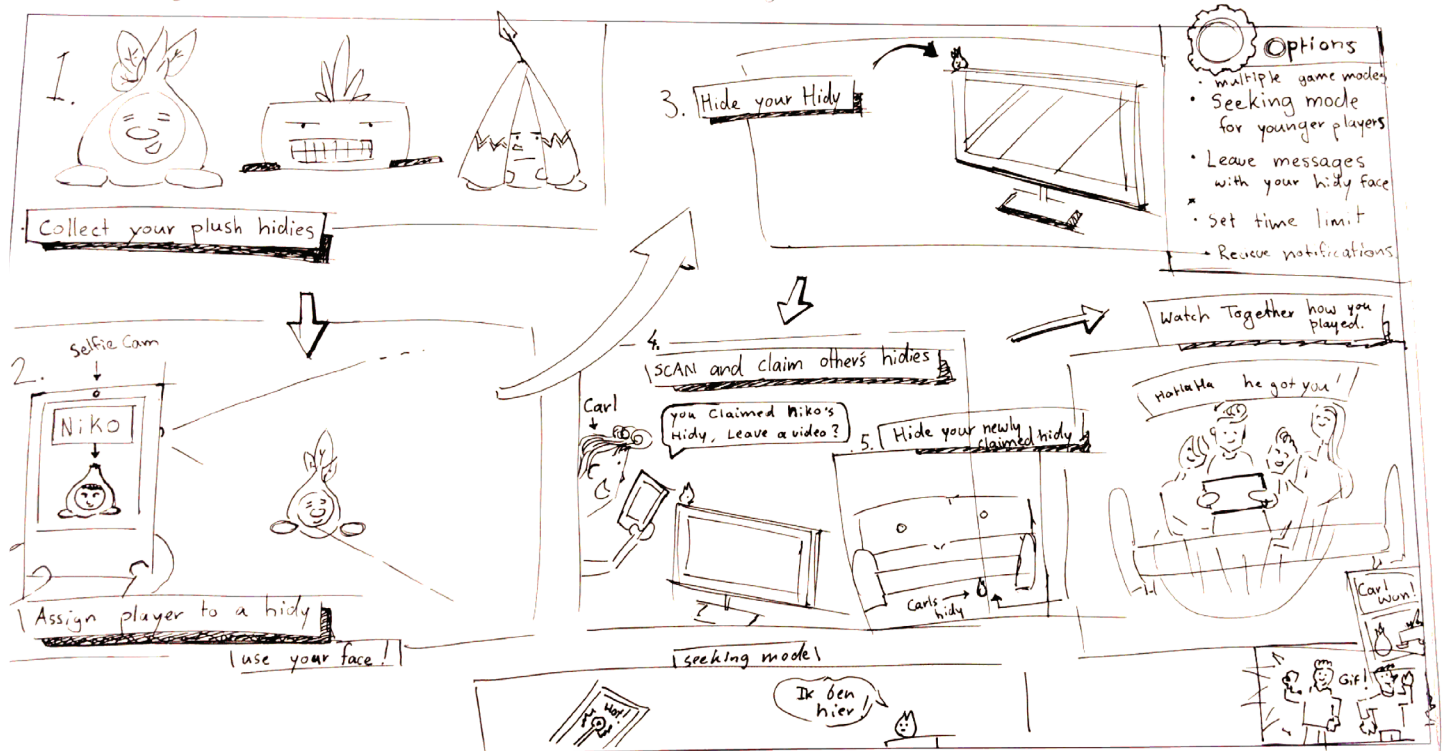
How does it support personal play?

You can name animals after your family members and pretend it's them.

How does it get family members equally involved?

Growth of the animal is based on the amount that everyone in the family takes care of it.

Title Fight to Hide! (Boombo, Nijise) Wii game



Fight to Hide

Fluid play interaction

Collectible objects can be personalized by scanning them. A personal message can be left with your face inside of the character. The objects are to be hidden within the house. Whoever finds them can claim them as their own and leave a personal message. When one person has claimed all of the objects, the game is over. Families can now rewatch the messages of their entire game together.

Interaction qualities

Open-ended, Distant, Humorous, Dynamic, Improvisable, Personal

How does it poke fun?

People can find and hide the objects in unexpected places. Next to this, personal message can be left to tease with the other players.

How does it create physical play?

Players are encouraged to explore the house, implicitly causing physical activity.

How does it support personal play?

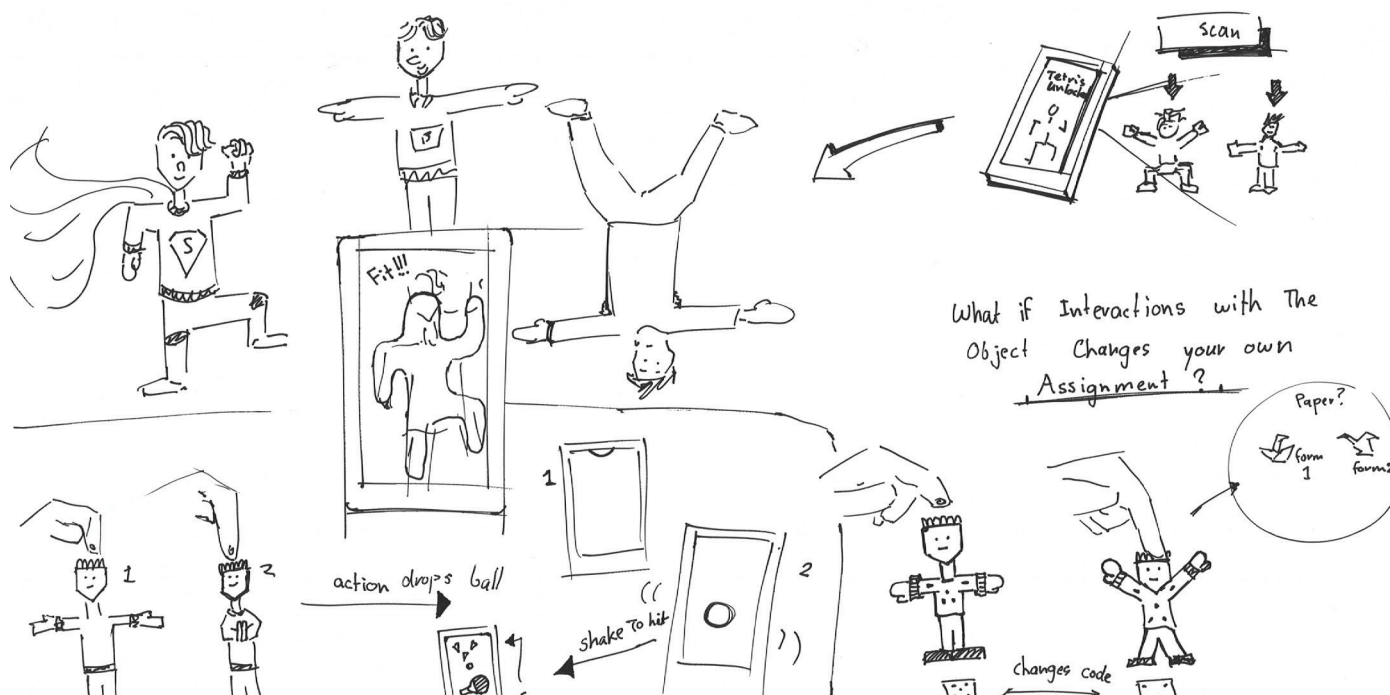
You are literally searching for your own family members. Also personal messages can be left which further emphasizes the personal aspect of the game.

How does it get family members equally involved?

When finding the object itself, you are reminded of the game. By using a low threshold activity like hiding an object and recording a message, parents and children can easily play it without much effort.

Figure 53. Fight to Hide

the ~~HUMAN TETRIS~~ / SUPER FAMILY HEROES (Truien monster feed) HANGRY monster



Super Family Heroes

Fluid play interaction

Sweaters can be worn which can trigger a physical game when scanned with a smartphone. The player wearing the sweater will have to move in tetris like ways to help the other player complete the levels on their phone.

Interaction qualities

Physical, Humorous, Dynamic, Spontaneous, Co-operative

How does the interaction poke fun?

People will have to move in strange and unorthodox ways which creates humorous interactions amongst family members.

How does it create physical play?

Physical movements are the key to playing the game

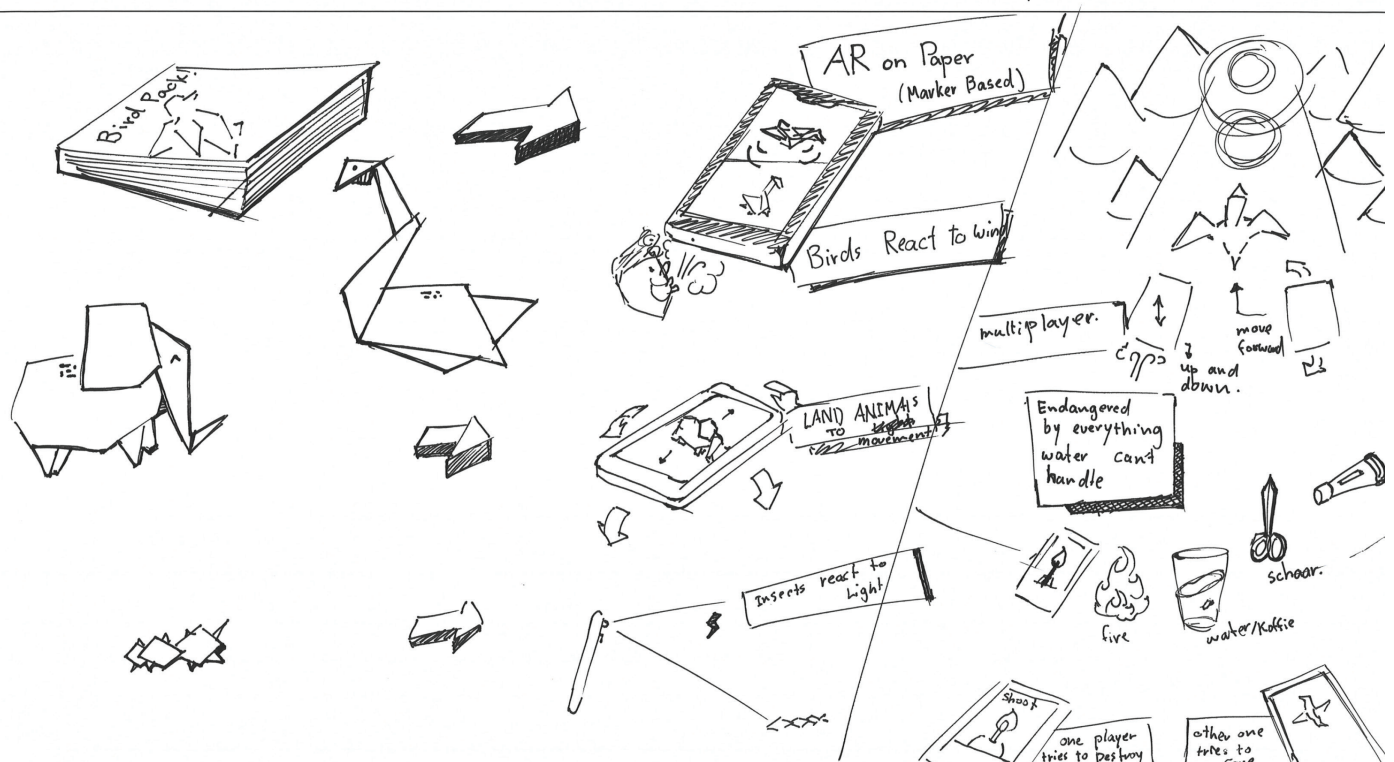
How does it support personal play?

The person itself is controlling the game.

How does it get family members equally involved?

You need both a smartphone player and someone else in order to actually play the game. When someone is wearing the sweater, others are reminded of the game.

Figure 54. Super Family Heroes.



Paper Party

Fluid play interaction

Families are encouraged to fold and create paper creatures. These creatures can appear in AR when scanned. Movement of the creatures is based on the location of the real physical object combined with interactions on the smartphone: blowing for flight, tilting for land movement and light to scare them away. Animals battle each other using these mechanics

Interaction qualities

Crafting, Competing, Creating, Dynamic, Chaos

How does it poke fun?

Chaotic play in order to win provides humorous interaction.

How does it create physical play?

By folding papers, moving the creatures and interacting with your smartphone.

How does it support personal play?

You folded the creature, creating a personal connection to the object.

How does it get family members equally involved?

You need more people in order to play. Having nicely folded creatures around the house can evoke spontaneous play.

e PHOTO PRINTER

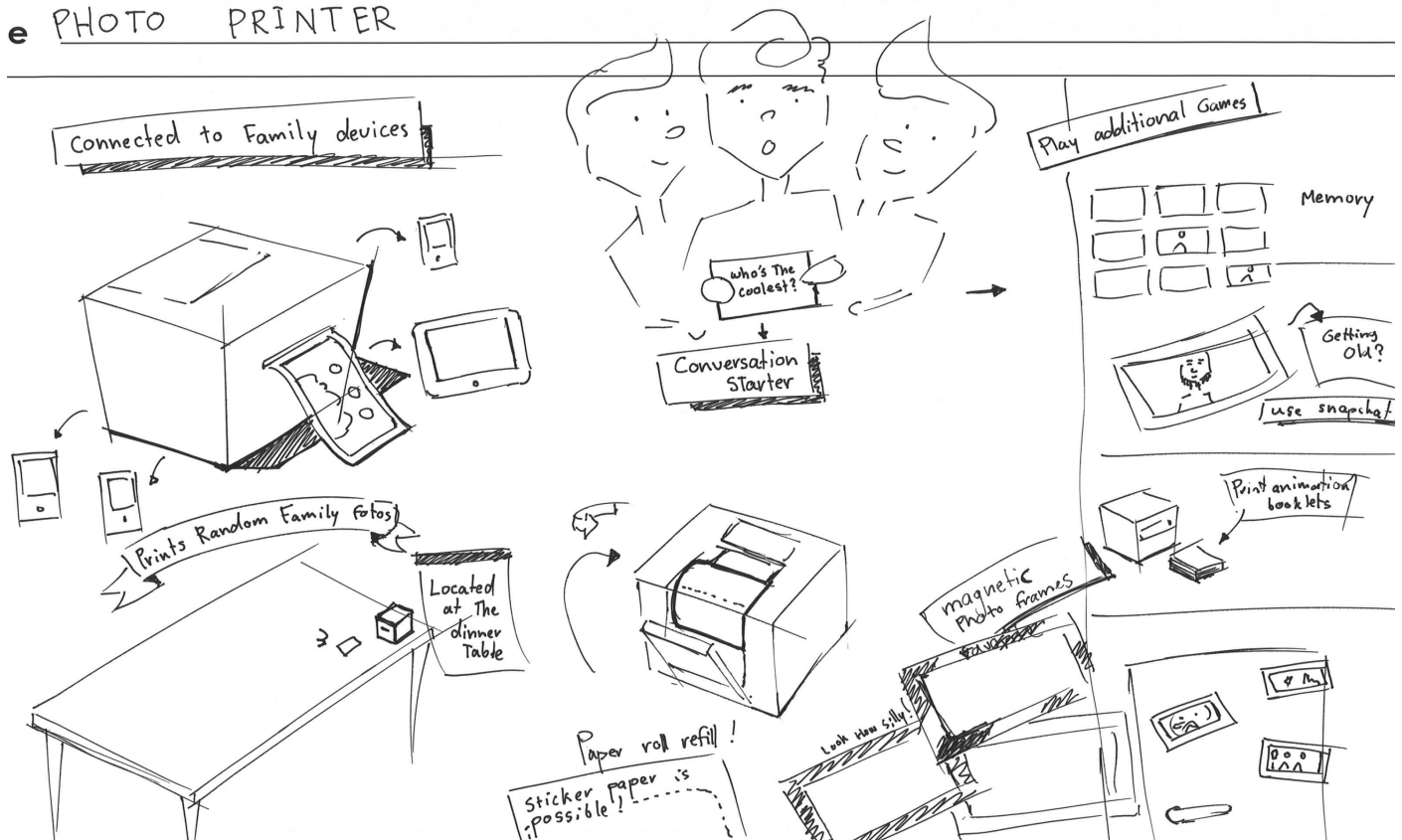


Photo Printer

Fluid play interaction

Families connect their smartphones to a mini printer. Every day a random picture is printed which has one of the family members on it with a question on the back. Having the printer stand in a central place will trigger conversations about the picture inside of the house.

Interaction qualities

Reflective, Passive, Nostalgic, Intimate, Small

How does the interaction poke fun?

Thinking back of the moments on the picture can trigger humorous conversations.

How does it create physical play?

People are more likely to take pictures of memorable activities. When confronted with those kind of pictures it can spark the initiative for new family activities.

How does it support personal play?

The activities on the pictures are activities that family members themselves have done.

How does it get family members equally involved?

The pictures are about the family members themselves so everyone will have an interest.

Figure 56. Photo Printer

7.3 CONCEPT SELECTION

Having a multitude of concepts at my disposal, an educated decision needs to be made on what to continue with.

GOAL

The goal is to select a concept direction that has the most potential to achieve the overall design goal.

METHOD

8 DFI students are asked to rank the concepts on a 7 point likert scale, based on a set of interaction qualities (appendix 4). In order to create an unbiased answer from the participants, the set consists of irrelevant qualities, next to desirable qualities from the design statement and interaction vision. The irrelevant qualities are ignored during the assessment of the data.

Before conducting the test, I guide the participants through the separate meaning of the qualities as I intended them, to make sure ambiguous terms are understood correctly. The concepts are also presented to 3 different families, asking each family member which concept they prefer and why.

In order to make a decision, the concepts are further assessed individually, based on their coherence with the design focus. Based on the likert scale, input from families and the individual assessment a decision is made.

RESULTS

From the likert scale (Figure 58), two concepts rate highest overall: Fight to Hide and Super Family Heroes. Super Family Heroes scores highest on the dynamic and physical qualities while fight to hide lays an emphasis on more open-ended and improvisable qualities.

Overall Fight to Hide scores a bit higher while Super Family Heroes scores highest on the main qualities from the design statement.

The preference of family members (Figure 57) is more or less equal. If we take a look at the reasoning behind their choices, we can see that fight to hide was valued because its ability to be used in multiple ways. Because of this the concept is well received by all participants while some participants could not see themselves involved with the super family heroes.

When personally comparing the two concepts with the design focus, a slight preference for Fight to Hide appears. The concept can be used at any time of day as it does not require the family to be together. The value of a tangible object is higher when compared to the other concepts. Furthermore when designing for kids, variety is an essential aspect in which this concept excels. Finally I see more opportunities within this concept regarding the fluid play vision, allowing for a more dynamic and intuitive transition between physical and digital play.

FAMILY QUOTES

This (Fight to Hide) could create a lot of small and new family moments...well found - MomFam1



They could both fit, but I think if the whole family needs to be involved I would choose Fight to Hide - DaughterFam1



I like this (Fight to Hide) because I can use it in another way instead of a game - MomFam3



Super Family Heroes fits best for our family, as the kids can't sit still for a moment. I would let them do the physical things while I use the phone - MomFam2



For me personally I like the Super Family Heroes, I don't move a lot at work so maybe it's good for me - DadFam2



I prefer Super Family Heroes as I want to be active - SonFam2



Figure 57. Family quotes.

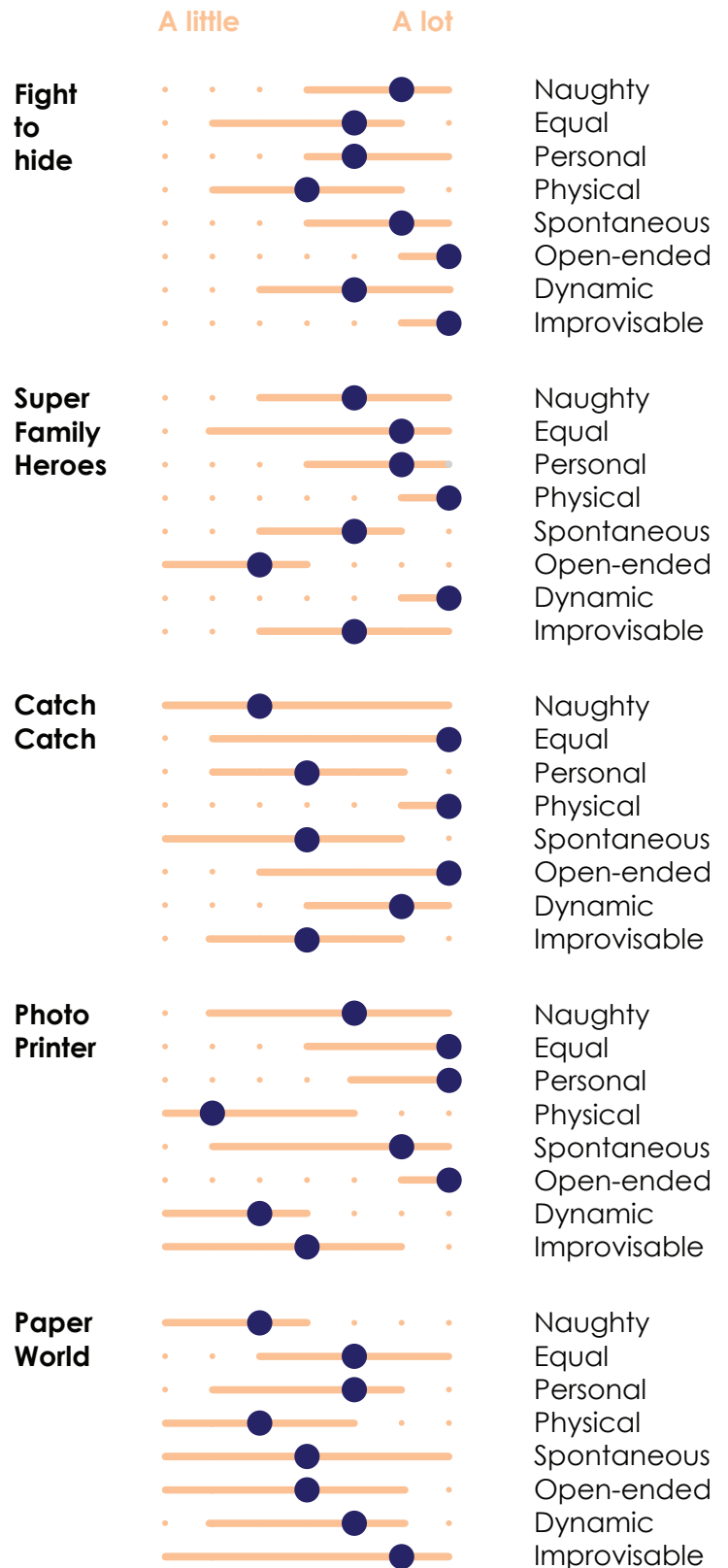
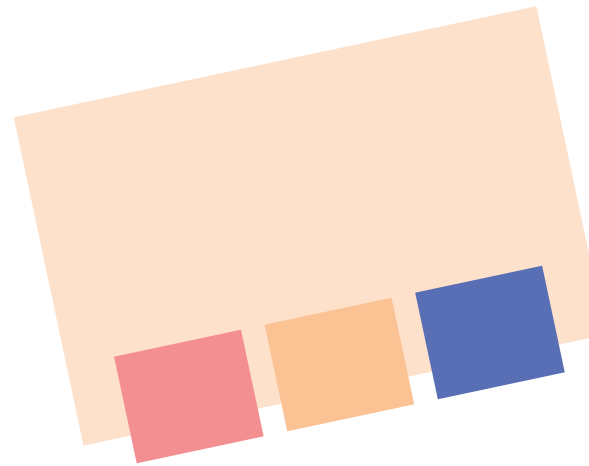


Figure 58. 7 point likert scale. Evaluating interaction qualities.



