



WELCOME TO  
**PLOPPI'S BAKERY**

AND HIS SPEECH ADVENTURES

## PROBLEM DEFINITION

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## FOCUS AREA

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*How can we motivate children with speech disorder to exercise more in the home environment?*



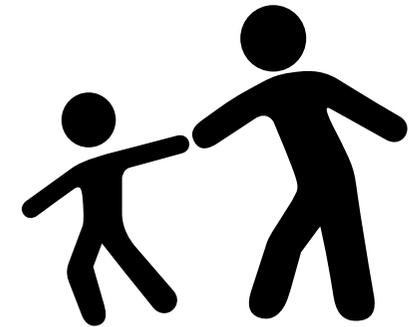
**Parent - Child**

Parent engages the child.

GOAL



Instead of the parent forcing his/her child to do the speech exercises, the child forces his/her parent to help him complete the exercises.



**Child - Parent**

Child engages the parent.

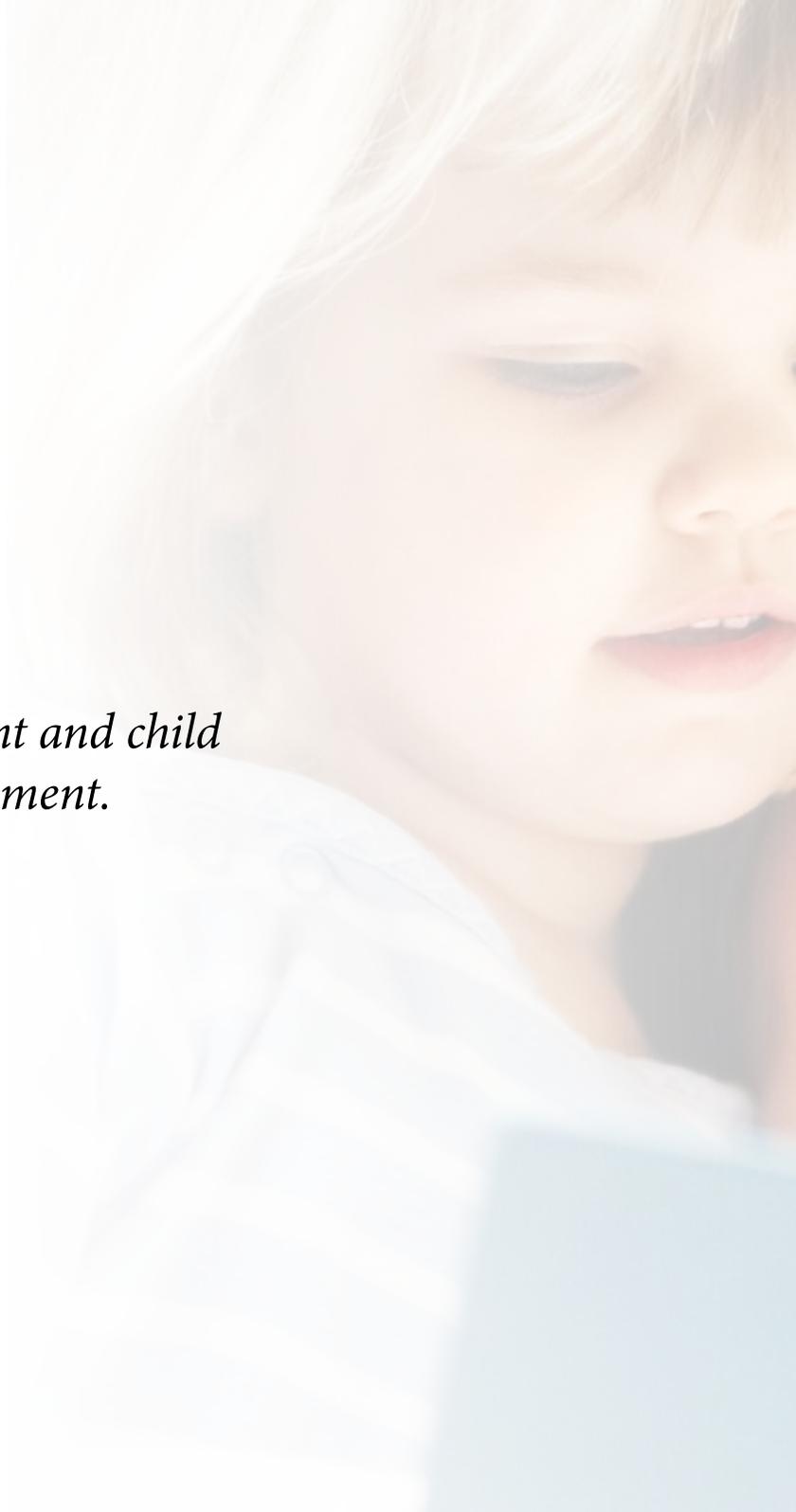
## PROBLEM DEFINITION

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### GOAL

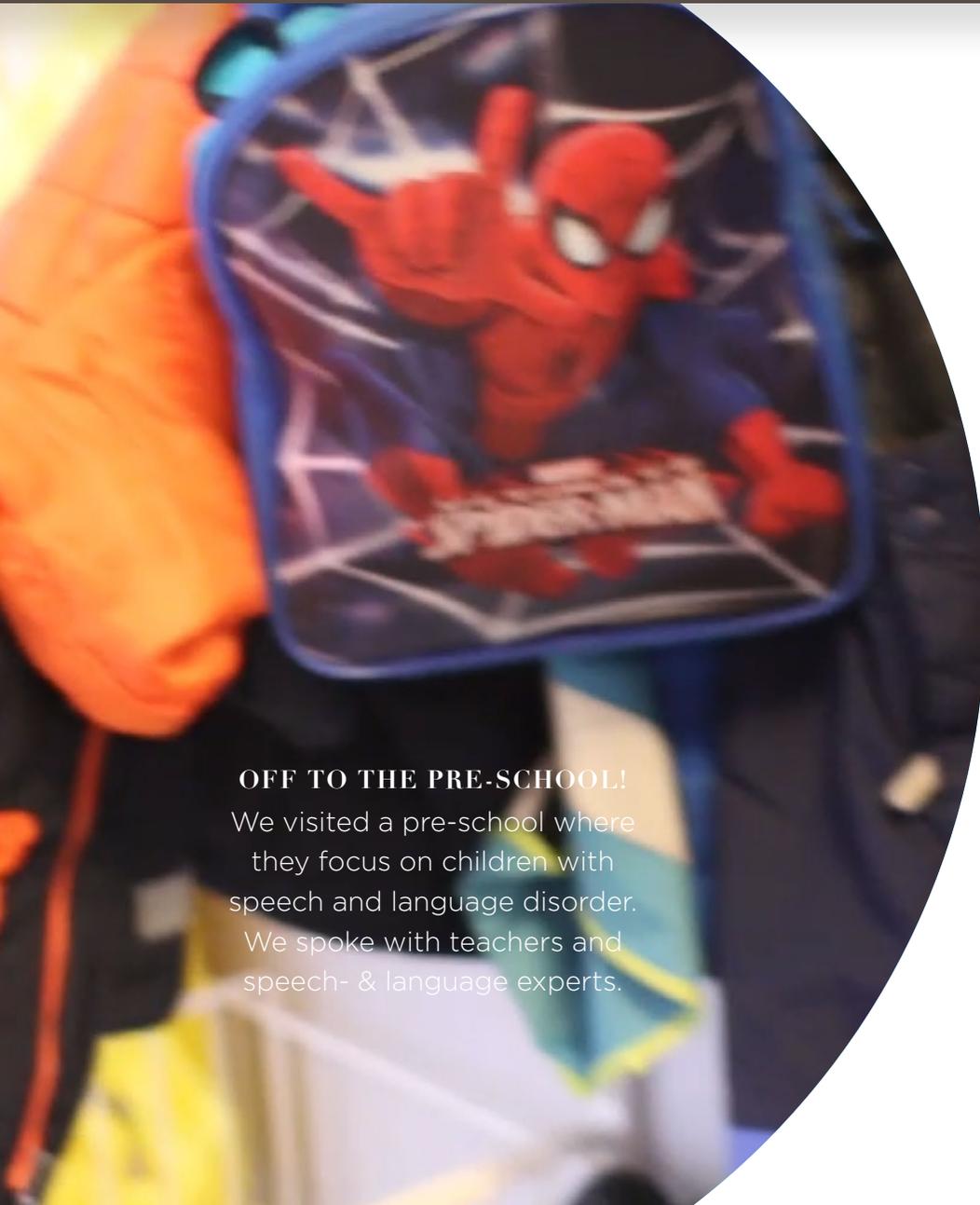
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*Creating opportunities where the parent and child  
can bond through speech development.*