CONCLUSION

Combining my individual assessment with the likert scale and the opinions of family members, **a conclusion is made to continue with the Fight to Hide concept.**

The deciding factor is the ability of the concept to be used in multiple ways, which lets both children and adults find their own usage of the product. This way the entire family can enjoy the interaction equally.



Figure 59. Selection of concepts.

8

PROTOTYPE

DEVELOP

ITERATING ON THE CONCEPT DIRECTION WITH EXPERIENTIAL PROTOTYPES.


The chapter opens with a playtesting session, gathering insights from a type of game already coinciding with elements from the design focus. Consecutively, several rounds of design iterations take place in the shape of experiential prototyping. The balance between digital and tangible interactions is explored with fellow students and the target group. The chapter concludes with the exploration of AR techniques.

Chapter Overview

- 8.1** Playtesting
- 8.2** Seeking exploration
- 8.3** Family testing
- 8.4** AR exploration





 **Figure 60.** Playful boy.

8.1 PLAYTESTING

After discussing the design statement with colleagues from UNGA, one of them mentioned an existing game called “Don't get got” (Figure 61) coincides with multiple aspects mentioned in the design statement.

As a means to learn from existing products I decided to organize a playtesting session of this game with my housemates.

GOAL

The goal is to gain inspiration for a concept by playtesting an existing game that utilizes an open ended approach and “poking fun” at each other.

RQ: What can I learn from an existing game that coincides with the design statement?

METHOD

The game “Don't get got” is played by myself together with 8 other participants.

In this party game, each player gets six secret missions to pull off without getting caught. The first person to pull off 3 missions wins the game. A more elaborate set of rules can be found in appendix 5.

The participants are gathered at their home and the rules are established together. Afterwards the game is played as intended.

When the winner has been decided, participants are interviewed about their experience with the game in relation to this thesis.

A video explaining this game is communicated towards the 4 co-operating families. They are also asked to share their opinion in similar fashion.

14+ | 2-8
age | players



"This isn't a sit-down-at-a-table sort of game – you play it alongside whatever else you're doing. So whether you're at home, on holiday or at a party, you'll always be looking for sneaky ways to get them... before they get you." - Big Potato Games

Figure 61. Housemates interacting with "don't get got" content.

INSIGHTS

Understanding of the game should be intuitive for the age group.

Participants and parents mentioned that young children could have difficulties understanding their missions when it is only written down.

Not collecting the content of the game once it's finished can be a potential pitfall.

Once the game is finished, difficulties arise when trying to collect all materials. Some participants mentioned they would "give it back later".

A set of rules can be given, which can be elaborated upon by the target group.

When setting up the game, rules were changed to better fit the target audience. By providing a set of simple rules, we as a group were able to elaborate upon them.

Existing apps like Whatsapp can aid in extending the fun of the initial game.

A group chat was created to keep track of who is winning. As families mostly have their own chat, this could be used within the concept.

The game should not feel like another task on your to do list.

One parent mentioned the game could feel like another task on her to do list. This means it is important for the concept to be used out of intrinsic motivation and should not feel like an obligation.

KEY INSIGHTS

Not collecting the content of the game once it is finished can be a pitfall.

Once the game is finished, difficulties arise when trying to collect all materials. Some participants mentioned they would "give it back later".

The game should not feel like another task on your to do list.

One parent mentioned the game could feel like another task on her to do list. This means it is important for the concept to be used out of intrinsic motivation and should not feel like an obligation.

8.2 SEEKING EXPLORATION

GOAL

As "seeking" is a big part of the concept, 3 ways of seeking are explored. Finding the right balance between digital and tangible interaction for the concept is at the core of this test. To get a better view of how different seeking mechanics influence the user experience I performed quick tests with 2 industrial design engineering students easily capable of expressing their experience.

RQ: How do different seeking methods influence the user experience?

METHOD

3 different seeking methods are explored.

1. Picture search
2. Phone sound search
3. Object sound search

The specifics of the test and quotes of the participants are shared in the corresponding chapters. Results are gathered based on these quotes. From these, conclusions are made for the design.

PICTURE SEARCH

A picture is sent to their smartphone with a comment: "A secret message has been hidden, can you find it?". The image functions as the location hint. The hidden message used is a post it, thanking them for participating. After completing the task, questions are asked regarding their experience. Also the concept idea is explained to relate their experience to the bigger picture.

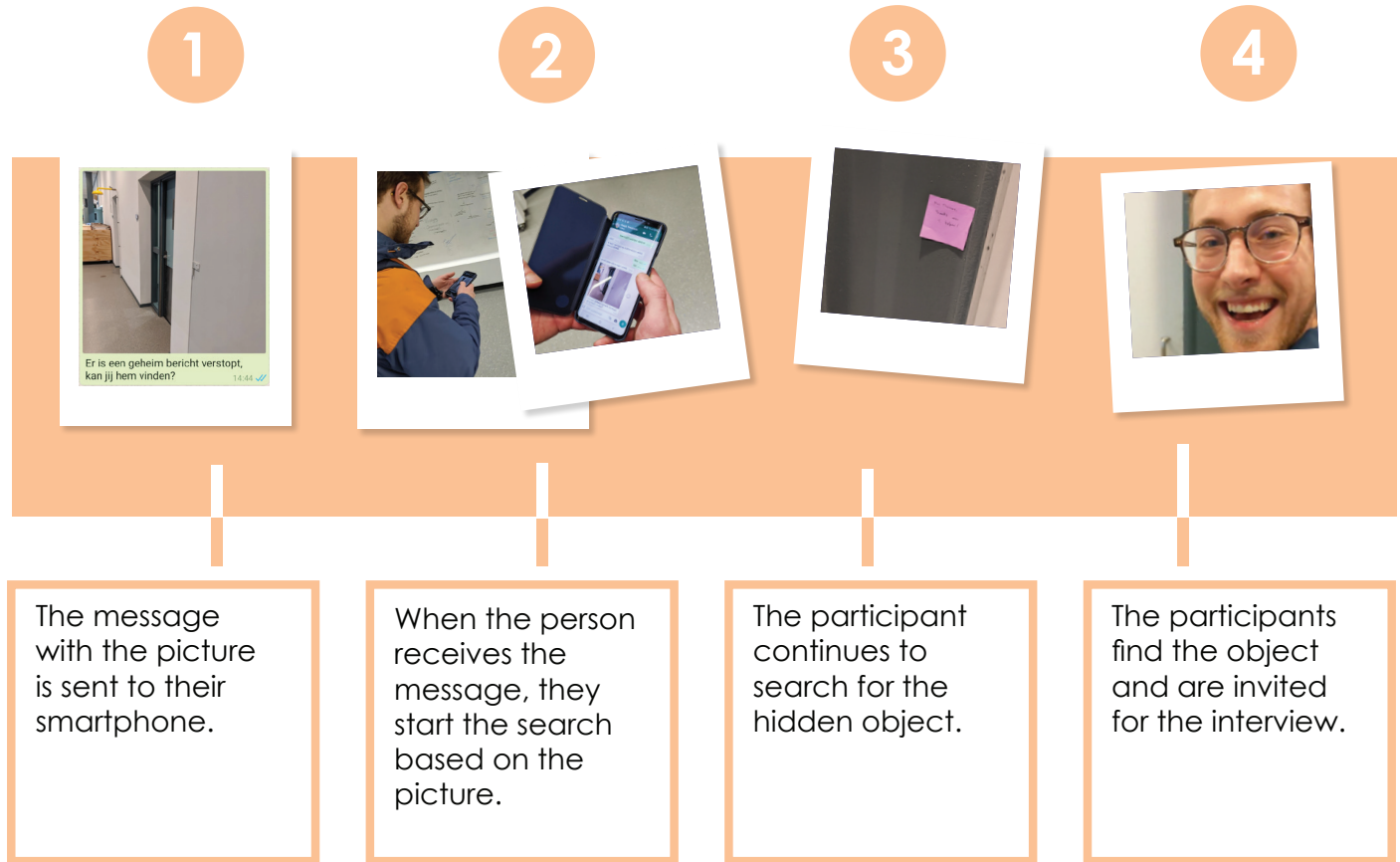


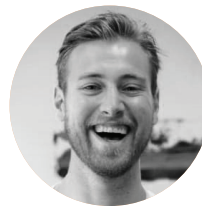
Figure 62. Picture search. Step by step interactions.



Participant 1

"It was super cute, it was personalized and it felt like someone was saying a nice little present to me, I loved it." - Participant 1

"It wasn't exciting for me anymore, when I see a picture of something I immediately know where to go." - Participant 1



Participant 2

"That moment of reveal is something you can really work with." - Participant 2

"I would like it if you have this kind of back and forth mechanism, if I could claim it and return it! That dynamic keeps it interesting, having the control over someone else." - Participant 2

"The funniest way to find such an object is when you find it in a place where you wouldn't expect it." - Participant 2

PHONE SOUND SEARCH

Instead of receiving a picture, the participants are now told to search for an object based on sounds coming from their phone. Loud sounds would mean they are close, quiet sounds would mean they are not. A walkie talkie is used to represent the phone in this experiment, which I use myself to provide them with the sounds.

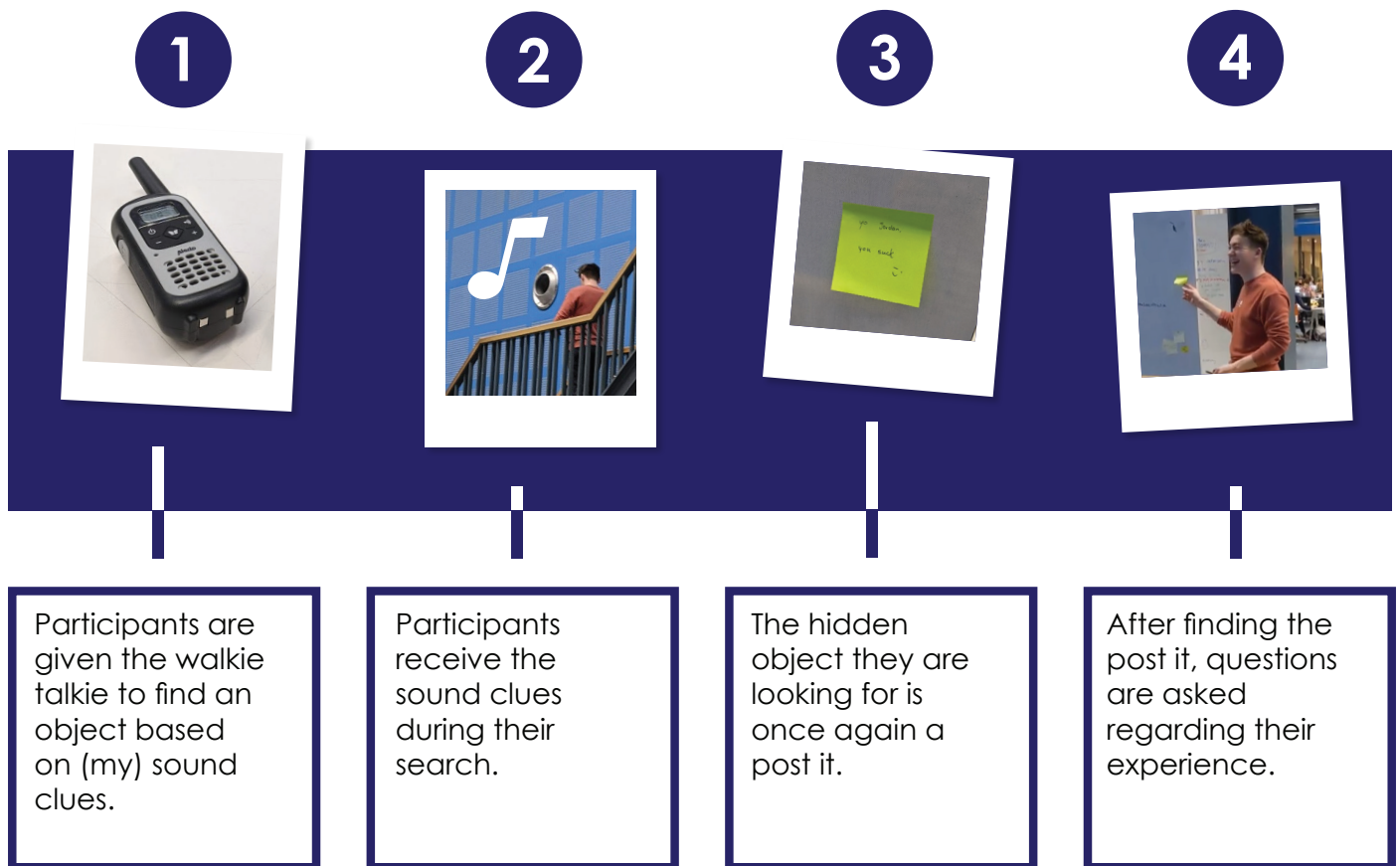
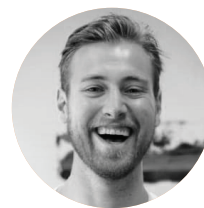


Figure 63. Phone sound search. Step by step interactions.



Participant 1

"I prefer this method because the challenge was sustained. As soon as I saw the photograph it took me half a second to know where it is. The excitement was short lived and ruined. I think there was also a sense of achievement with the second one because it was really something I had to do and look for." - Participant1



Participant 2

"The interaction with a phone is defined by the quality of the phone, I got a particularly slow phone so for me the app would be pretty shit. If I had an iPhone then I would enjoy it more." - Participant2

"I think having audio to find things can be very nice, but I can also see the value of surprise as being key." - Participant2

OBJECT SOUND SEARCH

Instead of following sounds from their phone itself, the instruction is given to find an object that would make sound itself. A walkie talkie is used to represent this object. All other variables are kept the same.

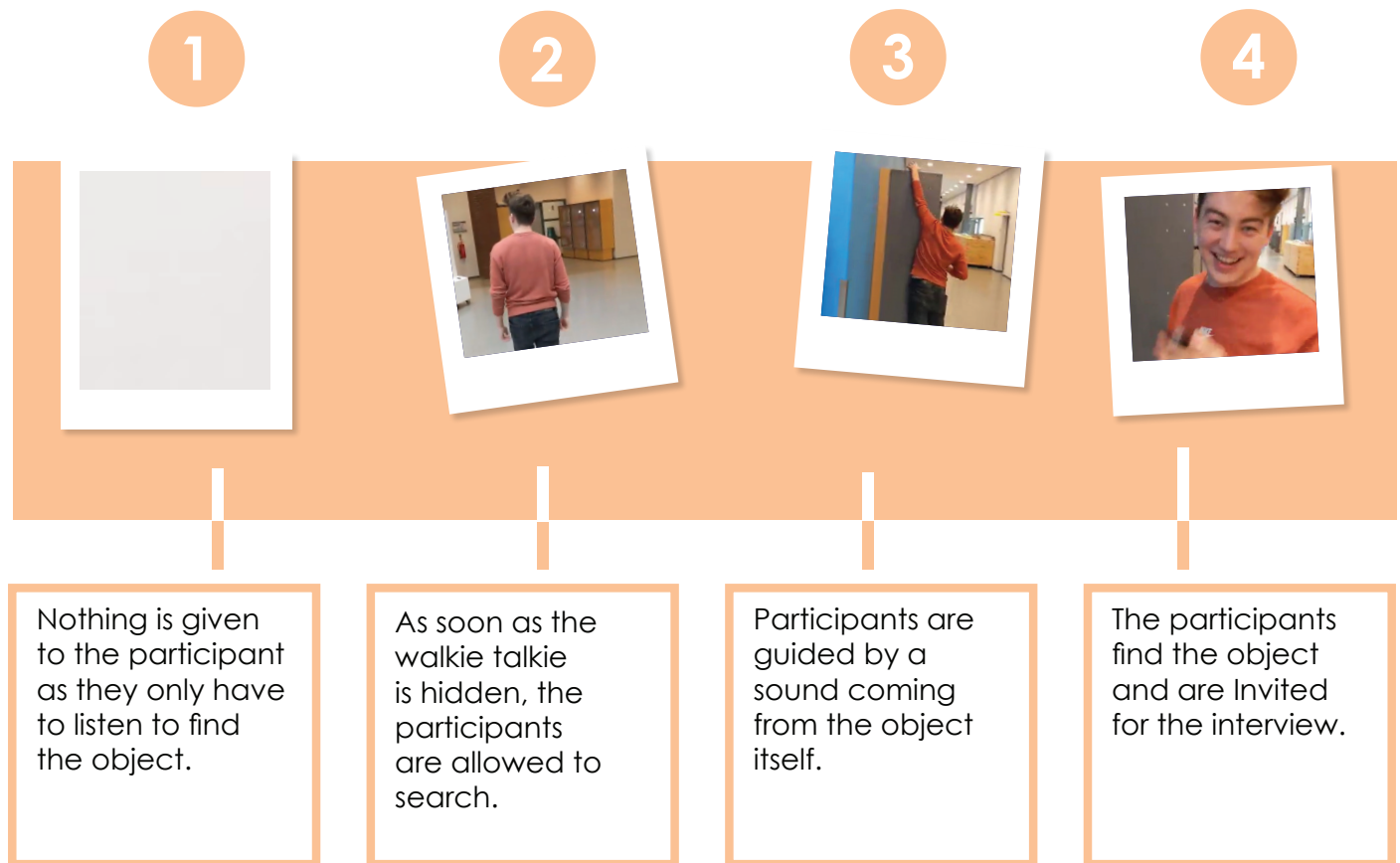


Figure 64. WObject sound search. Step by step interactions.



Participant 1

"If I'm playing with my brother and he's on his phone, I feel like I'm missing out on quality interaction with my brother. When the phone is removed, I feel like I can connect to him and joke around with him." - Participant1



Participant 2

"As soon as I can recognize a space or trust my hearing, the game is taken out of it." - Participant2

"I was like, did he really put it up there!?" - Participant2

RESULTS

Picture Search

The moment of reveal is the most valued experience of the interaction. When placed in an unexpected place, the enjoyment of finding it is higher.

Pictures give a clear hint on where the object is. There is not a big challenge to it, but it does make sure the object will be found.

Being able to return the challenge to someone else keeps the game dynamic and interesting.

The challenge is experienced as a personalized present.

Phone sound search

Having to search for something with a lot of people around can be an embarrassing activity.

An audio interaction can be annoying if it is too prominent or uncontrollable.

Having to really search for an object before finding it increases the sense of achievement.

Capabilities of the phone can make or break the enjoyment of the interaction. Keeping it simple can lead to more people enjoying it.

The more mystery is involved, the more enjoyment is felt.

Object sound search

Using an unorthodox hiding place causes the seeker to be surprised when finding the object.

Using a clear indication of the place of an object (with audio or a picture) takes away the challenge of finding it.

If the smartphone is involved, there is a concern that joking around and connecting on a real level is more difficult.

Having the sound come from the object itself makes you feel like you are interacting with a system instead of an app.

KEY INSIGHTS

use phone audio as the core challenge

Using audio from the phone creates the most enjoyable challenge for the user to find the product.

Expand on the moment of reveal

The moment of the object reveal is highly valued in the interaction. When placed in an unexpected place or when the challenge is increased, the enjoyment of finding it is higher.

Keep it accessible to all phones

Keeping the design simple and accessible for all types of phones can include more people that will enjoy it.

Keep smartphone use nuanced

If the smartphone is involved, there is a concern that joking around and connecting on a real level is more difficult.

Return the challenge

Being able to return the challenge to someone else keeps the game dynamic and interesting.

Use objects as personal rewards

All hidden objects are experienced as a personalized present.

8.3 FAMILY TESTING

GOAL

After the seeking exploration a big progression is made in the conceptualisation of the initial fight to hide concept. This concept is tested with the families involved to further develop the concept.

The goal of these user test sessions is to further understand which parts of the concept achieve the desired interactions and how specific functionalities influence these interactions. Digital and tangible possibilities are explored to find the right balance for family interaction. Based on these findings the concept can be improved to achieve a product in line with the design focus.

RQ: Which elements of the concept lead to the desired interactions that contribute to a connected family?

METHOD

I conducted user test sessions with 3 of the 4 families. The session is split into three parts:

1. Experiential testing
2. Co-creation
3. Closing survey

The entire session follows a session script (appendix 6A.) accompanied by a semi-structured interview setup (appendix 6B.). The sessions are recorded and transcribed. All experiential parts of the session are video recorded and later observed to further identify interaction qualities.

Insights are gathered by analyzing and combining the data from the video observations, surveys and the transcripts. The full results of the analyses can be read in appendix 6C.

Before conducting the test with end users, the session is iterated upon based on the feedback of fellow master students and a middle school teacher to ensure the test would run smooth and be suitable for kids and parents.

EXPERIENTIAL TESTING

In the first part families can explore and experience the main elements of the concept. This involves scanning the object, leaving a call, leaving a video message, hiding the object, finding the object and receiving the video message.



Figure 65. Son scanning the object.

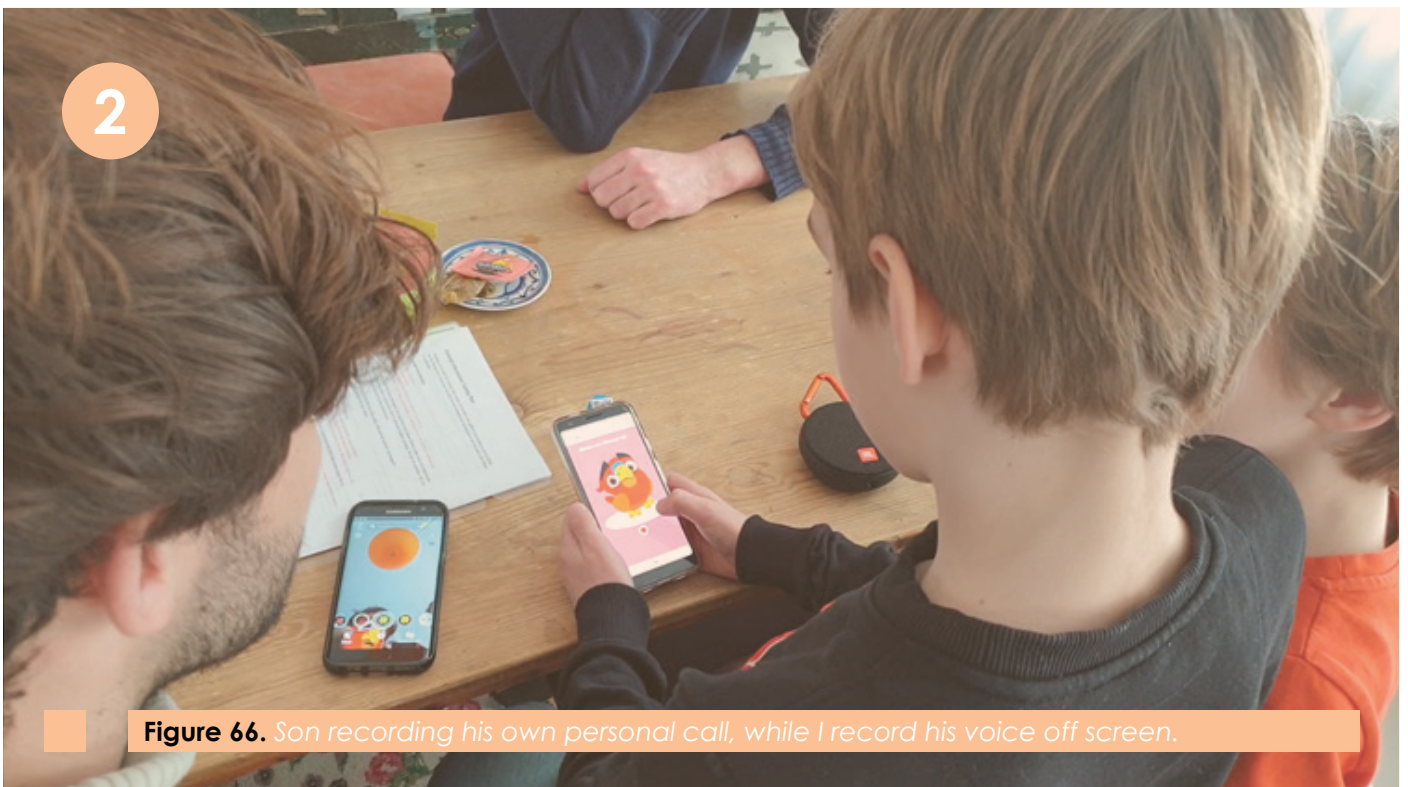


Figure 66. Son recording his own personal call, while I record his voice off screen.

Participants can scan the object by using an AR code (Figure 65), which opens a website representing the app (Figure 66).

The website allows the participants to add their name, and record a call. When the call is recorded I secretly record them with my own phone, connected to a Bluetooth speaker.

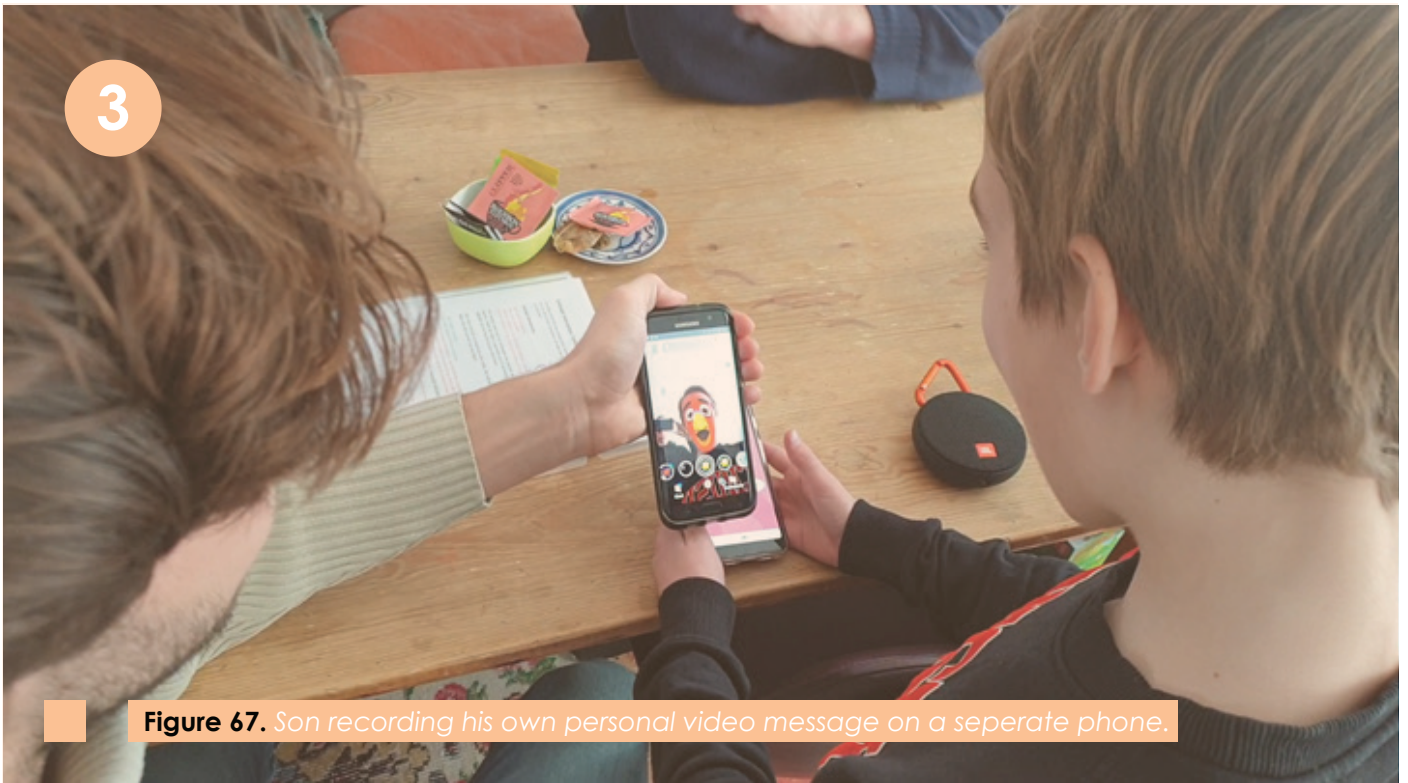


Figure 67. Son recording his own personal video message on a seperate phone.



Figure 68. Son hiding the object.

When the participants are asked to leave a video message (Figure 67), another phone is provided capable of recording the personal message.

After hiding the object (Figure 68), I place the speaker next to the object. Now its up to the next participant to find it.

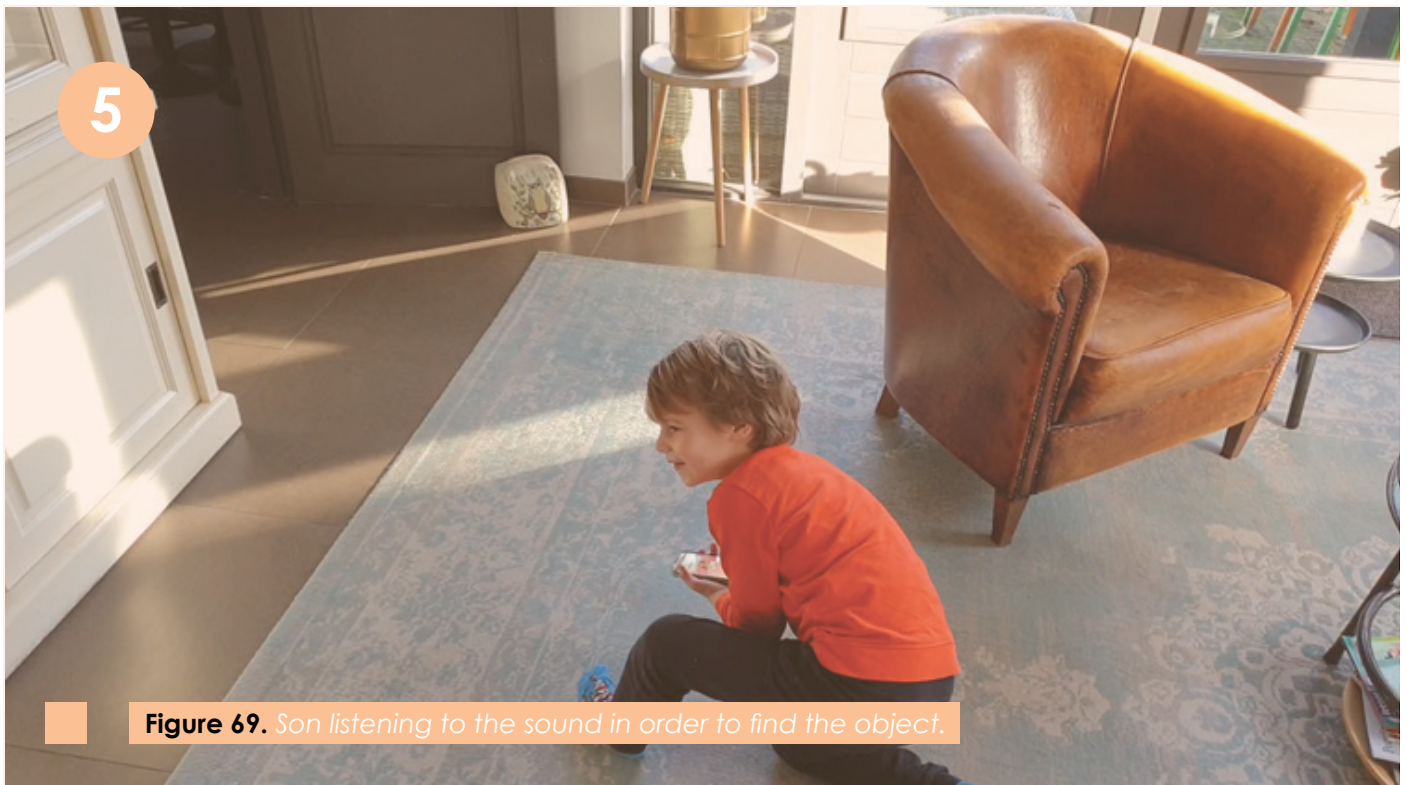


Figure 69. Son listening to the sound in order to find the object.



Figure 80. Son proud of himself finding the object, which lets him view the recorded video

The seeker is provided with a phone, which tells the participant to tap the bird on the screen in order to find it. When the bird is tapped I play the recorded sound on my phone, which is transmitted to the Bluetooth speaker. This allows the participants to find the object. Subsequently the recorded video is shown to the finder of the object.

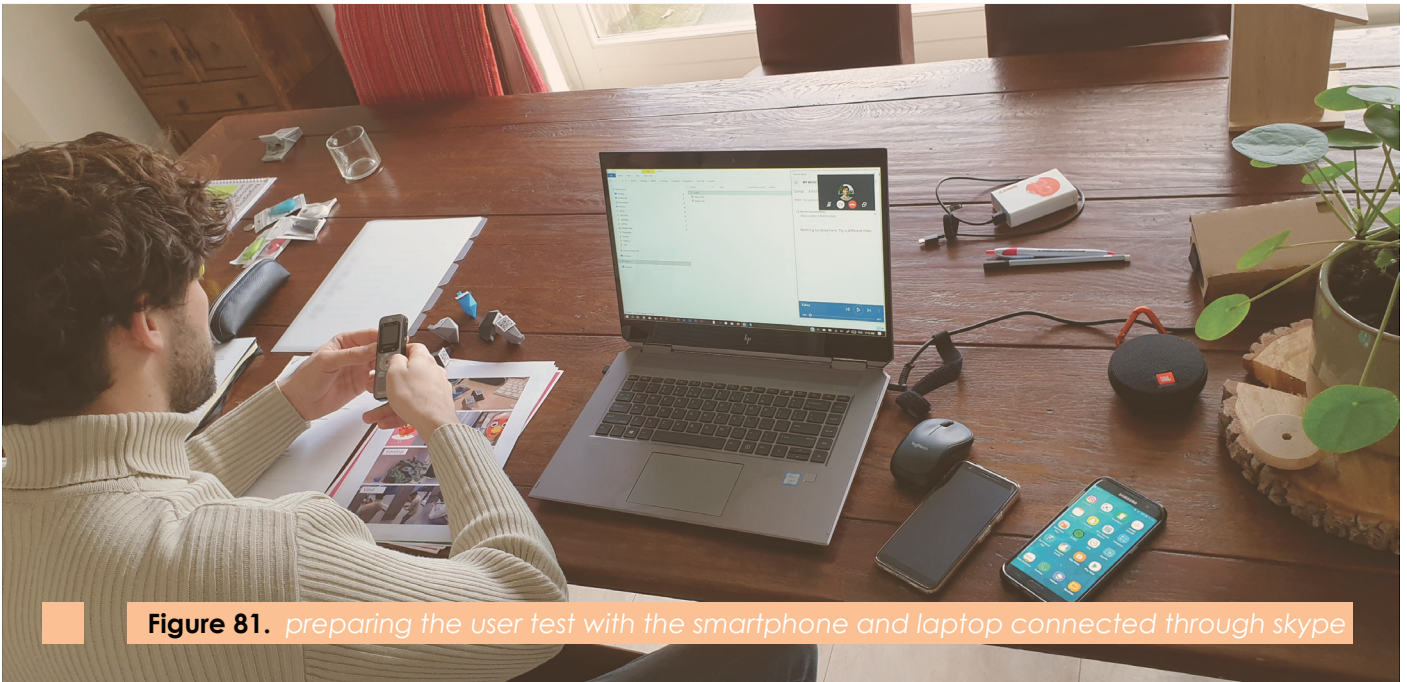


Figure 81. *preparing the user test with the smartphone and laptop connected through skype*



Figure 82. *Mother trying to find the object by listening to the sound intensity on her phone*

The participant is now asked to hide the object again in order to test a different interaction. The process is repeated but this time the seeker is told to find the object based on the loudness of the sound coming from their smartphone.

When all tasks are completed, the family is invited to share their thoughts and opinions based on their own experiences.

CO-CREATION

The second part is focused on showcasing more expansive functionalities the concept could allow. Visuals (appendix 6E.) and objects are provided as well as videos and audio to keep the interview interactive and interesting for both kids and parents. The families are invited to discuss and share their opinions on how the provided functionalities would influence their behavior. They are free to expand on the ideas and give their own input to improve the concept.

During the co-creation, Rapid videotypes are applied to dynamically sketch interaction scenarios such as this one



<https://youtu.be/48B3461rwrs>



Figure 83. Family discussing the possibilities of Augmented Reality.

Ideas are mostly presented through the means of visual prototypes which illustrate the function in a simple but clear matter. Other ideas are presented through the means of animation or video, communicating the impact of such a function in a more elaborate way.

SURVEY

To close off the session, surveys (Figure 86) are presented in order to provide families one final opportunity to share what they think adds the most value towards their family connection. These are mainly used as a discussion tool to verify the statements made during the entire session. The survey with its corresponding results can be found in appendix 6D.



Figure 84. Video prototypes showcasing new ideas.

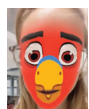


Figure 85. Visual prototypes used to illustrate different ideas.

Naam

Wat vind je het leukste aan het concept?

Welke functie is het belangrijkste om het met jouw gezin te spelen?



Het achterlaten van een persoonlijk video bericht

Niet belangrijk

Heel belangrijk

☐ ☐ ☐ ☐ ☐ ☐ ☐



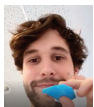
Het gebruiken van een eigen lokroep

☐ ☐ ☐ ☐ ☐ ☐ ☐



Het verstoppen en vinden van de spotters

☐ ☐ ☐ ☐ ☐ ☐ ☐



Het terugkijken van iemands expeditie

☐ ☐ ☐ ☐ ☐ ☐ ☐



Het verzamelen van meerdere spotters

☐ ☐ ☐ ☐ ☐ ☐ ☐



Het kunnen claimen van andermans spotter

☐ ☐ ☐ ☐ ☐ ☐ ☐



Notificaties ontvangen als je langs loopt

☐ ☐ ☐ ☐ ☐ ☐ ☐



Beelden die je helpen tijdens het zoeken

☐ ☐ ☐ ☐ ☐ ☐ ☐



Kunnen zoeken met augmented reality

☐ ☐ ☐ ☐ ☐ ☐ ☐

Leg in eigen woorden uit wat je de belangrijkste functie vindt voor jouw gezin



Figure 86. the survey that is mainly used as a discussion tool.

RESULTS

Sending hidden messages is at the core of family interaction, playing with it a second.

Parents see more functional uses while children enjoy the playful applications. Both parents and children however describe similar types of interaction when talking about leaving personal messages for each other (e.g. surprising each other with a secret message when they arrive home or leaving a message inside of their bags). While children envisioned other ways of elaborate play with the concept, the desire from parents to participate in them was not always shared.

"I would probably play it as a game with my friends and with my sister. If dad would work at home though I would hide it in his office. Then suddenly while he's working, everything will go off!" – Daughter13Fam1



"I do enjoy the idea, but I'm not really a gamer. I can imagine myself hiding something for the kids when they come back from school. You can do a lot of funny things with that ofcourse." – MomFam2



The top 4 survey results for both parents and children include: Hide & Seek, Call, Collecting & Video Message.

(Younger) Children tend to lay a bigger focus on the adventure of searching for the object. They rate the aspects related to the searching experience higher than the parents (Rewatching the expedition & the AR capabilities). Older children do indicate that the messaging part is essential for the concept.



Downloading an app on own phones is not seen as a problem.

No parents had any concerns in downloading an app, as long as it would not use too much space on their phone.

"You just need to have it as an app. If it is not too heavy it is fine. Everybody should be able to play on their own phone."
– MomFam2



Set sounds are appreciated by less creative and spontaneous families

Less spontaneous families prefer to have the option of a set call, as they are more likely to use the concept in a more functional way.

"I think a combination would work best. set sounds for the lazy people and own ones for the creative ones."
– MomFam2



Personal input leads to own type of play

The concept is improvisable in many ways, thanks to its focus on personal input at several stages of the interaction. Family members can decide where they hide the object, what kind of call they want to record and what they want to say. This provides families with a canvas of ideas and usages of the concept.

"Many ideas pop into my mind. I imagine myself at work, putting a character on the playstation saying: "stop gaming and do your homework". – MomFam3



"I would use it to break the daily grind. When my daughter is upstairs studying I would leave her a thing that would suddenly start saying things." – Momfam3



"For a message or a surprise! Let's get cookies or let's get some pizza tonight."
– Dadfam3



Adding an extra dimension to placing the object allows for enriching play.

Creating such a concept can improve the humorous effect of the interaction, with more possibilities to surprise your family members. It would also serve to give a bigger value towards the physical attributes of the product.

"With suction cups you could hang it in the toilet." - MomFam1



"I have seen your big butt! Yes I like that, then I can hang it on the ceiling, or on the lamp!" - Son9Fam1



Sounds coming from the phone itself are preferred by families.

Nearly all family members reported to prefer the smartphone making the sound, stating that sound from the object itself would make it too easy to find.

"I thought the smart-phone sound was way more enjoyable, as this was kind of a challenge instead of just searching for the object."

- Son13Fam3



A small and “beautiful” 3D object is desirable by family members. This can keep the object from being thrown away.

Parents and a few children expressed their desire for a 3D object that would be compelling to look at. This in order to not have to throw away the object.

“It would be nice if it would really be a pretty object that you would keep in your living room. Maybe out of wood, something sustainable and simple..” – MomFam3



“I would prefer something 3D. If it's a sticker I think I would lose it...It does need to be small though.” – Daughter13Fam1



“If it wouldn't be pretty or nice to look at, it would just be in the way.” – Son13Fam3



The nest idea is valued both in physical and digital form

Having a place to keep the objects both tangibly and physically is something parents and children wish for.

“Then you really create your own environment. I really really like, I really do. The concept of us having such a game together with an app, yes I would thoroughly enjoy that.” – MomFam3



“Yes me too! Than you can see whether your collection is complete or not.” – DadFam3



The concept evokes humorous types of interactions at different touch points.

Based on the behavior of children and parents, the concept is enjoyed through its ability to poke fun at yourself or others. The audio filters and lenses are enjoyed as an opportunity to make fun of yourself while hiding the product itself with the call and messages is used to make fun of others.

Based on the video analyses people enjoy hiding a spotter in a place where they will not be able to find it. They get satisfaction from finding an original or hard to find spot. They are already laughing when they think about how people will not be able to find it. They enjoy watching the seeking take place, especially when the seeker can not find the object.

"Hiding the object is really fun. You really could not find it hahahahaha."
- Daughter9Fam1

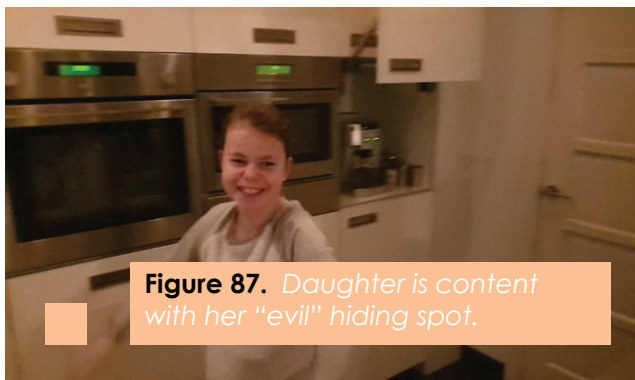


Figure 87. Daughter is content with her "evil" hiding spot.

MomFam3 survey data:

"Collecting together and poking fun at each other through the use of little messages " is the most enjoyable feature



Families expect to pay money for this concept.

Multiple people asked me what the product would cost, replying surprised when I told them they could be getting them after buying groceries.

"To give it away for free? I'm thinking it should cost something!" - MomFam1



"I think it should cost money. It is such a thing that you should not be able to get for free, that's what I think." - Son9Fam1



The call and video message of the concepts are valued because it makes the concept more personal.

Families mention they enjoy the fact the concept allows them to personalize their own experience, more notably the personal call and video message.

"Everybody has a different taste, for example mom loves pink while I'm more into green. Everybody needs their own." – Daughter9Fam1



"Mostly I find it hysterical (the chirp / call). It invites everybody to do something personal with it." – MomFam3



"You can adapt it to the level of the child. With little ones you can maybe give some hints inside your call, for example: 'look near the lamp.'" – MomFam1



"The searching thing already exists, but with the lenses and the call you turn it into something personal. That's the heart of the story." – MomFam2



The audio (and video) functions are regarded as valuable assets of the concept, as the call is rated second right behind hiding the object.