*“A child that has once failed to convey their message, might give up and stop trying”.*

Norwegian Folkehelseinstituttet



**OFF TO THE PRE-SCHOOL!**

We visited a pre-school where they focus on children with speech and language disorder. We spoke with teachers and speech- & language experts.



**FLOWCHARTING**

After ideation, different flowcharts have been created to show how the product should be used.

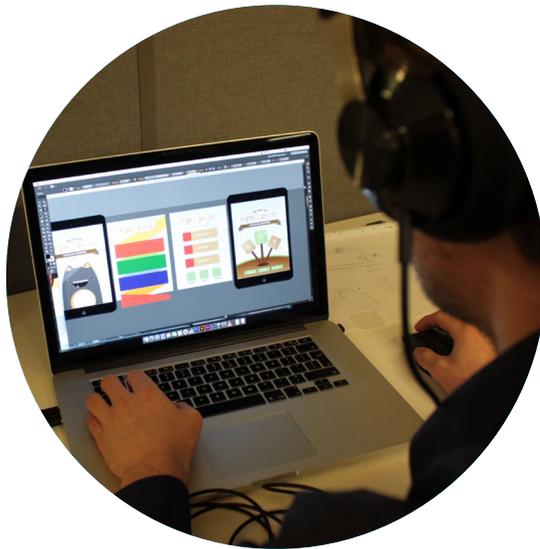


**CHARACTER DESIGN**

A semi-interactive doll has been developed and made. The doll is used for user testing and other purposes.



**DESIGN**  
has been  
doll was  
filming



### **EXERCISE/APP DESIGN**

Games based on exercises have been designed to be implemented in the app. It includes the creation of a coherent graphical design language throughout the game, book and packaging.



### **USER TESTING**

12 days after the kick-off, a working app and finalized doll were tested with users to see if they understood how the game and interaction with the doll works.



### **PROFESSIONAL EVALUATION**

After the project, a visit to two speech experts was planned to evaluate our concept. Their valuable feedback was used to make the final changes.

## RESEARCH

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**CHILDREN, ALWAYS FUN!**

Check out the awesome way we  
have approached this project.

<https://vimeo.com/155981322>

Interviewing pre-school teacher



Reviewing initial research



Getting insights from the pre-school teacher



Equipment of the speech therapists

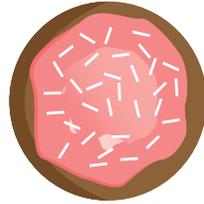
PLOPPI'S ATTENTION POINTS

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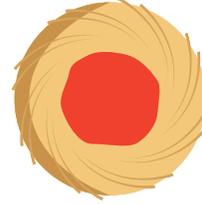
**Motivation**

*Must be entertaining  
interesting and  
challenging enough.*



**Time**

*"Maximum 15 minutes,  
30 is a stretch."*



**Reward**

*The child should feel that  
they are mastering the  
task.*



**Usage**

*Extend the training  
performed by professional  
speech therapists to the  
home.*