Spotted function can cause a surprising and spontaneous effect.

By using the notification together with the call, the interaction can become more spontaneous.

"Then you're not telling that you hid something, then it would be a kind of surprise!" – MomFam1



The interaction of hiding and finding your personal message makes it special and appreciated.

Parents and children value the effort of searching for their message. It makes the entire message more worthwhile to find and enjoyable.

"When I get a Whatsapp message I think "I already get thousands of those". If you have to get off your chair and put some effort into it... that's what makes it more enjoyable." - MomFam1



"The way in which you find the video, that's what I like. That combination is strong." - Daughter13Fam1



Both parent & child value the ability to play hide & seek with the object. According to the statistics they see it as a core feature when it comes to playing with the family as Hide & Seek is the top rated function.



Functional simplicity is attractive for parents.

As stated before, parents are not "gamers". They generally prefer simple usage over multiple features of the design.

"The simplicity of the concept makes it appealing. I especially enjoyed the simple interaction." - MomFam2



When it comes to receiving notifications, control of it is most important.

When notification functions are discussed, many parents react positively. However, when elaborating on these type of functions, they all desire the option of turning off the notifications if necessary.

"You need to be able to turn it off. In the weekend I think it could be fun."
– Dadfam1



Digital rewards like lenses and audio filters can be a good alternative for physical collecting.

Children reacted positively towards the idea of digital collectibles.

"Yes that would be cool. Maybe the voices can also match with the birds that you have." – Daughter13Fam1



figure 88. young children can spend hours just playing with filters.

AR and visual aids are fun, but appreciated less than the messages.

There is no negative reaction towards the visual aspects that help to find the object. These aspects are however not found essential. The survey supports this by having the top 4 functions among children and parents be the hide and seek, call, video message and collecting.

"I find it fun, but I like the messaging aspect better." - DaughterFam1



Abstract object shapes add to the element of surprise.

Families mentioned the value of an unrecognizable object, stating they would be fine with the appearance of the single colored object as it is.

"When I scan it, that's when I want to know how the bird really looks like..I want it to be a surprise." – MomFam2



KEY INSIGHTS

Sending "secret" messages is at the core of family interaction, playing with it a second

Parents see more functional uses while children enjoy the playful applications. Both parents and children however describe similar types of interaction when talking about leaving personal messages for each other.

The interaction of hiding and finding your personal message makes it special and appreciated

Parents and children value the effort of searching for their message. It makes the entire message more worthwhile to find and enjoyable.

The call and video message of the concepts are valued because it makes the concept more personal

Families mention they like that the concept allows them to personalize their own experience, more notably the personal call and video message.

Personal input leads to own type of play

The concept can be improvised on in many ways, thanks to its focus on personal input at several stages of the interaction. Family members can decide where they hide the object, what kind of call they want to record and what they want to say. This provides families with a canvas of ideas and usages of the concept.

Adding an extra dimension to placing the object allows for enriching play

Creating flexible hiding spots can improve the humorous effect of the interaction, with more possibilities to surprise your family members. It would also serve to give a bigger value towards the physical attributes of the product.

Sounds coming from the phone itself provide a satisfying challenge

Nearly all family members reported to prefer the smartphone making the sound, stating that sound from the object itself would make it too easy to find.

8.4 AR EXPLORATION



Figure 89. Line-up of birds with each their own unique shape.

While continuously developing the concept based on the input from families, Time is taken to explore one specific aspect of the concept. I take a deeper dive into AR technologies, making sure the eventual concept is a viable solution.

GOAL

AR prototypes are created to test and validate which options are viable for a future design proposal.

METHOD

With the help of Unity and Vuforia the prototypes are made experiential. With the consultancy of the VR-Lab from the TU-delft and advice from AR expert Sander Veenhof a recommendation for the design is established. There are two methods deemed viable to explore, in which an object can be tracked: Image recognition and object tracking.

IMAGE TRACKING

Image recognition utilizes a flat image with high contrast visuals to recognize an objects position and orientation. A QR code (Figure 90) is an example of such a target, but in theory any picture can be used.

Initial expectations are that the individual birds should be easily recognizable by their simple and distinct aesthetic appearance (figure xx) using image tracking, featuring high contrast and unique geometrical shapes.



Figure 90. A QR code.

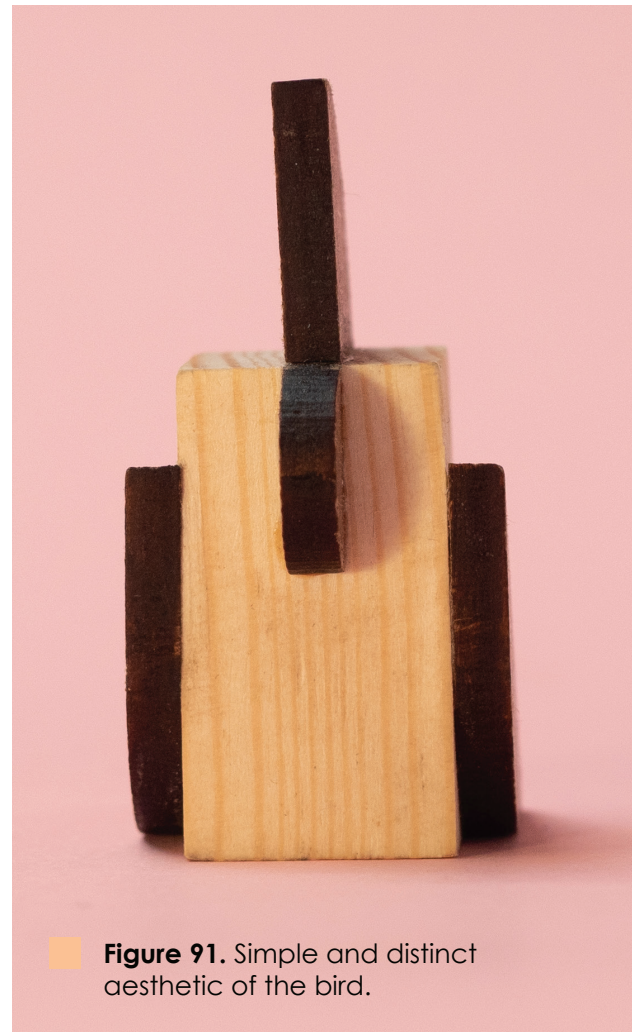


Figure 91. Simple and distinct aesthetic of the bird.

However, multiple tests with image recognition proved to be unsuccessful, as not enough recognition points could be acquired to obtain stable tracking (Figure 92).

Simplistic images (Figure 93) with similar amounts of recognizable points are found working on different kind of software, making it fair to assume the objects can be recognized. For experiential prototyping however, another solution is necessary.

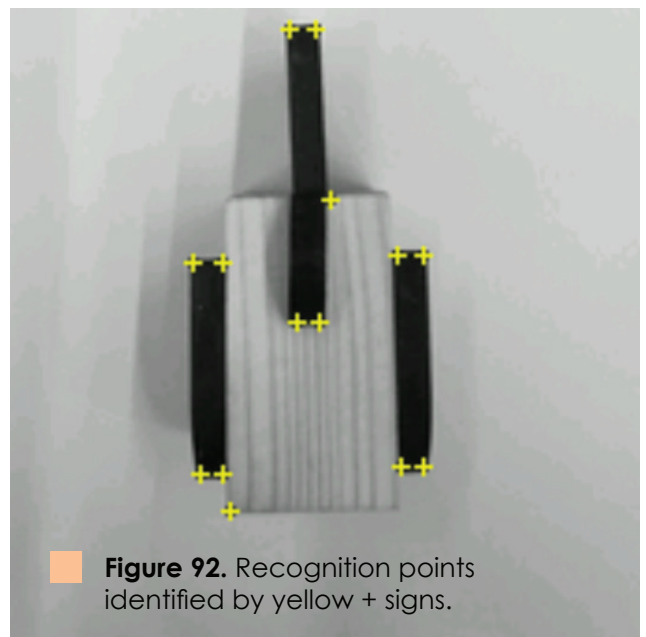


Figure 92. Recognition points identified by yellow + signs.



Figure 93. Binary object image.

OBJECT TRACKING

Object tracking (figure 94) utilizes the 3D features of an object as well as its contrasting features in order to determine its position and location. Once again the tracking quality is determined by high contrast and sharp edges.

Expectations for this method were high, as the objects are designed to have recognizable shapes from different angles. However, when testing this method proved to be unstable as well.



Figure 94. Object tracking setup.

EXPERT CONSULTANCY

To find a solution, the VR-Lab of the TU-Delft and augmented reality expert Sander Veenhof are consulted. After discussing different approaches, altering the birds appearance to create a more distinct appearance for the image recognition is deemed to be the most accessible.

Different geometrical designs representing the bird's fur are created which lead to positive image recognition results Figure 96. When developing a unique application, it



Figure 95. Object with a trackable image target.

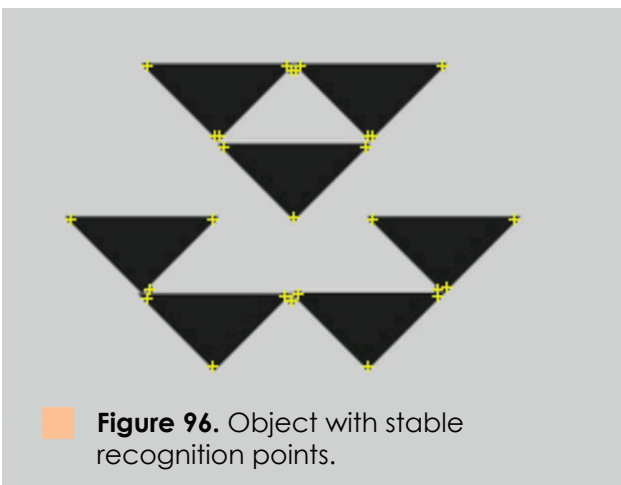


Figure 96. Object with stable recognition points.

Conclusion

is fair to assume the geometrical shape of the birds can be used to recognize the object's position and orientation.

However, with no succesful way of prototyping this without extensive programming, **the image recognition based on triangles (or other detailed images) is recommended.**

Phase IV

Take aways

IDEA TO CONCEPT

Fight to Hide is selected as the concept to experiment with.

The Fight to Hide concept is selected based on its ability to be utilized in multiple ways, which lets both children and adults find their own usage of the product.

This way the entire family can enjoy the interaction equally.

EXPERIENTIAL PROTOTYPING

Playtesting resulted in specific insights.

The interaction should not feel like another task on the family to do list.

The seeking exploration managed to explore the balance between digital and tangible seeking methods.

Using audio from the phone creates the most enjoyable challenge for the user to find the tangible object.

Testing with families led to many valuable insights.

Sending "secret" messages is at the core of family interaction, playing with it a second.

The interaction of hiding and finding your personal message makes it special and appreciated.

The call and video message of the concepts are valued because it makes the concept more personal.

The concept can be improvised on in many ways, thanks to its focus on personal input at several stages of the interaction.

Adding an extra dimension to placing the object allows for enriching play.

AR explorations led to specific AR recommendations.

With no realistic way of prototyping object recognition without extensive programming, image recognition based on triangles (or other detailed pictures) is recommended.



DELIVER

SHOWCASING AND EVALUATION THE DESIGN PROPOSAL

The first chapter provides a general overview of the final design and its fluid play journey. The following two chapters zoom in on its digital and tangible elements. Next, a loyalty journey is proposed for the design proposal. The chapter concludes with validations and recommendations.

9 Design proposal

- 9.1 Design overview
- 9.2 Fluid play journey

10 Digital aspects

- 10.1 The birds
- 10.2 The application

11 Tangible aspects

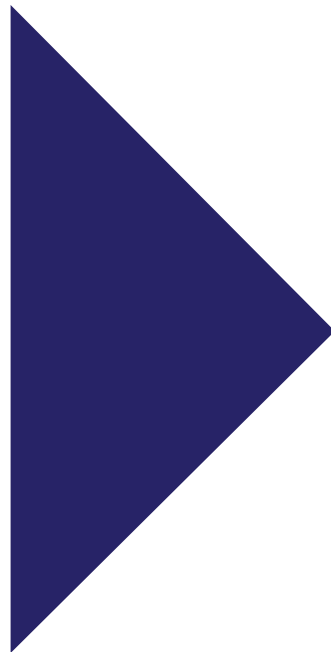
- 11.1 The birds
- 11.2 The nest

12 The loyalty campaign

- 12.1 Loyalty journey
- 12.2 Loyalty model
- 12.3 The supermarket
- 12.4 Sustainability

13 Validation

- 13.1 Family validation
- 13.2 Expert validation
- 13.3 Design focus
validation
- 13.4 Recommendations



9

DESIGN PROPOSAL

DEFINE

INTRODUCING THE FINAL DESIGN AND ITS FLUID PLAY JOURNEY

The first section provides a global overview of the design proposal by means of a showcase video. The second section directs the attention to the fluid play journey the design facilitates.

Chapter Overview

9.1 Design overview

9.2 Fluid play journey





Figure 97. The FliereFluiters

9.1 DESIGN OVERVIEW

WHY

Digital and smart devices are ingrained within modern family life. While they provide many benefits like working from home, entertainment and communication from a distance, they also create a social gap between parents and children. The digital interests of parents and children often do not align, as parents are reluctant towards digital play, creating a barrier in shared digital play. It would be valuable to break this barrier, as adults and children are more likely to be happy in general and feel more connected with their family members when they spend more time playing together (Ginsburg, K. 2007).

**Scan the QR code
for the video!**

WHAT

FliereFluiters are one weird collection of crazy birds for the entire family.

These personal little birds want nothing more than to surprise you and your family with spontaneous messages. For the biggest surprise they seek the weirdest places and with their unique personality they give every message a unique flare.

They get bored when there is nothing to tell, so use them to make your messages feel special again.

HOW

By carefully utilizing tangible with digital elements in one fluid play experience, FliereFluiters compels to both children and adults, breaking the digital wall amongst family members. By combining a personal, physical but most of all humorous activity within this experience, FliereFluiters enables a family connection, one surprise at a time.

FliereFluiters

Voor de leukste boodschapjes!



<https://youtu.be/jnimssQX7o4>



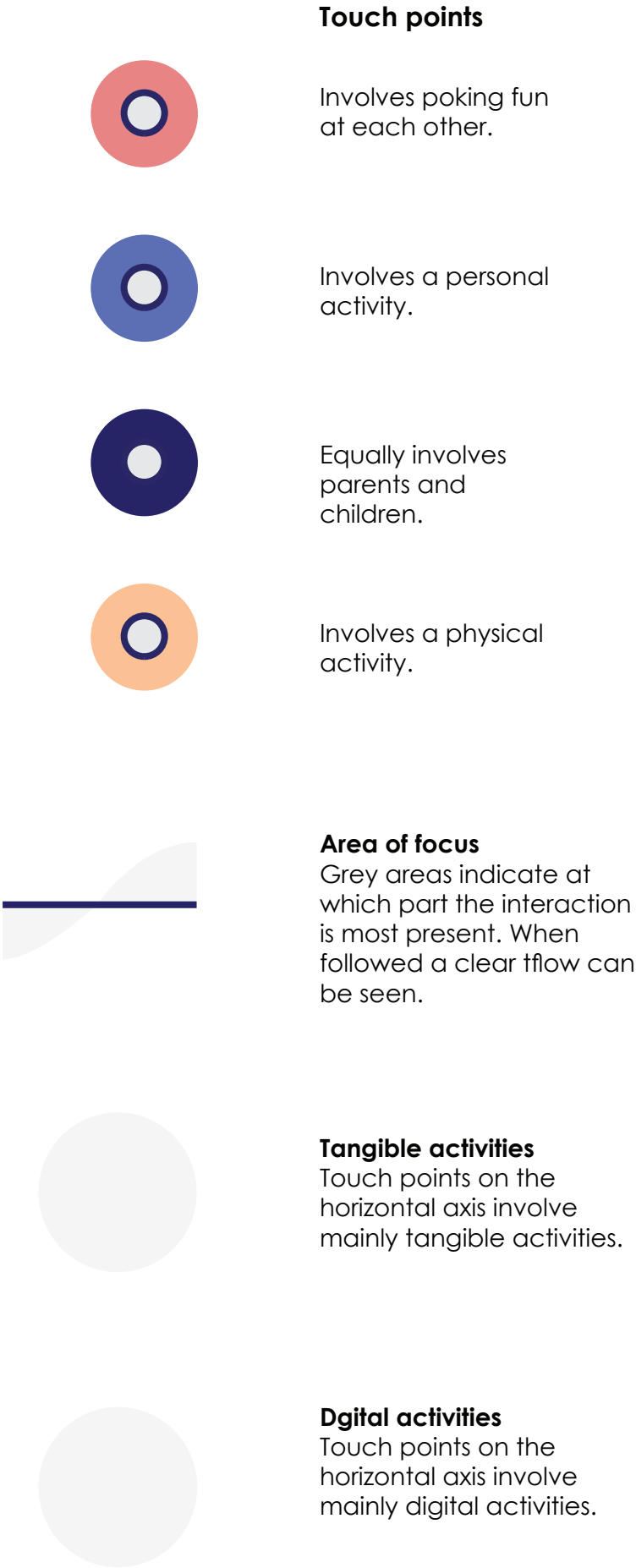
Figure 98. FliereFluiter poster with access to the showcase video.

9.2 FLUID PLAY JOURNEY

To illustrate the general flow of the designed interaction through tangible and digital elements, a fluid play journey is created. Throughout the journey the main touch points with the product are shown, indicating when they involve several aspects from the design statement. While some touch points take place on both the tangible and digital axes at the same time, the journey indicates which area is most apparent.

A reading guide is provided to help understand the visual. Touch points with their relation to the design parameters and context factors are discussed in more detail in the design focus validation.

Reading guide

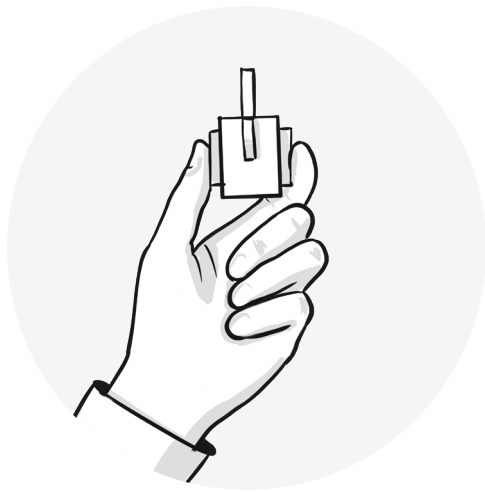


■ **Figure 99.** Fluid play journey reading guide.

Tangible

Selecting a bird

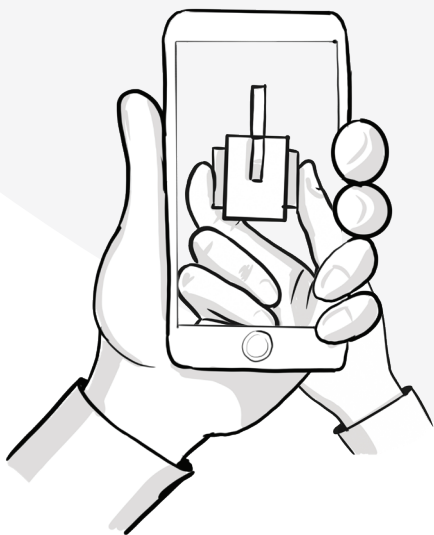
Family members can choose between different birds, showcasing different personalities. When not in use they are resting on top of the physical nest.



Digital



Figure 100. Fluid play journey.



Scanning the bird

By scanning the bird with your smartphone, the bird will be visible on your phone, mapped over the tangible object.



Recording the chirp

By recording a sound notification in the form of a personal chirp, you are creating a sound which will help other family members to find your bird later on. Sound effects can be added to the chirp which allow for more personalization.

Recording the message

By recording a personal message, the bird mimics your facial expression and adds its own personality to it. Attributes can be added to the bird which allow for more personalization.



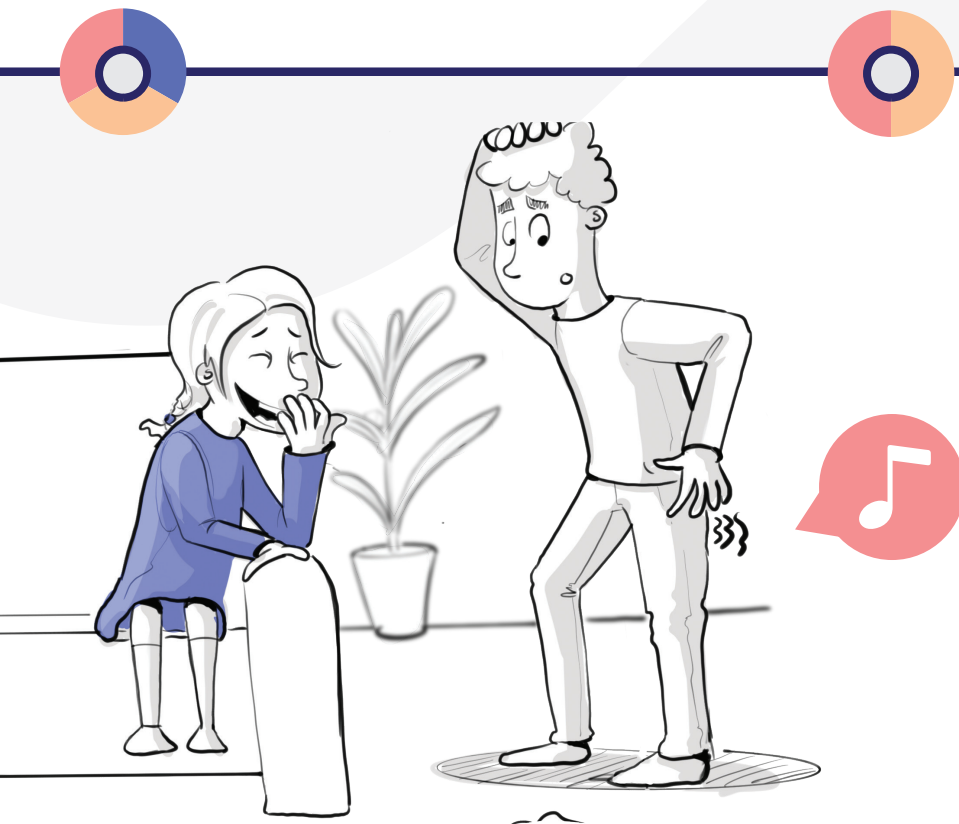
Hiding the bird

Hiding the object in specific places will determine how and when the object will be found. Generally the messages are open for anyone but by digitally selecting a specific family member you can make the message more personal.



Searching for the bird

The receiver will look in the real world, trying to find the tangible wooden bird. By opening the app and pressing their screen, the receiver can hear whether they are getting close to finding the bird based on the volume of your chirp.

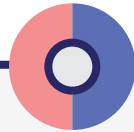


Receiving the chirp

If the receiver of the message gets within the 3 meter range of the bird, they will receive your personal chirp through their phone, together with a notification.

Finding the bird

The object is found in the place that it was hidden.



Watching the message

The bird is scanned and the personal message is shown through the tangible bird. The message is viewed together or separately depending on the situation. When the message is found, the hider will receive a notification, informing them of their bird being found. This can create new conversations later on, besides the initial message from the bird.

Bring back to the nest / repeat the process

The receiver of the message can now choose to also send a message using this bird, or to return it to the nest.



10

THE --- DIGITAL

DEFINE

SHOWCASING THE DIGITAL ASPECTS OF THE PRODUCT

The chapter opens with a closer look at the birds and how they manifest themselves in the digital environment. The chapter concludes with an in-depth look at the application created for the design proposal.

Chapter Overview

10.1 The birds

10.2 The application





■ **Figure 101.** Showcasing the digital and tangible nest.

10.1 THE BIRDS

Why Birds?

Birds are used as the form language of the product. There are multiple reasons behind this. To start, carrier pigeons have been used by humans to send messages to home, relating back to the aspect of messaging and family. Secondly birds are known to imitate human behavior, most notably parrots. This aspect of birds is translated to the digital appearance and behavior of the birds, showcasing human personalities and emotions. Lastly birds also use a nest for themselves where they take care of their young ones, relating everything back to family life. Next to this, "little birds" are also used in the English language to refer to secret messengers.

Type of birds

Many sources, including those of Vogelbescherming Nederland (Vogelgids, 2020) were used to create a first selection of birds. The type of birds are chosen based on two criteria. The first criteria is diversity, as to make every design as unique as possible. For this reason many exotic birds are included in the designs. The second criteria is that of recognizability. If a bird is recognizable and known to parents and children, they will relate sooner to the characters. Not to be ignored, the success of loyalty campaigns is enhanced when children can identify and relate to the characters used, according to UNGA.

Use of language

As the product is meant to enable "poking fun" at each other, the birds should also set the tone for this kind of behavior. The theme of birds is also applicable here, as there are many cheeky jokes to exploit (Both in English and in Dutch), some more subtle than others. The birds are intended to use this kind of language when first encountering them, setting the tone for further use. The choice is made to use text balloons here instead of a voice over as users will be using their own voice to control the bird later on.

Appearance

Digitally the birds show their expressive and colorful nature, in contrast with their physical appearance. This is done to make them more attractive towards the children.

Ettcoff and Magee (1992) showed that in some cases facial expression provides a means of communicating emotions that is even more effective than verbal expression. By making emotions more expressive through the visual personalities of the birds, this can potentially have a positive effect on the communication within families.

Personalities

Different personalities are given to the birds to create a rich diversity in the type of messages family members can send. By giving the birds distinct personalities, it gives family members a set example to follow, which can inspire them to send messages they would normally not have thought of. Next to this it also gives family members the opportunity to have their own favorites, matching with their own personalities. A set example is also important for "less creative people" to use the product effectively, as mentioned in the results of chapter 8.3.

The decision is made to influence the bird's behavior and facial expressions with your own facial expressions. Instead of applying filters. This was done to achieve a clearer connection between tangible object and digital content, when compared to the face filters used in the family test.

To create a diverse palette of personalities, a set of positive and negative emotional typology by Pieter Desmet is used as a guideline (appendix 7). Emotions are selected based on their diversity but also on their ability to be used in humoristic ways. Negative emotions are deliberately balanced with positive emotions. This is done to give room for emotions specifically enjoyed by children, but to keep the overall concept appreciated by parents. With 12 birds a balance is eventually found that manages to provide emotional diversity without being overly specific. A final translation of the personality name is adapted to fit with the specific birds in question and with the vocabulary of young children in mind.

While these birds are created with a relation to a specific set of emotions, they are of course not limited to only expression these. If you give it a try you are probably capable of connecting these birds to different types of emotions than they originated from. This type of use is perfectly fine as the diverse personalities and appearances of the birds are meant to ignite a specific type of message, which does not have to be in line with its original purpose.



Hé jij daar!
Ik ben Lawaai Papegaaï en ik houd van de meest
ondeugende boodschapjes. Volgens mij is het tijd
om een gekke streek uit te halen!



LAWAAI PAPEGAAI

Originating from antagonism

Ontzettend bedankt dat ik jouw boodschapje
mag doorgeven. Ik ben dankbare dodo, en ik ben
al blij met de kleinste dingen. Laat me weten
als jij iemand ergens voor wilt bedanken!



DANKBARE DODO

Originating from gratification



VREEMDE EEND

Originating from all kinds of things

Ik als razende raaf kan hier zo vaak kwaad om worden he! Moet je mij nou echt hebben jij uitskijken!? Hopelijk heb je iets negatiefs te melden anders is mijn dag ook weer verpest..



RAZENDE RAAF

Originating from provocation & aversion

Yooooo,
goed jou te zien. Ze noemen me tamme toekan,
vertel me iets relaxed en ik ben je man. Maar
onthoud, hou het rustig.



TAMME TOEKAN

Originating from peace

OMG!

Je kiest mij? Voor jouw bericht? Ga weg!

Nee...Nauw!

Ik ben perplex...pelikaan!



PERPLEX PELIKAAN

Originating from cognitive overload

Je kent me nog niet? Ik sta bekend als de enige echte trotse pauw. Ik ben de allerbeste in alles dus elk boodschapje is voor mij simpelweg een fluitje van een cent.



TROTSE PAUW

Originating from (over)confidence

Sorry als ik me voorstel,
maar ik ben spijtende specht. Ik doe het
misschien niet altijd goed maar ik zal mijn best
doen voor jouw bericht.



SPIJTENDE SPECHT

Originating from transgression

Hallo daar lieverd,
ik ben de zorgzame zwaan en bij mij kan je
altijd je ei kwijt. Met mij spreid je liefde naar
iedereen om je heen.



ZORGZAME ZWAAN

Originating from love

WOHOOO!

Ik ben aanmoedigende arend en ik vlieg elke boodschap in met enthousiasme. Spreek nu vliegensvlug je boodschap in jij topper!



AANMOEDIGENDE AREND

Originating from excitement

NAAAAAA wat gebeurt er!?

Ow jij bent het. Ik ben paniek pinguin en ik schiet helemaal in de stress van je. Hopelijk kom ik nog op tijd om jouw boodschapje door te geven!



PANIEK PINGUIN

Originating from (un)certain threat

Een interessante keuuuuuuzze.

Als de wijze uil geloof ik dat er van elk
boodschapje iets te leren valt. Ik kan niet
wachten om jouw kennis met mensen te delen.



WIJZE UIL

Originating from interest

10.2 THE FLIEREFLUITER APP

This chapter provides a complete overview of the interactions made possible through the app. The app is divided into several modes which coincide with different phases within the fluid play journey. For each mode a visual is provided and its function is explained. Modes can be identified by a red square on every top left page corner.

USABILITY

The entire app is designed to facilitate a fluid play experience, however no complete working app was developed during this thesis. For this reason it is recommended to create a fully operational prototype to further assess its usability.

With that said the FliereFluiter app takes inspiration from existing apps already in use by families. Examples are the Netflix family account interface and the Snapchat messaging interface. This is done to create recognition amongst families, increasing the probability of achieving an intuitive and fluent interaction.





Figure 103. FliereFluiter App overview.

Setup

A shared nest

When the app is first downloaded, an account needs to be created. You are asked to create a shared nest, which will be linked to a supermarket account. When directed through the supermarket app (see chapter 12.2), the apps are linked automatically.

Family account

Inside your nest you can add multiple users, without having to link them to a specific phone. As people often have a shared Whatsapp group within their own family, Whatsapp is used to invite people to your family account.

The general setup proposed is similar to how services like Netflix currently operate, making the setup feel like a familiar experience.

When the app is first installed, some functions will not be accessible, as birds have yet to be unlocked. The first thing that needs to be done is enter the spotting mode, which the users will be guided to through the nest.



■ **Figure 104.** The Setup.



Flappen tappen

The FliereFluiter app will be connected with your personal supermarket app. Whenever groceries are done at the supermarket the “flappentap” will appear in the home screen. Here you can collect your flappen by blowing in the microphone. The amount of flappen depends on the amount of money spend on your groceries.

Digital rewards

The shop is the place where you can spend your flappen on different sound filters and attributes for your birds to use. Some attributes can only be unlocked when you have a specific bird in your family. This way an extra incentive for multiple birds is created, as well as introducing new elements step by step.

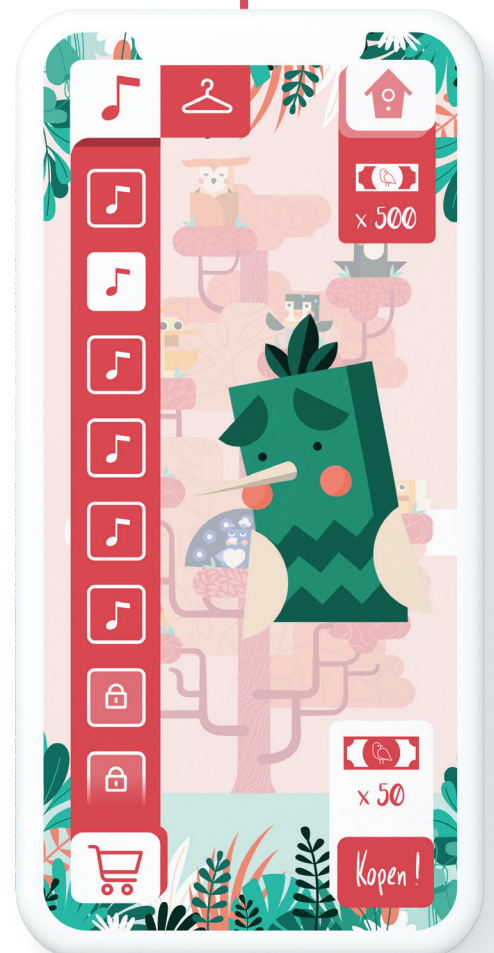


Figure 105. The Shop.

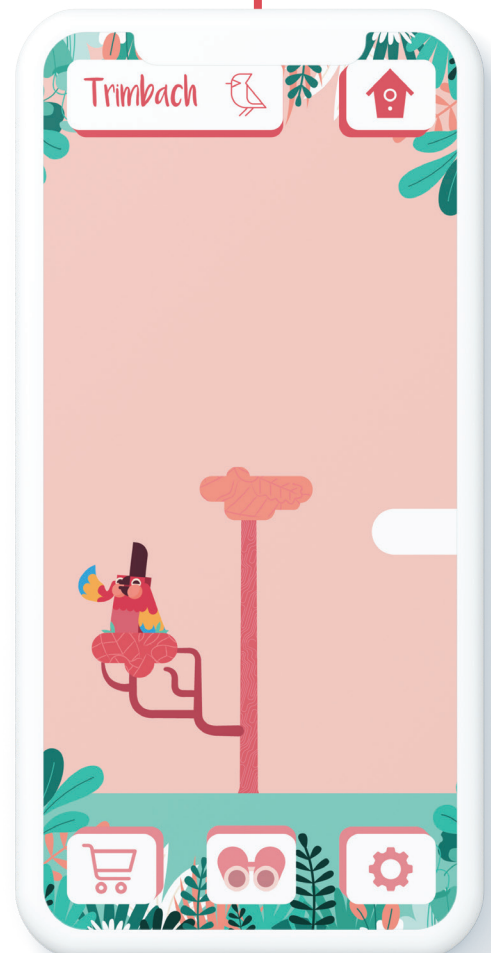
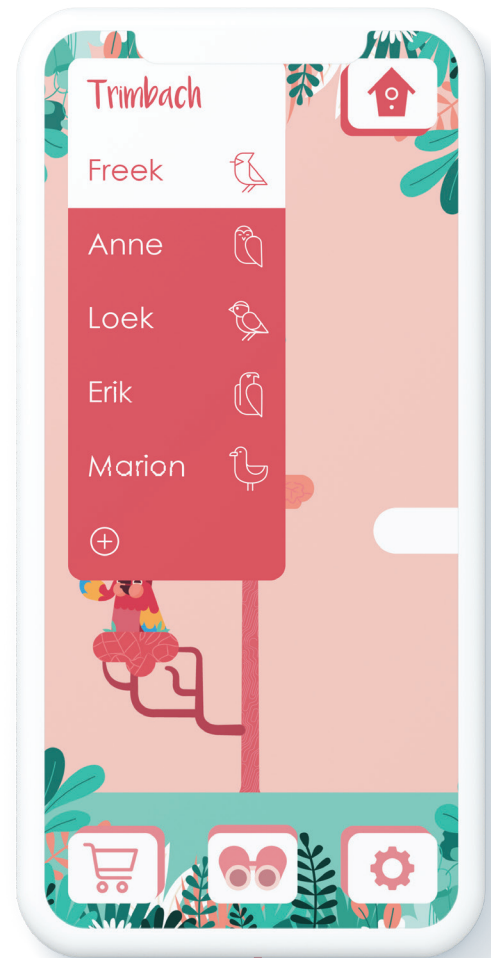
The Nest

The HUB

The nest functions as the HUB of the app. In here you can view your family of birds and enter all other possible modes. Next to accessing the shop, the main spotting mode and the options, family members can indicate who is currently using the device.

A lively world

A tree is present, which grows as your collection of birds expand. In this home screen the birds interact with each other in their typical way, showcasing their personalities and creating a more rich environment when more birds are collected. When birds have not been used in a while, they will show more passive behavior compared to being used frequently. With these little details a living and breathing world is trying to be conveyed to keep things interesting and dynamic. Visual cues for example will indicate if a bird is currently leaving a message and when a bird is pressed, their last used chirp can be heard to give a little callback to its previous use.



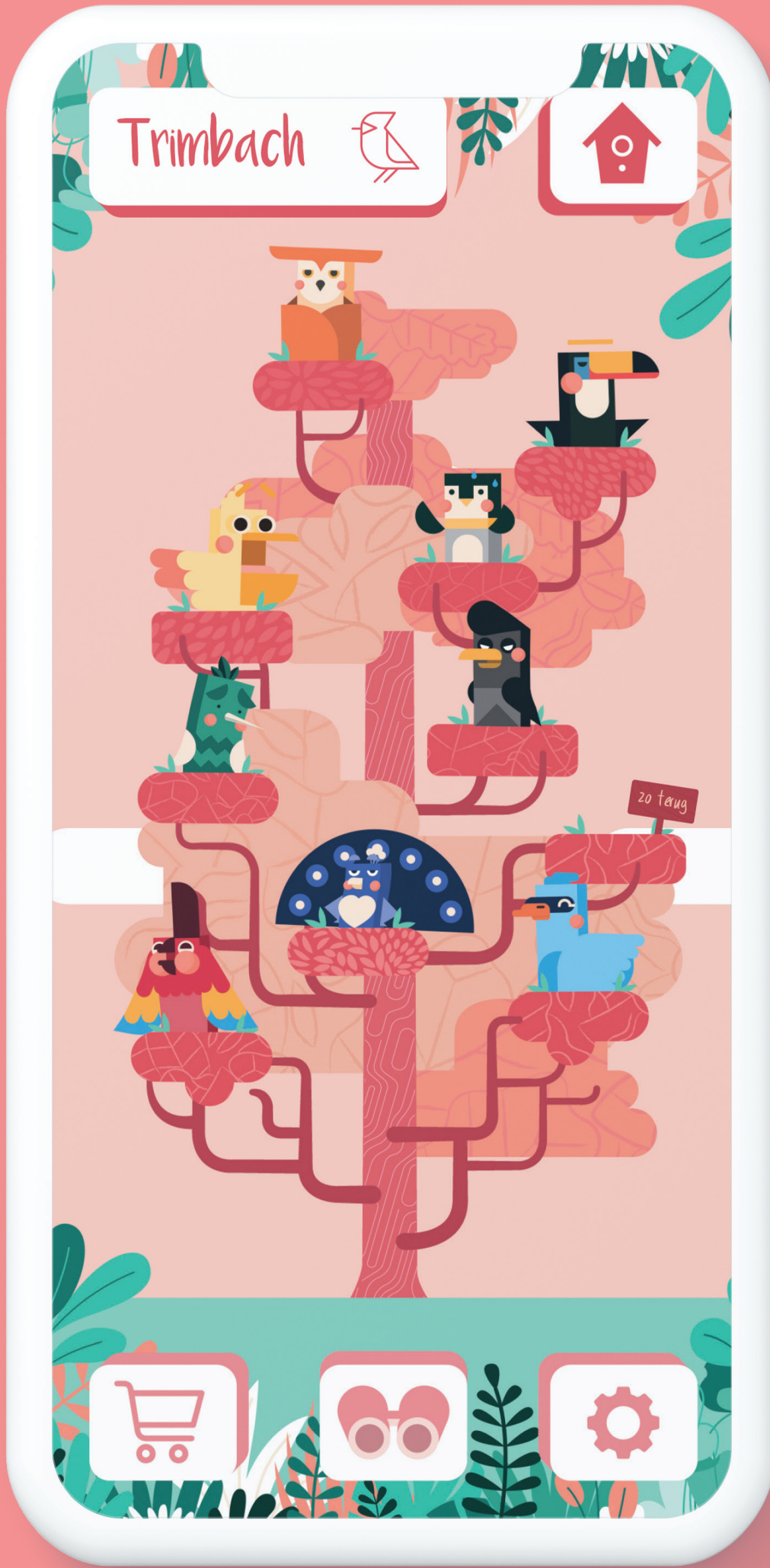
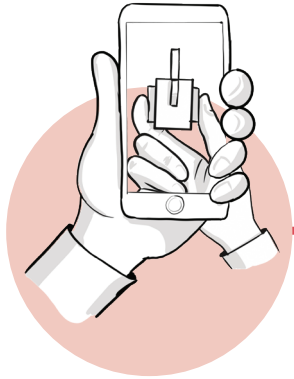


Figure 106. The nest.

Sending

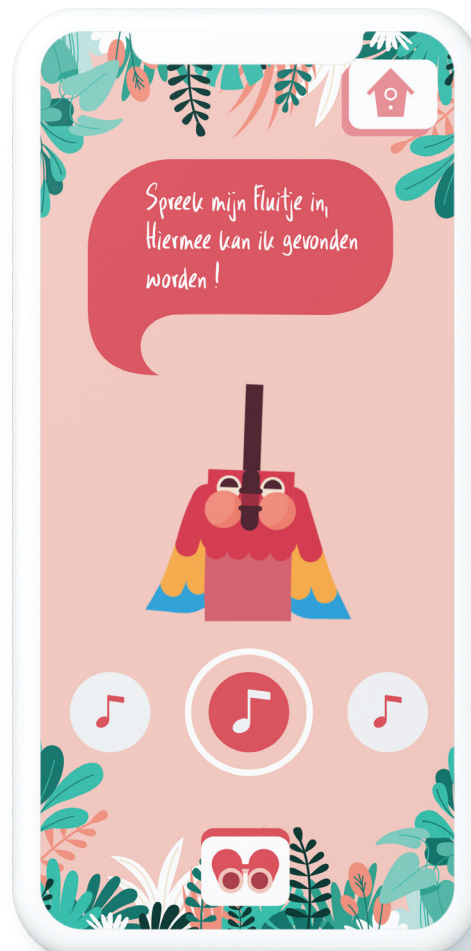
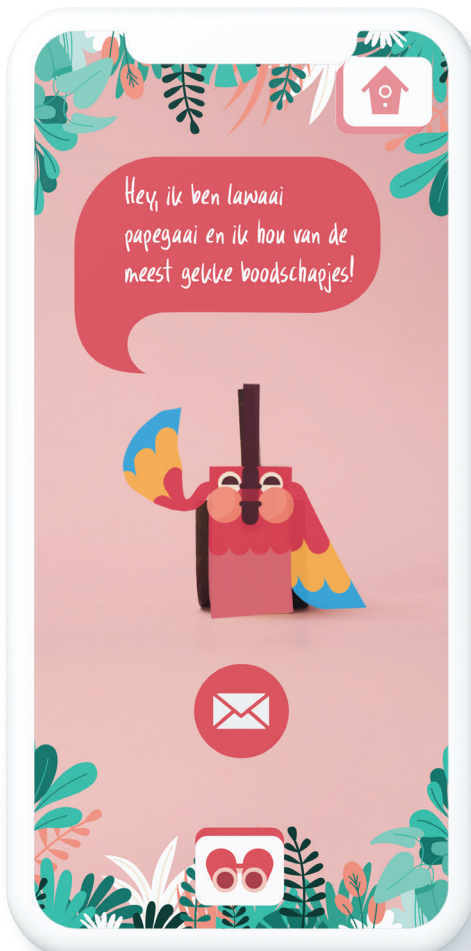


Scanning the bird

To send a message, a bird first has to be spotted through the spot function.

Recording the chirp

You are then asked to create a personal chirp. It is here where you can change the voice of the bird using your digital content.





Recording the message

After checking the results, you are asked to record your message. Here you can also change the appearance of the bird in a similar fashion and record your message.



Hiding the bird

When satisfied, you are asked to hide the message. Here you also have the possibility to send the message to a specific person, or the entire family.