# PROCESS

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Idea reviewing

Idea reviewing



Choosing fabrics for Ploppi



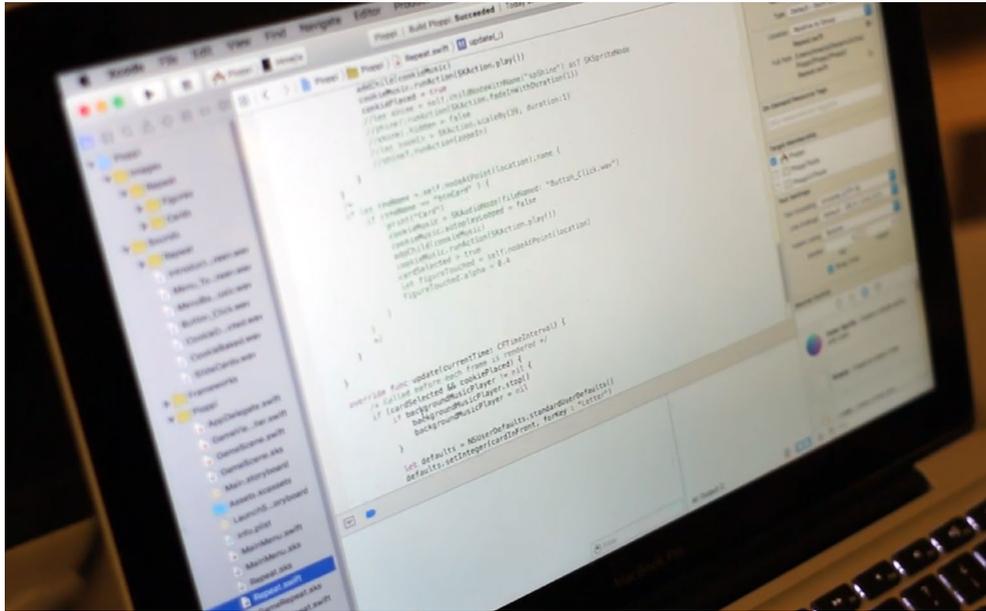
Recording sounds for Ploppi and the interactive exercises



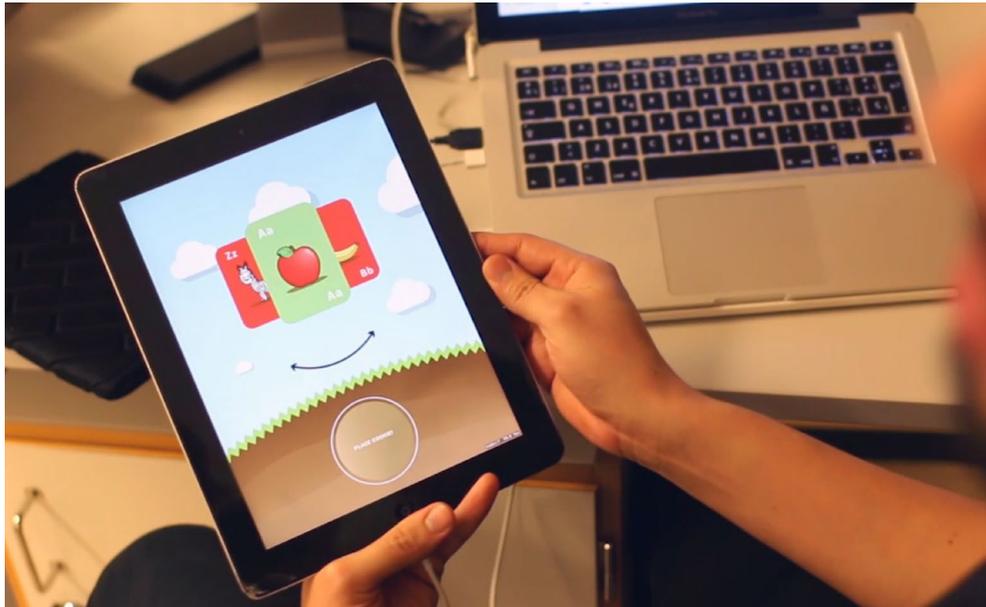
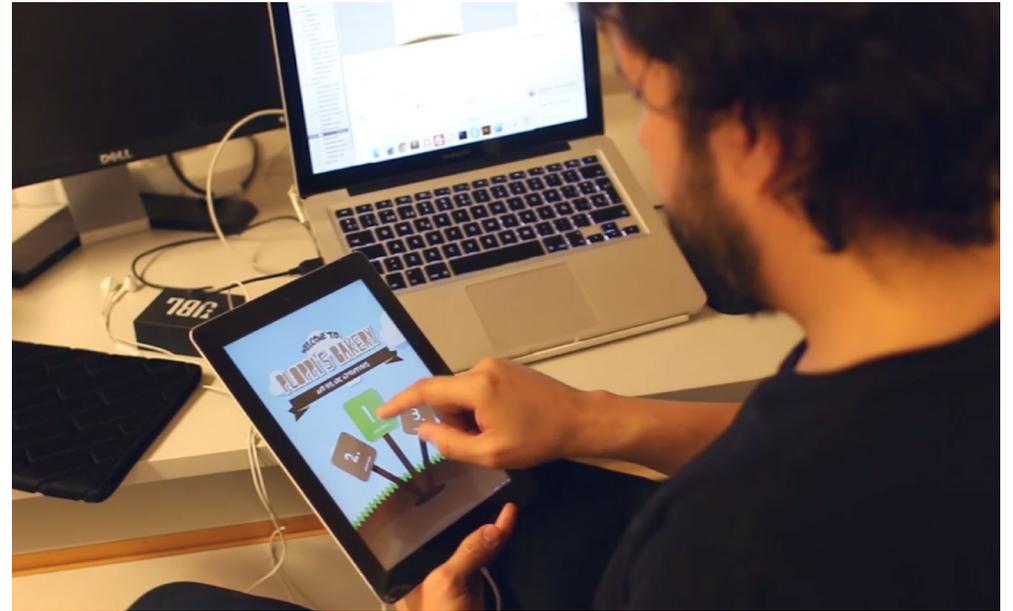
Sewing Ploppi

# PROCESS

Programming Ploppi's Bakery app



Reviewing Ploppi's Bakery app



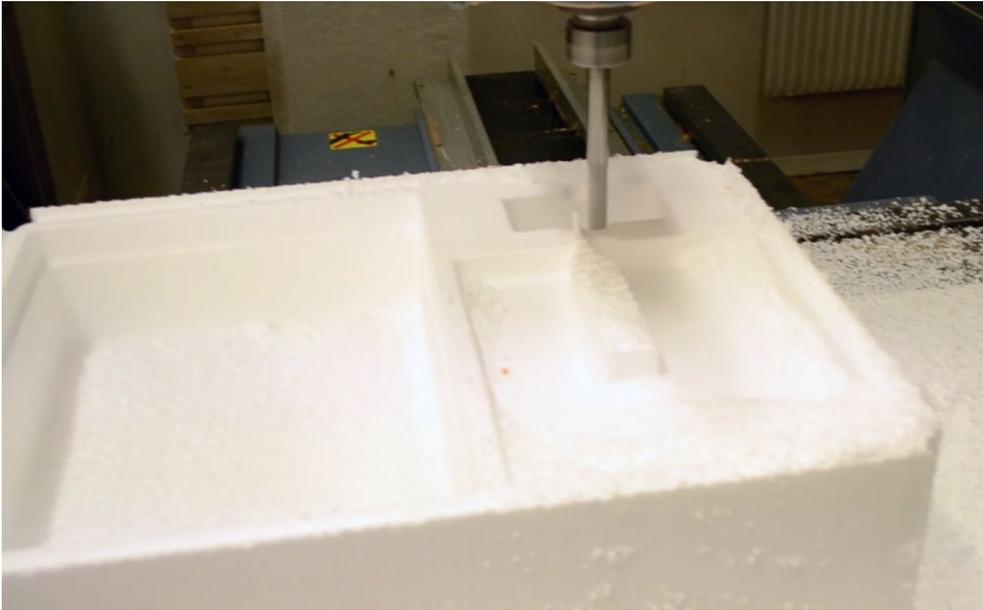
Reviewing Ploppi's Bakery app



Reviewing Ploppi with the recorded sounds

**PROCESS**

Milling the package



User testing



Folding the Ploppi's Bakery box



User testing

# WELCOME TO PLOPPI'S BAKERY

AND HIS SPEECH ADVENTURES



1x

## Meet Ploppi!

*Ploppi is a hungry, semi-interactive doll that needs to bake cookies to still his hungry.*