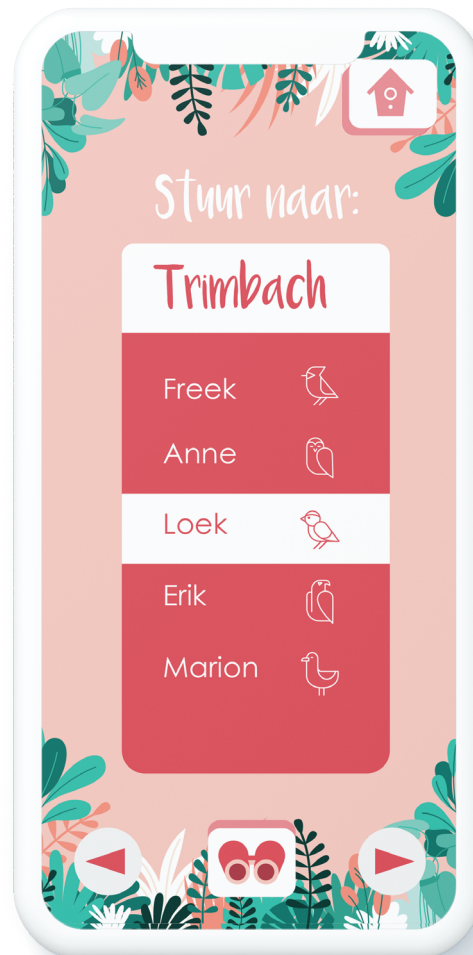
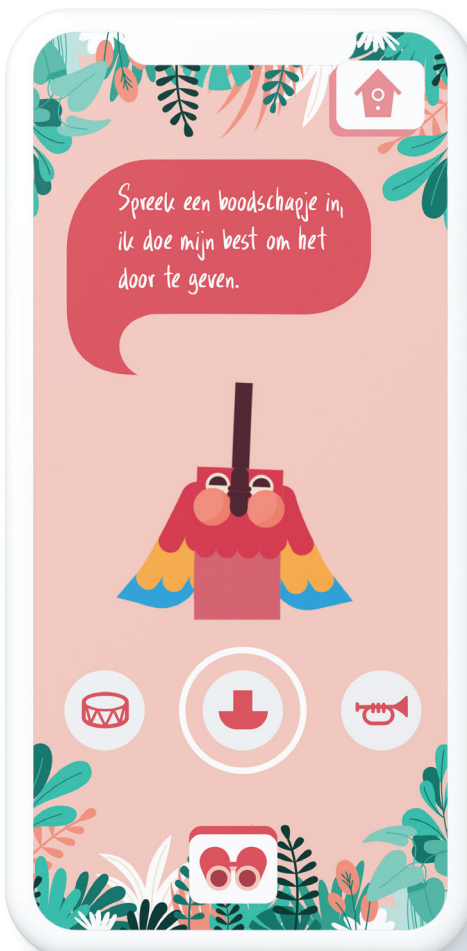
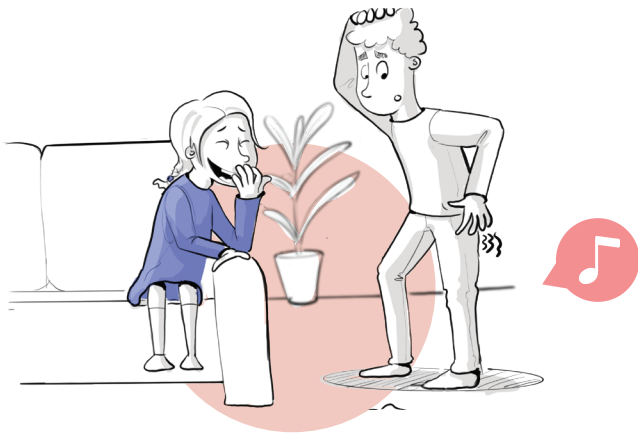


Figure 107. The sending sequence.



Receiving the chirp

If a bird has been sent to you and you enter its territory (up to 3 meters due to the technology involved) you will receive a notification on your phone together with the chirp. As parents indicated control is very important when it comes to these kind of functions, this function can be modified in the options. If the bird that you have sent is found, you will also receive a notification telling you your bird has been found. Both instances can be seen in figure 108.



Figure 108. The notifications.

Options

Power to the people

An options menu gives control to the user, balancing parts of the interaction. Notifications can be turned on and off and you can determine whether you want your messages to be able to be viewed by others.



Figure 109. The options.

Spotting



Searching for the bird

From the notification or from the nest, the main spot function can be activated. The spot mode can scan wooden birds in the real world, allowing you to use them as personal messengers. It is also the chosen tool for adding new birds to your collection.

After the family testing, it was decided to keep this mode simplistic as the focus should be on real life searching and finding the bird you are looking for.

If you are close to a hidden bird you can press the music note to hear the chirp. When close, the chirp will increase in volume.



■ **Figure 110.** Searching for the bird through the spotting mode.

Receiving

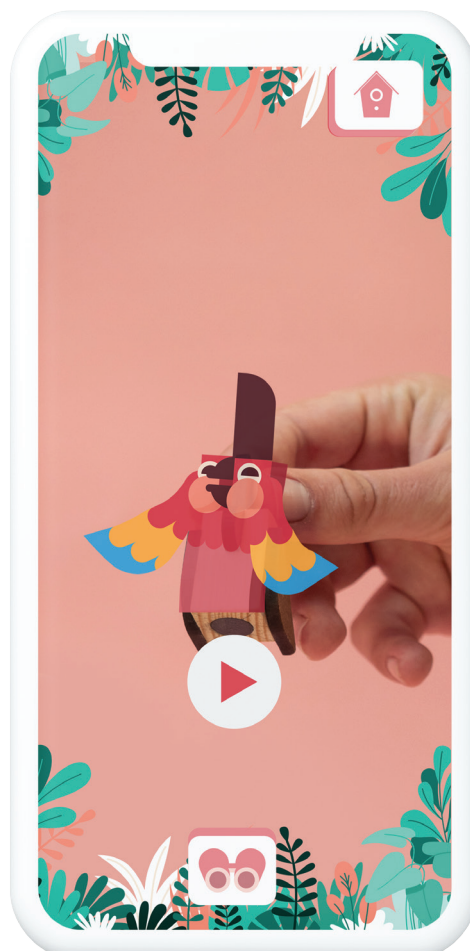
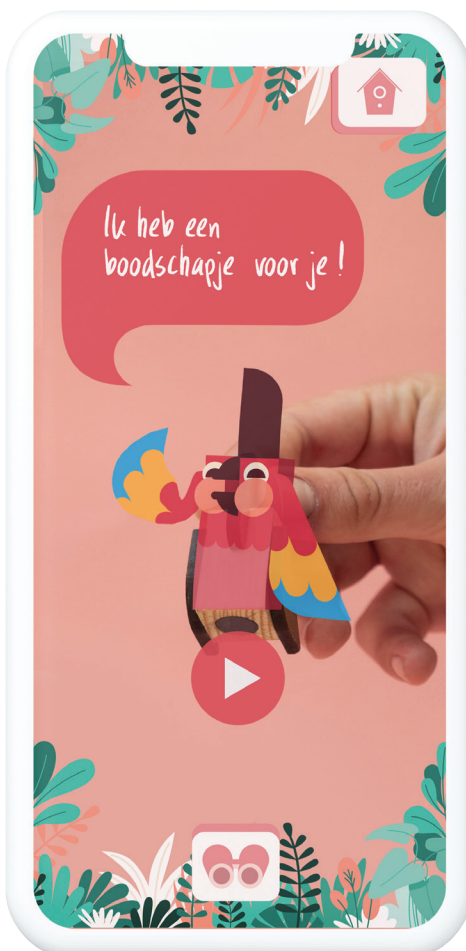


Finding the bird

When receiving a bird for the first time, the bird will introduce itself and its personality quirks in AR. Their messages change over time, providing new inspiration for your message.

Watching the message

If a bird with a message is found, the user can view the message of the bird in AR.



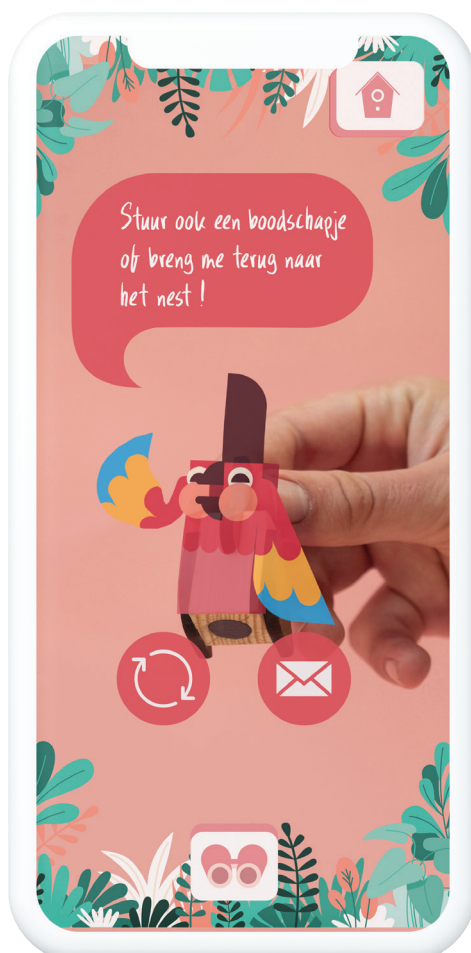


Bring back to the nest / repeat the process

After the message has been viewed, the bird will ask you whether you want to resend a message, or bring it back to the nest.

Once the bird has returned to the nest, the message will have disappeared and will not be able to be replayed. This decision is made to invite people to share their messages in real life and to keep a realistic application size.

If at any point the camera is moved away from the tangible bird, instead of showcasing the FliereFluiter in AR, the screen will switch to a normal interface with a pink backdrop. Here you can still continue with the message. This is done to ensure a smooth experience.



■ **Figure 111.** The Receiving sequence.

11

THE TANGIBLE

DEFINE

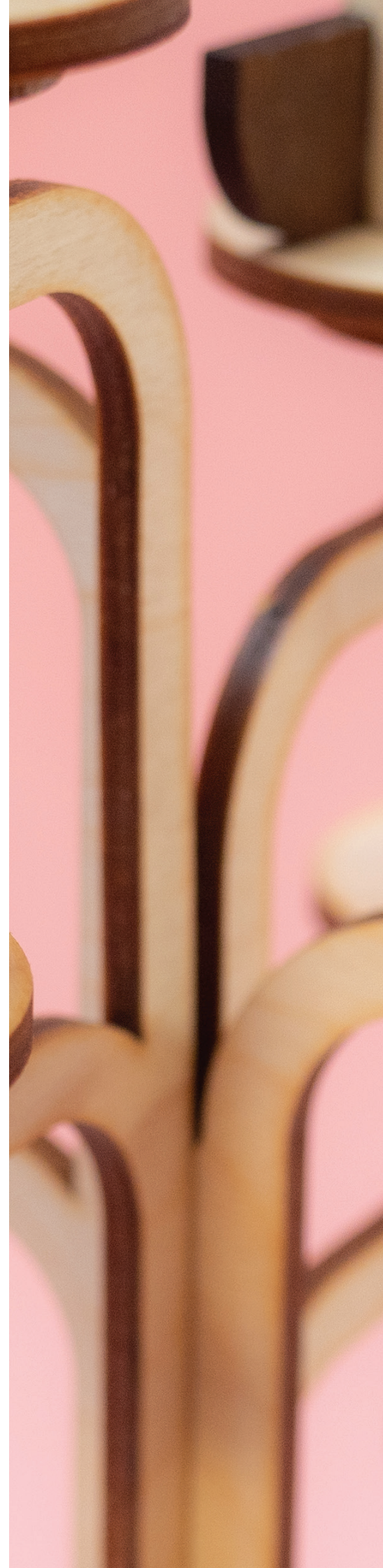
SHOWCASING THE TANGIBLE ASPECTS OF THE PRODUCT

Tangible aspects of the design proposal are discussed starting with the birds themselves. The chapter concludes with a closer examination of the tangible nest.

Chapter Overview

10.1 The birds

10.2 The nest





■ **Figure 112.** The tangible birds.

11.1 THE BIRDS

Shape

The simple shapes are mainly chosen to attract both parents and children, trying to find the balance between a toy and an ornament that looks aesthetically pleasing to adults. Inspiration for this appearance is taken from Floris Hovers (appendix 8). Known for his geometrical designs and incorporation of animal themes, a collaboration with him could be beneficial for the tangible shape and quality of the design.

Insights from both the family test session and the seeking exploration have shown the importance of the element of surprise. Participants experience this during the moment of reveal when playing hide & seek. To further emphasize this aspect of the design, simple, yet abstract shapes are used to represent a certain type of bird. The digital versions of the bird show all of the expression and emotion in a more colorful representation. Only by scanning the object, a family member can truly find out what type of message they will receive, adding another layer of reveal to the interaction.

Lastly, the simple and geometric shapes are beneficial to the production process, limiting the costs of the birds, making it more accessible for loyalty campaigns.





Figure 113. The simplistic but playful shape of the birds tries to attract both parents and children.

Wood


Making the objects feel like aesthetically pleasing ornaments is a wish from both parents and children. To attract not only children but also parents with the product, wood is chosen as the core material. While wood does not typically create a childish association, it's still used for the creation of toys, retaining a type of playful association. The natural and wooden appearance also enhances the probability of the product looking aesthetically pleasing in fundamentally different household interiors. People are expected to place them somewhere in sight, creating tangible object reminders.





Figure 114. The wooden appearance.





Magnets

Being able to hide and find things in unusual and creative places has shown to influence the ability of family members poking fun at each other (family test session).

Magnets are incorporated into the concept as another means of emphasizing this effect. By enabling family members to hide the objects on the side of a lamp or underneath the cooker hood, the ability of family members poking fun at each other is increased.

Magnets were chosen as magnetic areas are often present in places the family often gathers. The kitchen happens to be the place with the most magnetic objects like refrigerators, toasters and other kitchen appliances. Other magnetic ornaments like lamps or table legs are also present in other places of the household. Lastly magnets are easily embedded into the design and cheap to produce.

Williot chip

In order to receive the birds chirp and to uniquely identify each bird, battery-free stamp sized bluetooth stickers are incorporated in the design. These stickers are produced by Williot and are expected to become available for partners in 2020 . By harvesting electromagnetic energy from the surroundings (Wifi, Bluetooth or cellular) the sticker is able to provide a Bluetooth signal without utilizing a battery. Through encrypted cloud technology the data and privacy is kept secured (Ross, S. 2019).

The Williot sticker is easily integrated into the design, provides an almost unlimited life time, and is expected to cost significantly less than any other RFID chip on the market. This makes it applicable for a loyalty campaign, as low budget investments have become a staple.

Williot has confirmed its chip to be applicable for the intended use of the FliereFluiters, while currently only confirming interactions possible up to 3 meters.

An emerging technology provides a lot of opportunities but also a lot of uncertainties. That is why I recommended to first explore and experience its applications first hand when possible, before taking further steps. This technology does seem very promising however, and being an early adopter could prove itself worthwhile from the perspective of a loyalty campaign.



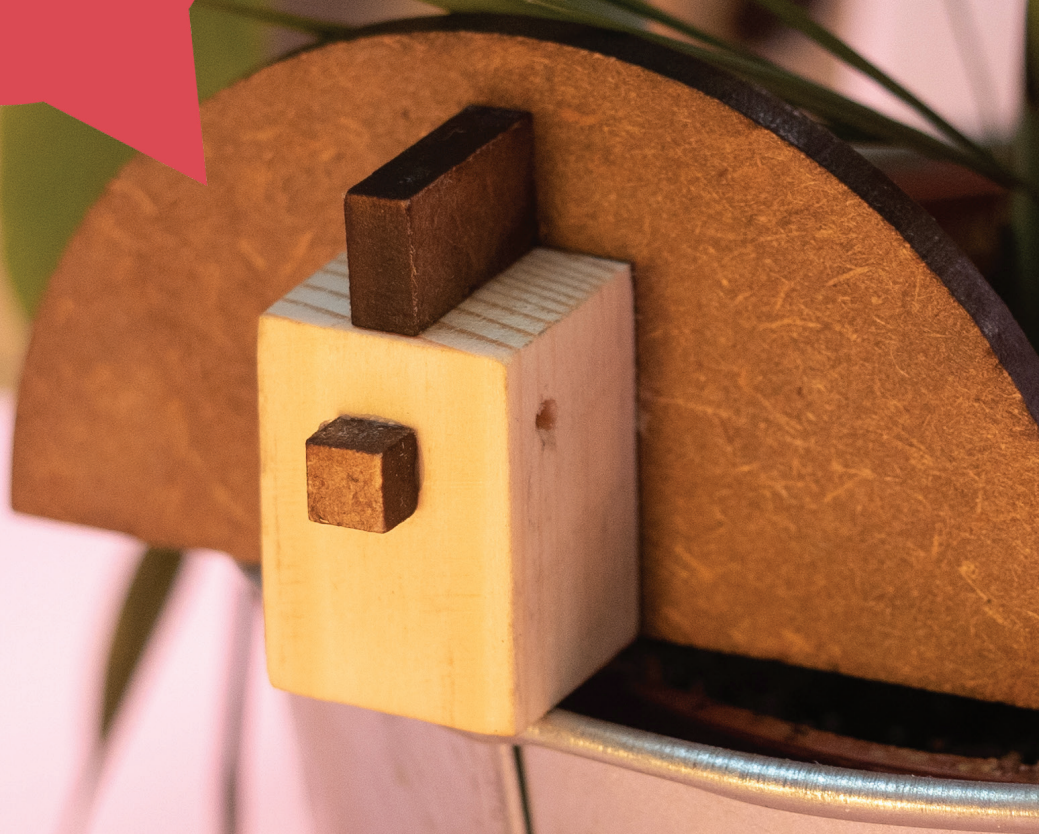
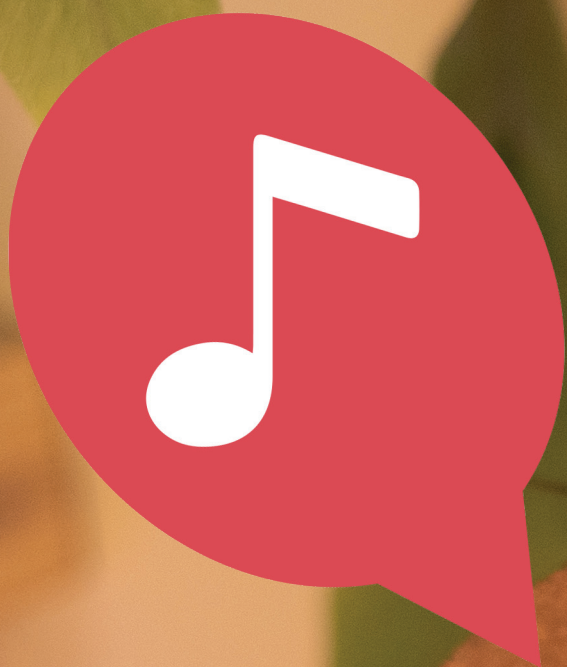


Figure 116. The Williot chip can easily be hidden between two wooden layers.

Image target

In order for the augmented bird to correctly align with the physical object, an image target is used. The products position and orientation is recognized by the image target (in this case triangular shapes). Object recognition can be used to maintain the clean appearance of the birds, but with no proof of concept within this thesis, image targets are recommended.



11.2 THE NEST

THE NEST

The nest is a tangible completer in which all of the birds can be collected. It is a staple amongst many loyalty campaigns and fuels the collection urge of people (Carey, C. 2008). In this situation however it also has another role to play. By creating a visibly pleasing ornament (similar to a plant), it is intended for parents to place it somewhere visible in the house, preferably the kitchen table. This way the object becomes apparent in daily life, creating a tangible object reminder for the interaction.

What further emphasizes this effect is the hide&seek mechanism of the interaction. If a bird has left the nest to leave a message, not only will this be visible in the app, but that bird will literally have left the tangible nest as well. Besides connecting the tangible and digital world, this intends to use the psychological urge of collecting, to actually complete the interaction.



Figure 118. The nest filled with FiereFluiters.

The platform

The nest provides one platform for every bird available. Similarly to the birds it also incorporates a magnet in its design. This makes sure the birds have a comfortable and secure place to be returned to, while maintaining to be easily removeable.



Figure 119. The nest from the top, showcasing its platforms.

The base

The base allows families to personalize their nest to their liking. While not essential it could provide a little personal touch, making it a staple in their interior.





■ **Figure 120.** The base, allowing for personal interpretation.

12

THE LOYALTY CAMPAIGN

DEFINE

CREATING A CAMPAIGN CAPABLE OF ENGAGING FAMILIES WITH THE FLIEREFLUITERS.

This chapter explains how the FliereFluiter concept will be brought to customers and elaborates how it will create loyalty for the supermarket. It starts with an overview of the loyalty journey while the following sections elaborate on specific touch points mentioned in the journey. Lastly the sustainability of the concept is discussed.

Chapter Overview

12.1 Loyalty Journey

12.2 Loyalty Model

12.3 The Supermarket

12.4 Sustainability





■ **Figure 121.** UNGA interior, developing over time.

12.1 Loyalty Journey

With the concept explained in detail, it's time to focus on the loyalty campaign that is proposed. For a loyalty campaign to be successful, the customer needs to take action themselves. To achieve this the customer is guided through several phases. These phases exist of main touch points, which have been visualized and summarized in the loyalty journey. It further showcases how parents and children are involved in the campaign and whether the loyalty aspects take place in the supermarket or at home. The AIDA model (Strong, E.K., Jr. 1925) was kept in mind when creating this loyalty journey. While the journey is a likely scenario, touch points can also occur in a different order.

Reading guide



aimed towards children



aimed towards parents



Area of focus

Grey areas indicate at which part the different phases are most present. When followed a clear transition can be seen.



Supermarket or home activities

Icons indicate whether touch points on its horizontal axis take place at the supermarket or at home.



Onboarding phase

Creating awareness amongst parents and children regarding the FliereFluiters campaign. The end goal of this phase is to get as many people to download the FliereFluiter app. Parents are targeted to download the app initially while children are expected to be the first users.



Experience phase

Creating an understanding and desire for the FliereFluiters by enabling a hands on experience for parents and children. The end goal of this phase is to get as many people to collect the FliereFluiters, as well as already connect parents and children through this activity. Children are targeted initially but parents are invited to join the experience through their children.



Engagement phase

Keeping families engaged with the FliereFluiters by rewarding them for their behavior. The end goal of this phase is to attract families to the supermarket, create longtime use of the product and enable a family connection. During the loyalty campaign this phase will keep repeating itself.

At the supermarket



At home



Social media



The social media accounts of the store are used to make people aware of the new loyalty campaign. Video adds are promoted through Instagram which showcase the applications of the FiereFluiters. When pressing the link people will be directed towards the app.

Figure 122. The loyalty journey.



Supermarket app



The Supermarket app promotes the FliereFluiter campaign on its homepage. When pressed, it showcases your current flappen total. The user is made aware that in order to use them for digital rewards, the app needs to be downloaded. When scrolled down you can view information about the FliereFluiters and how you can start collecting your own.



TV commercials



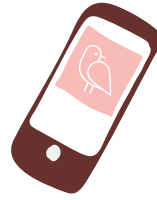
A televised commercial introduces the FliereFluiters. The focus here is to get people towards the supermarket and for people to download the app. This is done by creating a desire for the product, using the supermarket experience to explain how they work, what they do and how you can get them for yourself.



Posters



Posters in and outside the shop grab the attention of parents and kids, informing them about the existence of the FliereFluiters. Specific posters at the entrance encourage people to download the app in order to start collecting through the supermarket experience. Other posters in the store emphasize the more functional messaging and hiding aspects of the product.