22x

## Cookies

*Ploppi's hunger can be stilled with the cookie. The child needs to bake the cookies by completing his exercises.*



1x

## Book 'Ploppi's bakery'

*The book explains why Ploppi needs to get feed and stimulates the kid to do his exercises.*



1x

## iPad platform

*The exercises can be done by downloading the app from the appstore. The use of an app makes it able to bring complexity within the exercise.*

ANDROID APP ON  
Google play

Available on the  
App Store

### **Meet Ploppi's Bakery**

*Ploppi's bakery is a kit that exists of a semi-interactive plushie monster (Ploppi) that the child can feed cookies as a reward for completing speech tasks in an application controlled by a parent and modified by the speech therapist.*



## PLOPPI'S VISUAL FLOWCHART



I ONLY MAKE SOUNDS  
WHEN EAT OR WHEN I'M HUNGRY

## GAME ARCHITECTURE

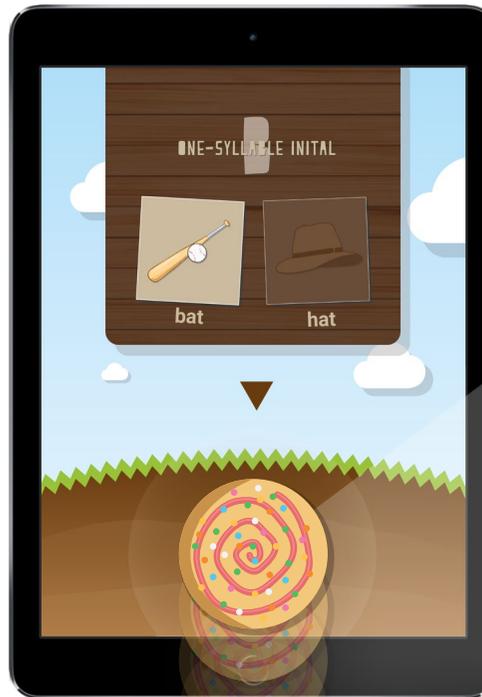
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I HAVE BEEN CREATED  
TOGETHER WITH SPEECH THERAPISTS



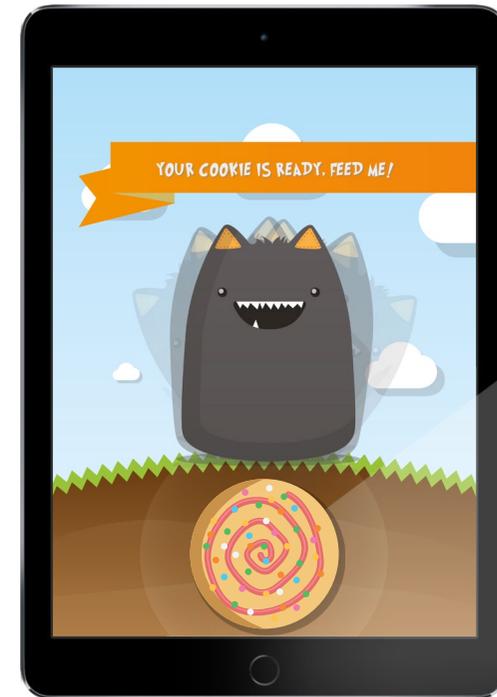
### Parent controls

*The parents has control over the app and helps his/her child when necessary.*



### Daily exercises

*The child will start with an easy exercise functioning as a 'warm-up', followed by a more difficult exercise and it ends with an easy exercise.*



### Auditive feedback

*An auditive feedback is included. The iPad will play the sounds first and the child has to repeat them afterwards.*

**Book 'Ploppi's bakery'**

*The book explains why Ploppi needs to get feed and stimulates the kid to do his excersises.*

**Ploppi's cookies**

*Ploppi's hunger can be stilled with the cookie. The child needs to bake the cookies by completing his excersises.*