FliereFluiter app



The FliereFluiter app is designed to guide the users through their first time use, explaining functions step by step and letting you invite other family members. The initial users are likely to be children, but parents are expected to follow.



In-store FliereFluiters



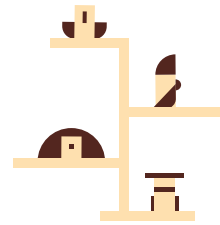
In-store FliereFluiters are hidden in between the supermarket products to give customers a hands-on experience of what the product is capable of. These FliereFluiters also promote specific groceries in unique ways. They include a sign to grab attention, encouraging people to download the app in order to interact with them. Customers are able to interact with the in-store FliereFluiters. These special FliereFluiters also reward you with digital currency, which gives customers the incentive to actually interact with the in-store birds.



Reward for payment



When scanning a personal loyalty card, digital currency will be automatically added to your personal account in the supermarket app.



Tangible rewards



When a certain amount of digital currency is reached in the supermarket app, people are automatically rewarded with a new FliereFluiter. This is an incentive for people to keep shopping at the same supermarket. A physical nest can also be bought to return your FliereFluiters to a shared spot.





Digital rewards



Digital currency can be traded for digital rewards, expanding the types of interactions possible with a FliereFluiter. This digital reward is another incentive to go back to the supermarket.



Play & explore



The main interaction of the FliereFluiters will take place at home. As the design allows for own type of use, children and parents are expected to find new ways to interact with the product. This is enhanced by the fact that they will keep expanding their physical and digital collection. Exploring different types of use can lead to families using the product even after the campaign has ended.

12.2 Loyalty model

With the arrival of mobile selfscanning, digital collecting and even complete online grocery shopping services like PicNic, supermarkets have shown to move towards a more digital, personal and autonomous grocery shopping experience (FD, 2019). In order to coincide with these developments and trends, an adopted loyalty model is created with the context boundaries of UNGA in mind.

STAMP & REDEEM REIMAGINED

The envisioned loyalty campaign is a digital Stamp & Redeem campaign where customers can trade digital currency for digital rewards while still collecting physical rewards at the super market (figure xx).

With this model customers can decide for themselves what they want to unlock digitally, and choose which birds they will enjoy most physically, adding to a more personal experience.

Money

The amount specifics for which people have to spend before receiving digital or physical rewards will have to be determined in collaboration with the supermarket, depending on the costs of the product and the app.

Supermarket app

The supermarket app is automatically linked to your personal shopping account. Similar to current digital campaign, digital currency will be collected by paying your groceries. The supermarket app keeps track of your total currency and tells you when you can pick up your next FliereFluiter.

Furthermore the supermarket app promotes the FliereFluiter app by attracting attention and further explaining the concept, providing a link to download the FliereFluiter app.

App separation

As campaigns do not last forever, the FliereFluiter app has to be installed separately from the personal supermarket app. This way families can enjoy the FliereFluiters even after the campaign has ended.

App targeting

The physical products are geared more towards adults while the digital rewards are more geared towards children. The apps represent this. With the supermarket app you are capable of collecting the actual FliereFluiters, while the FliereFluiter app lets you unlock the digital content.

12 Birds

With the proposed loyalty campaign being a hybrid between what already exists and what does not, it is helpful to reach retailers with common numbering.

According to Daniël Thomassen (Head Product Development at UNGA), Retailers normally expect a range of 30 instant

reward collectibles, or roughly 6 stamp and redeemables like plushes. By utilizing 12 birds the association can be made that these birds should be twice as cheap as normal redeemable objects. This gives them an interesting place of existence within the loyalty models currently applied.

Back to school

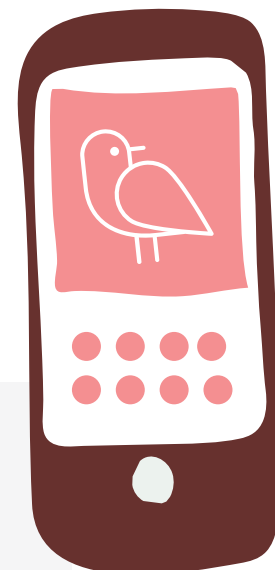
As discussed in chapter 3, loyalty campaigns are often introduced within specific loyalty seasons. The recommendation is made to introduce FliereFluiters during the “back to school” period in september. FliereFluiters’ design proposal fits most within this time frame as parents and children are expected to spend less time with each other during this time of the year, compared to the spring and christmas campaigns.

Supermarket app

This will keep track of the total currency you have collected. Once you reach a certain milestone, a FliereFluiter can be collected.

Personal payment method

The main way to collect currency is by scanning your loyalty card when paying for your groceries. The more expensive your groceries, the more flappen you will receive.



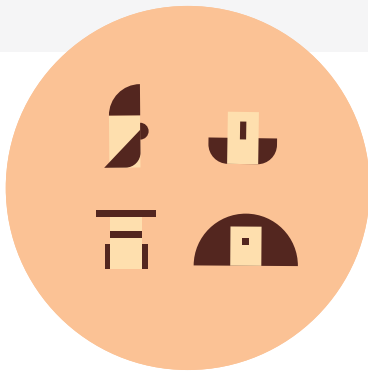
FliereFluiter app

This app allows you to spend currency on digital rewards. Unlike with the supermarket app, this currency disappears once it is traded for a reward.

Figure 123. The loyalty model.

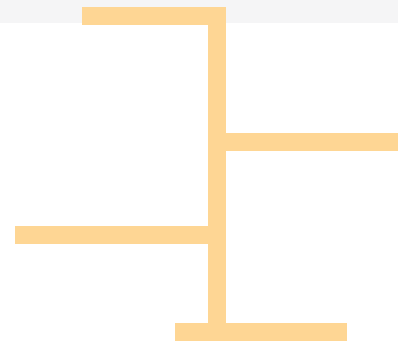
Physical rewards

Physical FliereFluiters can be retrieved from the counter with the supermarket app when a certain milestone of total currency is reached. A physical bird will automatically unlock the basic digital skin and audio filter for the corresponding bird .



Physical merchandise

A tangible nest to store your FliereFluiters can be bought separately. Customers are encouraged to buy this merchandise through the FliereFluter app.

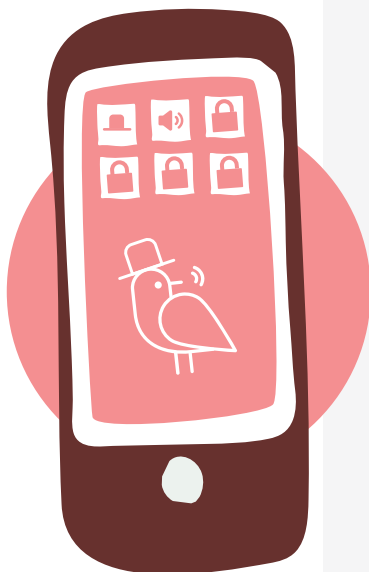


Digital rewards

In the FliereFluter app digital currency can be traded for digital rewards. The currency can only be traded for digital rewards once customers have received their first FliereFluter.

Voice filters that can be used by the birds can be purchased for a small amount of flappen. Higher amounts can be traded for props, which can be applied to the individual birds. This will slightly change their expression and appearance, allowing for more diverse ways of communication and personalization.

An infinite amount of digital rewards can be imagined to fit with the corresponding supermarket. For example branded outfits and items can be unlocked.



12.3 The supermarket

The supermarket plays a crucial role in experiencing the concept, creating an understanding and desire from customers for the product as well as already connecting parents and children with each other.

Posters

Different posters are recommended to be present outside and inside the shop. Every poster has a slightly different purpose to make sure the customers are guided through the loyalty journey as natural as possible. The AIDA model is recommended (Strong, E.K., Jr. 1925) for designing the posters, as well as the 3, 30, 300 rule proposed in the Delft Design Guide (Boeijen, A., et al., 2014).

Main banner

The purpose of the main banner is to make people aware of the new campaign. It will feature the wooden figures as well as their digital appearance. Next to this the slogan is added to give people an idea of what the concept is about.

Opening poster

The goal of the opening poster is to get customers to download the FliereFluiter app. This is done by making customers aware of a digital reward. They are also made aware of more rewards which can be collected in the store. The opening poster is placed at the entrance of the shop to immediately notify customers of the in-store experience.

This poster is also equipped with the williot chip, providing a deeplink on your smartphone to the app when close by.



**FliereFluiter zijn geland in jouw supermarkt!
Vogel uit waar ze zitten en bekijk hun boodschap.**

Vind ze allemaal en spaar alvast voor je eigen FliereFluiter!

Download hier vliegensvlug de gratis app en ontvang je eerste beloning, een fluitje van een cent!



- Your local supermarket

Highlight posters

These posters highlight different aspects of the concept and can be placed at random places in the store.

One poster showcases the hiding abilities of the product and thus gives the customer a more explicit idea of its intended use (Figure. 124).

Another showcases the type of messages that can be send by highlighting the digital personalities. It gives the customer a more explicit idea of the possibilities in messaging (Figure. 125).

FliereFluiters

Voor de leukste boodschapjes!

Deze persoonlijke boodschappertjes willen niets liever dan jouw familie verrassen met spontane berichtjes.

Door hun persoonlijkheid geven ze al je boodschapjes door met hun eigen twist!



Figure 124. Personality poster proposal.

CONSUMER STORY

If consumers want to know more about the FliereFluiters there has to be a coherent story to tell. The following concept summary is proposed as a starting point to work from.

FliereFluiters are one weird collection of crazy birds for the entire family.

These personal little birds want nothing more than to surprise you and your family with spontaneous messages. For the biggest surprise they seek the weirdest places and with their unique personality they give every message a unique flare.

They get bored when there's nothing to tell, so use them to make your messages feel special again.

FliereFluiters

Op de gekste plekken!

Voor de grootste verrassing
fladderen de FliereFluiters
graag naar de gekste
plekken.

Verstop of
plaats ze op een
vreemde plek
voor de leukste
reacties!



Figure 125. Hiding
poster proposal.

IN-STORE FLIEREFLUITERS

In order for customers to create a desire for the FliereFluiters, it is important to get people familiar with the concept and its application. For this reason, special (and theft proof) FliereFluiters will be placed inside the shop, promoting different articles with their characteristic personalities. Personal signs (Figure 126) are placed next to them making customers aware they need to download the app in order to interact with them.

By scanning a bird, customers will be rewarded with a small amount of digital coins, helping them to reach their first FliereFluiter. This will get customers familiar with the FliereFluiters and will give them an incentive to download the supermarket app.

Employee involvement

Employees are invited to personally create the supermarket messages beforehand, creating a more personal connection between the supermarket and its customers. Contrary to the normal FliereFluiters, their messages can only be changed by the supermarket manager. This ensures that appropriate language is used. A guideline for the messages should be proposed by the supermarket but employees should ideally be allowed to set the messages themselves.

Koek oek!



Scan mij voor mijn boodschap
en ontvang je beloning!



FietFiew!

Scan mij voor mijn boodschap
en ontvang je beloning!



12.4 SUSTAINABILITY

In the current day and age there is a massive resistance towards the use of plastic products. Dutch campaigns like the Albert Heijn Winterdorp have been criticized openly by the public for being unsustainable (Figure 127). To limit the environmental aspect of the campaign, several design decisions have been made to enable long time use while limiting the impact of the production process.

PRODUCT ATTACHMENT

The products are designed to send and receive personalized messages from your family members. When used, it is likely that a personal attachment towards the product line will develop. This has a positive effect on the product lifetime as stated by Ruth Mugge (2004):

"By personalizing the product's appearance, a person invests energy in the product, and the product is used to express his/her self. The degree of self-expression, in turn, positively affects the experienced degree of attachment to the product."

From an environmental perspective, increasing the degree of product attachment is valuable, because a stronger emotional bond between a consumer and his/her product will decrease the consumer's tendency to dispose it."



Figure 127. Social media backlash on loyalty campaigns use of plastic.



DIGITAL COLLECTING

To reduce the environmental impact of the campaign the conscious decision is made to reduce the amount of physical collectibles and shift this to the digital realm. An instant reward campaign can normally require a production of 60 to 80 million copies, while a stamp and redeem campaign only requires a batch of 100.000 to five million copies. By shifting the instant reward to the digital side of the concept, the environmental impact is significantly reduced.

MAGNETS

Instead of using rare earth materials to create permanent magnets, cheap and sustainable manufacturing of magnets is already on the rise ("Hope for a new permanent magnet that's cheap and sustainable", 2020). By adding a magnet, the functionality of the product also reaches beyond its intended purpose, extending its lifecycle and increasing its sustainable value.

WOOD

Wooden products are a sustainable option when it comes to production and long term use. Wood is known to store toxic materials inside of them, instead of releasing them during the production process, which is the case for plastics (Accoya, 2020). Also wood is a durable material when coated, capable of withstanding daily use without degrading in its appearance quality. Arguably wooden products also promote long time use as their appearance is more desirable than those of plastics.

WILLIOT CHIP

The chip inside of the product does not require a battery, allowing for an almost unlimited lifetime.

13

VALIDATION

DEFINE

VALIDATING THE DESIGN PROPOSAL BY INVOLVING FAMILIES AND EXPERTS

The design proposal is validated by first exposing it to the families involved within this thesis. To validate on a broader scope, several experts are invited to share their expertise on specific elements of the concept. With this information the concept is eventually evaluated based on the design focus. The chapter concludes with recommendations.

Chapter Overview

13.1 Family validation

13.2 Expert validation

13.3 Design focus validation

13.4 Recommendations





■ Figure 128. UNGA. Meeting room.

13.1 FAMILY VALIDATION

GOAL

To test if the design proposal contributes to family connection, validation sessions are prepared with three families involved in this thesis. For the family validation the main research question is as follows:

RQ: How does the design proposal contribute to family connection?

METHOD

Due to the massive outbreak of the corona virus, an online user evaluation test is created using google hangouts . Participants are first asked to download a video- and app demo. When the meeting starts, participants are briefed with a short project summary and a concept description aided by visuals of the project and the concept. Next, the video demo is shown, enabling participants to experience the concept through the use of others. Afterwards The video is followed with a live showcase of character tracking using adobe character animator. This is done to illustrate the experience of recording a message. Lastly, the participants are invited to use the app demo to scan a virtual bird on their screen, to experience what it is like to view an augmented message. After this procedure the participants are interviewed in a semi-structured fashion about their perceived experience with the concept, how it would fit in their own daily lives and how it could contribute to their family connection.

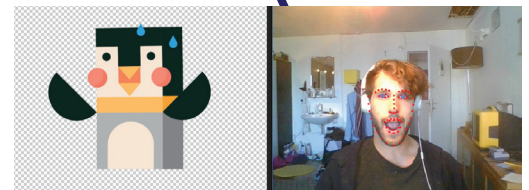
1. Families are invited through online platforms and are introduced through a visual concept explanation



2. The concept description and explanation is followed by an interaction video demo, showcasing one cycle of the fluid play journey.



3. A live demo of message sending is given by showcasing the expression tracking made possible through Adobe Character.



4. Families are invited to download the app, to experience for themselves the interaction of receiving a message. The image on the right is used as the image target.



5. The participant are interviewed in a semistructure manner to gain final insights from Dutch families regarding the design proposal.



INSIGHTS

Physical aspect of the design helps to stimulate the interaction.

"Because of the physical design you really want to find it and hold it in your hands" - MomFam1

It lowers the threshold of sending a meaningful message.

"This could be useful to lower the threshold when talking about specific topics. This makes it a lot easier for the kids to apologize for example" - Momfam2

"I see it as a Whatsapp replacer, using it when the kids are not home" – Momfam2

"I would use it to surprise each other" – Daughterfam3

Families can lose interest in the product when they have nothing new to explore.

"You have to keep it interesting. I can imagine it dying out after a while when you've seen it all" -Momfam1

The interaction itself is deemed as a positive way of utilizing the smartphone.

"I do not think this will reduce phone use, but I think this is better than mindlessly using your phone" - DadFam2

Having natural or colored birds seems to be something families can't decide on.

"I would like multiple colors, I think it would be nice to have colors, I do not know. No maybe not" - MomFam2

Families desire to use it outside of their personal household.

"Can I use it to communicate with the neighbours?" - MomFam2

"Is it also possible to use this with other people? I want to do that" – DaughterFam3

The Interaction is viewed as a positive, diverse, expressive and "special" way of communicating with the family.

"I decide when I want to find a message, which makes it just a bit more special. I would use it to wish someone good luck, motivate or invite someone. I see it as a more enjoyable and positive method of messaging and communication" - DadFam2

"You are sending a "message with a wink", which would allow us to communicate with each other in a multitude of ways" – DadFam1

"I would secretly look how someone else would search for it, and have my fun with that" - MomFam1

"I would use it when someone is away, or use it to scare someone!" - SonFam1

"Right now we are stuck together because of Corona, it requires a more tolerant mindset. In this situation I would use it to lighten the mood" - Momfam3

FAMILY VALIDATION CONCLUSION

According to Dutch families, the product's diversity combined with its humoristic nature allows families to communicate with each other in new and surprising ways, contributing to their family connection.

All families described use cases of them applying the product in different ways to communicate amongst their family. What seems interesting for parents is the ability to use the product to open up about topics that are normally hard to talk about, for instance an apology from their child. While parents see the product as something "fun", they also see the functional applications of it, using it in ways to get their child to do something they want.

Children envision their use as more playful compared to their parents. They see themselves playing with it together with their friends and not only with their family. When it comes to family interaction they see

themselves using it as a joke, mentioning the "misuse" of the product to scare their parents or to use it to get something from their parents.

Humor is deemed as an essential part of the design proposal. It is the concept's gateway to all forms of communication. It comes into play whether you are just having fun or when trying to achieve something functional.

By creating an open and humoristic Interaction, the concept seems to be attractive to both parents and children, contributing to their mutual communication and family connection. However, to truly understand the impact on family connection, a longterm study with an experiential prototype is recommended.

13.1 EXPERT VALIDATION

GOAL

To get a more broad and holistic evaluation of the concept, several experts are involved to give their professional opinion on other aspects of the design proposal besides family connection. These aspects are the loyalty campaign and fluid game design.

RQ: How do loyalty experts see the design proposal fit within a loyalty campaign?

RQ: What impact can the design proposal have on family wellbeing?

RQ: How can the fluid interaction be best designed to achieve the most user engagement?

METHOD

For every topic different experts are involved.

A slightly altered method is used compared to the family validation. The experts go through the same introduction including the video demo, character tracking and app demo. Depending on their subject, deeper knowledge is shared about the project.

For the loyalty campaign, the **design team of UNGA** is invited to experience the concept and give their opinions and recommendations towards the implementation of the concept. The aspects of the proposed loyalty campaign are also discussed in further detail.

To dive deeper into the social benefits of the concept, **Tilly pijnenburg** (educationalist) is invited to experience the concept and give her ideas on how it could affect families and children's growth. The psychology behind certain design decisions is also shared and discussed.

To understand how fluid game design can be implemented in a successful way **Sander Veenhof** (AR Artist), **Adriaan de Jongh** (Social game developer) and **Scott Jenson** (UX Strategist at Google) are invited to experience the concept and share their opinions on the intended interactions of the design proposal. AR technology is discussed in detail with Sander while Adriaan and Scott shared their opinions from a human product interaction point of view.

LOYALTY CAMPAIGN EXPERT PANEL



UNGA design team

The value of collecting multiple objects is not felt strong enough.

"Why do you want to collect multiple birds?" - UNGA design team member

The birds need more to them to make them unique and desirable.

"Make the birds more unique, give them their own special power. Explore the depth of multiple birds." - UNGA design team member

The simplicity of a beautiful object can already be enough for people to collect them.

"Having aesthetically pleasing objects can be enough for families to want them." - UNGA design team member

UNGA take-aways

Communicating individual and collective value of the birds is essential.

From UNGA's perspective the concerns mainly come from a collectability point of view. It is felt that the value of the individual birds and their collective purpose need attention in order to sell it in a loyalty campaign. Ideas were shared about adding features to the birds to make them stand out more. The conclusion I take from this session is not to add features or to radically change aspects of the design, but to more clearly communicate the value that is already there.

FLUID GAME DESIGN EXPERT PANEL



Scott Jenson
UX Strategist
at Google



Sander Veenhof
AR Artist



Adriaan de Jongh
Social game developer

By giving personality to the birds, the power of imagination disappears.

"You are not giving personality to the birds, as the birds have personalities themselves. You are losing the power of imagination by introducing this digital aspect." - Adriaan de Jongh

Augmenting the same object can feel redundant.

"You are augmenting something that already exists in the physical world. You have a physical bird with a digital bird layer. For me it would make more sense to make for example a physical banana with a digital monkey." - Adriaan de Jongh

Product complexity can stand in the way of usability.

"It is quite complex. Multiple people have to download it and family accounts further complicate the whole experience. The designed interaction is also something you can't understand just by looking at it." - Adriaan de Jongh

Guiding the interaction can resolve existing issues.

"I would recommend you to guide the interaction more. You need to think about how you can introduce the concept with respect to the chirp and messaging mechanic." - Adriaan de Jongh

"Make the birds recognizable in its purpose. There needs to be a link to the user. How do these people recognize the birds and think, AHA! This is what I am going to collect now. When people collect André Kuipers stickers, they know it's going to be about space." - Adriaan de Jongh

Technology and privacy issues need to be addressed.

"Whenever you are dealing with these new forms of technology, privacy has to be a concern." - Scott Jenson

"The concept can be taken into different directions when looking at it without the smartphone." - Scott Jenson

"Excellent project that can still go in many directions. Interesting to explore the directions in which it could go if we take away the cellphone and combine digital and physical into one toy." - Scott Jenson

“The concept is an evolution of current AR applications.”

- Sander Veenhof, AR Artist.

Smartphones dictate AR capabilities.

“Developments in AR are difficult because you are bound to the possibilities of the “worst” smartphone.” - Sander Veenhof

“Your concept is a fun step above what the market currently offers in the area of AR. You show the people that you can actually use it for something instead of it being a cheap gimmick. The problem of AR today is that everybody just creates something without thinking about it.” - Sander Veenhof

Understanding the concept use is essential for its success.

“Your concept is more complicated than the usual AR application and nobody will understand it at first sight. How do you solve this? I think a solution could be little videos showcasing clearly what it can do. Show the back and forth interaction. The concept needs to get a life of its own amongst the people.” - Sander Veenhof

Fluid game design take-aways

Understanding the concept in its complexity can provide a challenge.

Main realisations of the project from this expert panel come in the form of product understanding. Not having an immediate realization of the products intended use from a user perspective, requires extra thought.

The balance between product complexity and usability are to be further explored.

FAMILY IMPACT EXPERT PANEL



Tilly Pijnenburg
Educationalist

A guideline of use is needed.

"It needs a clear instruction or guide. It really needs that to speak to the different age groups." - Tilly Pijnenburg

FliereFluiters can play a role in the emotional growth of children.

"In every stage of a child's growth they will come in contact with emotions and how to deal with them. This can teach young children how to express their emotions while it could aid older children in initiating a more serious conversation." - Tilly Pijnenburg

This concept has the potential to break through the digital barrier to connect families.

"This is a digital activity that is useful and social instead of the mindless iPad. I can definitively see this improving the communication within families. The interaction is not useless and therefore also appreciated by parents, also because of the balance between function and play." - Tilly Pijnenburg

"I can see it as a balancing tool for families where you are using digital and tangible aspects to pull 2 different sides closer together. It can get people out of their digital realm." - Tilly Pijnenburg

This concept introduces humor to family communication which can help to put things into perspective.

"It can turn tension into relaxation. Using humor as a basis for communication, the weight of the message disappears. It puts life into perspective." - Tilly Pijnenburg

“Using humor as a basis for communication, the weight of the message disappears. It puts life into perspective.”

- Tilly Pijnenburg, Educationalist

EXPERT VALIDATION CONCLUSION

The concept can have a social impact on family life due to multiple aspects of the design.

Several areas of the design are highlighted by the educationalist to be of influence on family life or children's growth. Like mentioned by families themselves, she believes the **humor** enabled through the concept can act as a **neutralizer** of tension in current family interaction. Furthermore the **balance of fluid play** is mentioned to be **able to break the digital barrier** existing within families by both targeting children and parents. Finally and most obviously she mentions the influence it can have on the **emotional growth** of children. It can teach young children how to express their emotions while it can help older ones kickstart more meaningful conversations.

The concept needs to express its value in some kind of form, that allows families to create an understanding and desire for them from the very beginning.

The feedback from the different experts, while expressed differently, can be pointed back to two specific subjects: Understanding and Desire. How do you get people to recognize and relate to the product? How do you get them to understand its use? How do you create a desire for the product? These are the main attention points to address when looking from an outsider's perspective. While the concept could have a real impact on family communication according to a professional educationalist, it first needs to find its way into the family, one step at a time.

13.3 DESIGN FOCUS VALIDATION

GOAL

Using the insights from users and experts, the goal of this validation is to verify how the concept relates back to the design focus set-up during the definement stage and to evaluate on which level the concept manages to incorporate the design focus aspects.

METHOD

By combining expert reviews and family experiences throughout this thesis, I take a critical look at the design focus and evaluate how the design proposal incorporates its parameters.

At first a summary is given at how the design proposal attempt to incorporate the elements of the design statement in its design. Subsequently a conclusion is made whether the concept actually succeeds in achieving these interaction based on the validations.

Following these conclusions, context factors are adressed and evaluated and the interaction vision is shortly adressed.

RESULTS

The following few pages conclude the validation chapter, going through design statement, context factors and interaction vision. ending with a closing conclusion.

Fluid family play should encourage **poking fun** at each other, where parents and children are **equally involved** in a **personal** & **physical** activity.

Poking fun

This element reoccurs throughout the entire interaction model. At almost every stage there can be an element of poking fun. This was seen during the family testing. For example, this can occur when thinking about the message you are about to send, when utilizing a cheeky chirp, when looking at a person trying to find your bird or while watching the message together. This type of interaction works from both ways, creating a humorous dynamic between sender and receiver.

Equally involved

People are equally involved as the concept is created for both parents and children.

The intended interaction is one where a back and forth mechanic takes place amongst family members through the subject of messaging.

This subject is something already existing in current family dynamics, whether through Whatsapp, post-it notes or actual conversations.

The concept equally involves both parties by trying to pull both sides towards each other. This is done by focusing slightly more on the parents with the tangible objects and physical interaction, and slightly more on the kids with the digital elements.

Personal

The interaction requires personal input at several stages of the fluid play flow.

Whether it is creating a personal chirp, message or finding a creative hiding spot, it is all about the personal message you are trying to convey.

Physical

The concept also allows you to target a specific person, making the message feel more personal towards the receiver.

Physical elements reoccur when family members need to hide or search for the object. This element can lead to a surprising effect. It can make people value the message more as was seen during the family testing,

Poking fun

The concept succeeds in incorporating this aspect of the design statement.

Families and experts mention this as one of the most valuable parts of the interaction. During the user test in the conceptualization phase many different cases of poking fun were observed at different stages of the interaction. This was again verified during the online tests as families mentioned they would use the aspect of humor and poking fun to their advantage to get things done or to just play around with each other. The advantages of this humorous behavior is further described by families and an educationalist, mentioning it could relieve tension within family communication and lower the threshold of talking about specific topics.





Equally involved

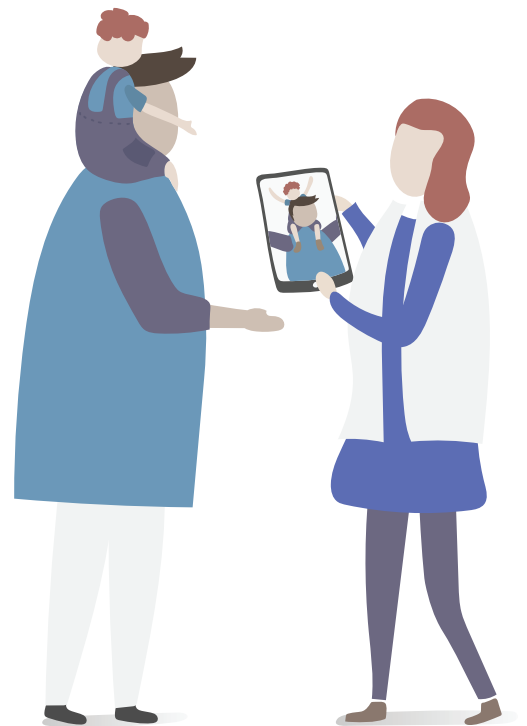
The concept succeeds in involving children and parent equally, to a certain extent.

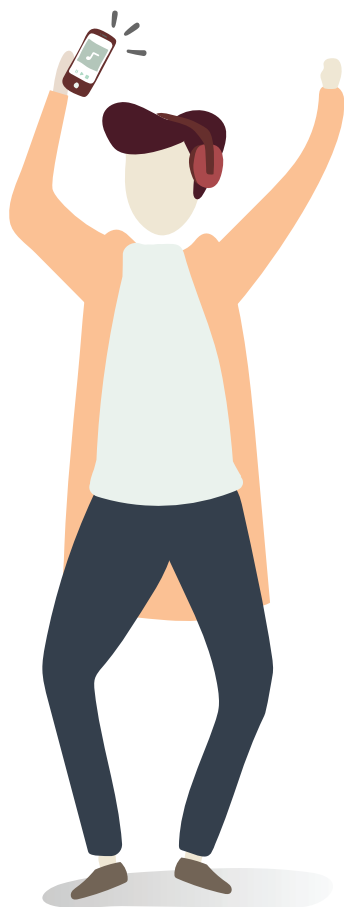
This design parameter originated from children mentioning how they would enjoy their parents joining in on their activities. To make this happen, design decisions are always focused on appealing to both children and parents. During the family validation the families responded that the entire family can see themselves using these birds, al be it in slightly different ways. While some families have a more collective usage within the family, other families show a more separated usage between children and parents (playful vs functional). While this does provide a supposed equal involvement of the product, it could be said that these activities might not be the same. Furthermore, the origin of this parameter involves an activity the child and parents are doing together at the same time. While not specified in the parameter, this concept is also focused on the interaction between family members when they are separated. It can definitively be said that the product involves parents and children equally, but it is important to be aware on which level this takes place.

Personal

The concept succeeds in creating a personal activity for the entire family.

During the family testing and family validation the participants mention how the concept allows for them to express themselves in a personal matter. By giving them a template of personalities with a way of using their own facial expression, the interaction is centered around each and everyone of the family. It should be mentioned that parts of the personal aspects of the design are traded for the personality of the birds, as it was felt that families needed more guidance from the product itself.





Physical

The concept succeeds in creating a physical activity for the entire family.

By having people search for their message, a physical activity is involved within the concept. Families mentioned they greatly value this aspect of the design as it allows for creative freedom from the hider's side, and a sense of challenge and accomplishment from the receiver's side. It is mentioned that this physical aspect of the design makes these kind of messages feel more special and rewarding than a Whatsapp message.

CONTEXT FACTORS

By creating an interaction that can be done at any time, the concept succeeds in involving this context factor. Families mention an array of different uses at different times a day, which indicate the concept's ability to fit within busy family life. Careful considerations were made regarding the gamification of the concept with this factor in mind. As parents implied an open-ended game could feel like another thing on their to-do list, most gamification features were kept to a minimum, releasing the concept of a stress-inducing factor.

The concept succeeds in applying this context factor within its design. By having physical objects in and of itself, combined with a design that invites users to place it in sight, participants are reminded of the existence of the product and its use. The completer adds great value when it comes to this context factor. It allows families to see if a bird has gone missing in an instant, possibly activating the interaction.

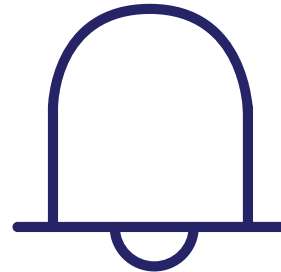
FliereFluiters succeeds in applying this context factor, in a suboptimal way.

By focusing on the surprising factor of a chirp, using the smartphone combined with individual users, the interaction becomes suboptimal when played on one device. When playing on the iPad a conscious decision has to be made to go and look for a bird. This takes away the surprising element of receiving a chirp when you are close by. Not being able to fully experience the intended interaction with one device could be an issue when trying to reach a big audience.

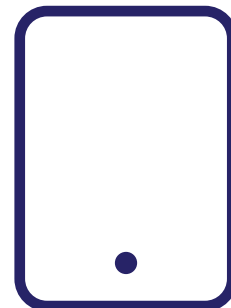
Time well spent



Tangible object reminders



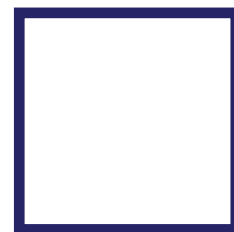
One main device



The concept succeeds in applying this context factor to a certain extent.

By maintaining an open set of rules and possibilities, the concept can be applied in many different ways in different stages of the interaction. Also the activity itself is easy to do as anyone is able to record a chirp, message and hide it from someone. Setting up the product and understanding the concept itself can be more of a challenge and could get in the way of this “low floor” however. A part where the concept staggers is the challenge or “high ceiling”. The ceiling here is dictated by the hiding interaction. Finding a difficult to find bird is essentially the hardest challenge you can ever achieve. Families decide themselves how hard this challenge will be by balancing the birds chirp with a suitable hiding spot, depending on the child’s age or the intention of the message. It is up to the family members to decide this type of challenge, making it not necessarily a big part of the design.

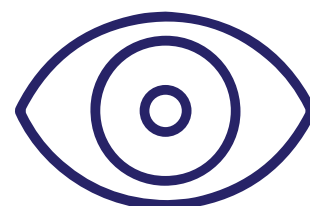
**Low floor
high ceiling
wide walls**



The concept successfully incorporates the fluid play vision.

As the interaction flows from digital to tangible and back naturally while also combining both elements at the same time through multiple parts of the interaction, the concept embodies my vision on fluid play. However, the intuitiveness of the concept is questionable, as experts have mentioned the interaction will not be clear from the get go.

**Fluid play
vision**



INTERACTION VISION

The interaction vision and its interaction qualities were continuously kept in mind when creating the concept, so it is not surprising that the concept incorporates this vision within its design. While not being an actual activity where everybody is participating in a physical activity together, the interaction qualities were taken as individual parameters and can be seen throughout the concept, as rated by fellow IDE student during the conceptualization phase.

FliereFluiters embodies this vision by allowing for spontaneous and naughty messages, in an open ended and dynamic interaction that allows for personal improvisation.



CLOSING CONCLUSION

By carefully utilizing tangible and digital elements in one fluid play experience, FliereFluiters compels to both children and adults, breaking the digital wall amongst family members.

By combining a personal, physical and humorous activity within this experience, while maintaining versatile in its application, FliereFluiters manages to enable family connections, one surprise at a time.

By involving the design statement and several context factors, FliereFluiters manages to fit quite well within its context, however there is still room for improvement.

13.4

RECOMMENDATIONS

After validating the concept through multiple channels and relating it back to the initial design focus, recommendations for the design and future research can be made.

Understanding the product use.

The concept is more complex than a standard supermarket loyalty product. This makes it hard to understand. The concept needs to live amongst the people before it can really be successful. The game design needs to introduce elements step by step. Gaming specialists and educationalists all mentioned those steps should be addressed. While families themselves see the value of it when understanding the concept, getting there can be a problem. How to use it needs to be clear (and intuitive) and more work needs to be done to simplify the concept.

Moving it to one tablet device while maintaining the core of the interaction could be a possible solution. While the concept already supports one device usage within families, the interaction is not ideal. Another idea to explore could be “step by step challenges” that each bird can contain using their speech bubbles, making it even more simple for people to understand while slowly exploring the possibilities and playability of individual and collective birds.

Creating desirability.

The complexity of the product makes it hard to immediately want the product. This is also UNGA's concern when talking about the value of a bird. This is why separate marketing techniques need to be used to address children and parents. Finding a recognizable way to make people understand the idea and create a desire for it is crucial for success.

Introducing video commercials and targeted social media for the different age group are a recommended first step. Expanding on the world of the FliereFluiters and showcasing how these birds interact with each other through the app and possible television shows can also increase the recognizability and desirability for the product. Transmedia storytelling could be a promising area to explore these possibilities. (Pratten, R. 2011)

Evaluating the product-use in a long-term family setting.

While online tests with families and experts create valuable insights on the possible effects and concerns of the design proposal, it does not give 100% reliable feedback when it comes to the products usability. Most insights rely heavily on speculation from both experts and families which do not give a 1 on 1 representation of the truth, as people often say things that they do not actually do (E.B.M. Sanders, 2013). It would be valuable to add a home study amongst multiple families, who acquire the FliereFluiters and interact with them across multiple weeks. By keeping track of the product's use and its effects on family connection, a more accurate validation of the concept can be achieved.

Broadening the view.

This thesis provides a design solution mainly originating from qualitative design research within a specific context. It would be valuable to see how design decisions would impact families in entirely different contexts. Further literature research connected to influencing social behavior and persuasive game design (Visch, V. et al., 2013) in general can also provide a more global view of which universal principles this proposal applies, which can be applied to different contexts.

Phase IV

Take aways

DESIGN PROPOSAL

FliereFluiters is introduced as the designed fluid play experience to enable family connection.

By carefully utilizing tangible with digital elements in one fluid play experience, FliereFluiters compels to both children and adults, breaking the digital wall amongst family members. By combining a personal, physical but most of all humorous activity within this experience, FliereFluiters enables a family connection, one surprise at a time.

THE LOYALTY CAMPAIGN

A loyalty model is proposed in which families get introduced to the concept of the FliereFluiters step by step.

Supermarket and social media aspects are introduced as means to introduce the concept to consumers, while the actual exploration and involvement with the concept takes place primarily at home.

The loyalty model utilizes two applications to attract both parents and children. The FliereFluiter app is used to engage children with digital collecting, while the parents are targeted through the supermarket app to collect their tangible FliereFluiter.

In order for customers to create a desire for the FliereFluiters, it is important to get people familiar with the concept and its application. For this reason, special (and theft proof) FliereFluiters will be placed inside the shop, promoting different articles with their characteristic personalities.

VALIDATION

The concept is validated through the involvement of families, experts and the design focus.

The concept succeeds in creating a personal activity for the entire family as participants mention the concept allows them to express themselves in a personal matter.

The concept succeeds in creating a physical activity for the entire family by letting family members search for their message.

The concept succeeds in incorporating the aspect of "poking fun" in its design by allowing for personal and open Interaction at multiple touch points of the interaction.

The concept succeeds in involving children and parent equally, to a certain extent, by attracting to both parties in different ways.

Recommendations are made based on the validation results.

Focusing more attention on creating an understanding and desire amongst the families is recommended. By simplifying and trimming the design further to its essentials a more intuitive understanding can develop amongst families. By focussing on social media channels and transmedia storytelling an easier understanding and desire can be created from a family perspective.

To get a true understanding of the long term impact of the concept on family connection, a longterm study with an experiential prototype amongst families is recommended.

PROCESS REFLECTION

At the beginning of this thesis an overview is given of the design process and some of the techniques being applied. This chapter looks back on the entire process and outlines the most critical learning experiences from the process for myself and other students to learn from.

Initiate

Managing expectations

A project as this always comes with many uncertainties, I did not know what the outcome would be as I was basically diving in the deep. When kicking off with multiple stakeholders it felt like the pieces of the puzzle were finally coming together. It can be hard to define what your result will be, but identifying in what kind of frame of mind your project takes place can help to align all the parties involved. Everybody will have their own agenda despite your own intentions, so make sure they are clear to avoid confusion in later parts of the process.

Discover

Family research

The process of doing diary studies with several families in combination with semi structured qualitative interviews and generative design tools allowed me to get a complete and well-rounded view of the context of family connection. There are a few things to keep in mind when working with such a user group. Parents will try to help giving the “right answers” or asking their children biased questions to help you with your research. If such cases keep arising it can be helpful to temporarily split the user group and take some time alone to get the real answers you are looking for. A variety of different generative tools can also help to involve participants in

different ways, allowing you to observe the natural dynamics between parents and child. Lastly be aware of the limitations and opportunities your research provides. By using 4 families I am aware of the very selective part of society I have chosen to do my research with, however it has also allowed me to experience parts of family connection first hand, providing me with inspiration and a clear idea of what kind of interaction I wanted to design.

Define

Information overload

Having finished with the general research of family connection, it was time to analyze the data and come to a design statement. The way I chose to do my research was very thorough and methodical, transcribing every interview and creating statement cards for various parts of my research. This led to an enormous amount of information on different levels, where clustering seemed an impossible challenge led alone coming to a valid conclusion. What greatly helped me in this process was the acceptance of losing information, knowing it will come back somewhere if it is really important. My coaches also provided a big help when thinking about the following steps, but mostly they made me realize I already knew the answers. I would advice a more balanced approach between thorough, and quick and dirty research to avoid a similar situation in the future. However, when faced with similar challenges, just go with your gut and accept and be aware of the concessions you are making.

Develop

Creative session

As a fan of creative sessions and having finished the creative facilitation course at the IDE faculty I was determined to hone my skills and develop myself further by applying this technique. When looking at how the session progressed, I believe it was a successful session, but did I get what I wanted? I applied everything I had learned but in the end I still had to do quite some individual ideation to come to ideas that fitted my desires. When applying a technique as this I think it comes down to the effort you put into it, and the result you expect it to give you. When taking a step back, less preparation could have given me similar results, within a shorter time frame. When preparing future sessions I will critically ask myself the question, what am I doing and what results will I gain from it in order to gain the maximum results.

Rapid videotyping

Having used video and animations in the past as part of the end results of a project, applying them during the process as a communication/design tool was a personal goal of mine. When applying rapid videotyping there are 2 main takeaways I would like to share. First of all you need to ask yourself the question if there is an easier way to communicate what you want towards your participants. If the answer is no, the second take-away comes into play: keep it rapid! I have experienced that video is an excellent way to showcase interactions during the family testing and expert validation as long as you keep it simple. When it comes to animation however this rule is absolutely essential. Keep it simple and use pre-existing visuals and simple movements to convey your message, and you can reap great results. If you do not you will probably be wasting your time.

Experiential prototyping

If you really want to, there is always a way to test it! I managed to test one specific interaction with families by combining skype, axure, a Bluetooth box and three smartphones. Being resourceful is your greatest strength so definitely do not be afraid to ask for help. Contrary to my previous reflections, I do suggest an elaborate and well thought out plan when it comes to elaborate interactions that involve many different elements. The family test turned out to be one of the most successful tests as it provided a great amount of insights on complex interactions made possible by a well thought out plan and clever use of basic technology.

Deliver

Settling on your design, and find what's really important

During this phase of the project there is one thing I can advice myself: settle on your design, and stick to it. At a certain point you have to accept that this is what you have and this is what you are going to run with. When I thought I had shut the door for any changes, the door would open again, sneaking one little change in there. From a personal perspective I will always be the one finding opportunities in new and undiscovered areas, but at this point in the process it was good to realize it was not what I needed. By trimming down the concept to its essentials and purely focusing on that, the results are sure to follow.

PERSONAL REFLECTION

This has without a doubt been the strangest project experience I have ever had.

Working on my own project for half a year, in a new working environment, for multiple stakeholders, while dealing with mental problems and a world wide pandemic is sure to be an experience I will not soon forget.

Through the depths

The project started with me being in a state that I would not quite describe as "healthy". There were serious considerations from my part about aborting the project all together due to this situation, however I managed to push through. To be at this point where I am writing my personal reflection of my master thesis has to be the biggest accomplishment I have ever achieved considering the situation. The project constantly challenged me to dig deep for motivation, and I found it in expected and unexpected places. By blending personal interests like animation and by steering the project into a direction I knew I could motivate myself for, I manage to stand here now, proud of what I have accomplished.

Exploring AR

Before the start of this project I knew there could be an opportunity for me to explore the possibilities of AR. When the opportunity arose, I decided to go with it. This allowed me to get acquainted with Unity. I really went in the nitty gritty of things and tried to make things work the way that I imagined them to be. This involved countless hours of finding my way through unknown territory, to the point of hard coding my desired interaction. When taking a step back, this time consuming part of the process might not have been the most productive, but it has definitely given me the personal growth, skills and sense of accomplishment I desired to achieve.

Discovering a new professional environment

At UNGA I experienced a working culture I think every company should strive for. Playful in nature, connected as a family and never shy of celebrating their successes. What they do for their employees continues to surprise me. I have experienced quite some company cultures during my time as a student but never one like this. The reason I chose to do this graduation at UNGA was because I could feel the kind of atmosphere the moment I walked into their doors. I can be very critical of things in general and finding the right working environment has always been something I have been doubtful of. Having experienced a company like UNGA I can confidently say these doubt have greatly been diminished.

Attention to detail

There is one thing I already knew about myself but what really stood out to me while working on this thesis: I can really lose myself in the details. If I closely examine my behavior the past 6 to 7 months, the times I was most immersed in the project was probably when I was aligning some kind of visual to a random pixel. There is definitely a negative correlation between me working within a general project structure and me losing myself in the exact appearance of a bird's beak. These moments of full immersion into a specific task were however essential to my own motivation and opinion about the project as a whole. Managing to balance these aspects within my future professional life is something I am extra aware of and is something I will take with me from working on this project.



■ **Figure 129.** UNGA. It's time to celebrate!



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April 2020