**Meet Ploppi!**

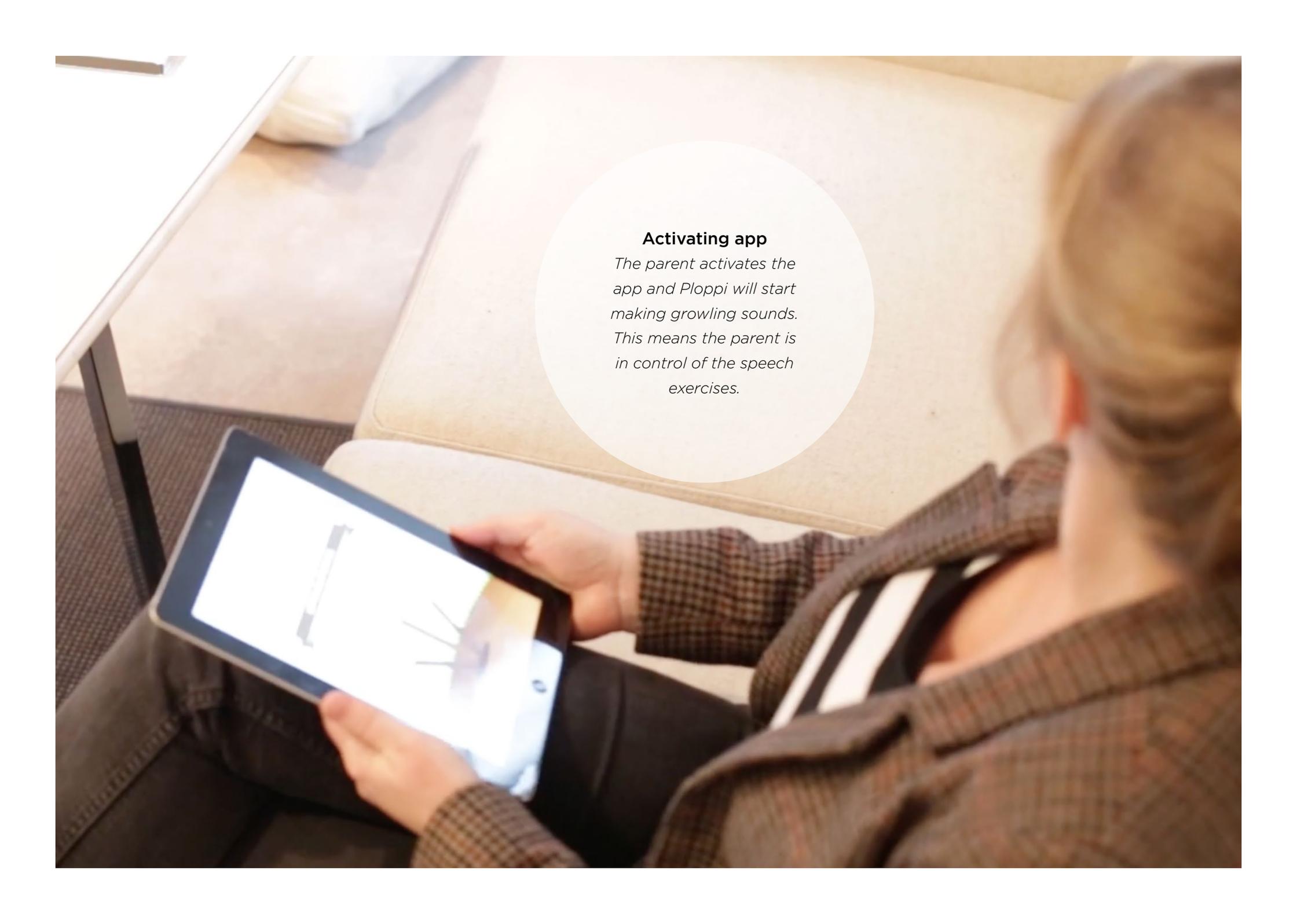
*Ploppi is a hungry, semi-interactive doll that needs cookies to still his hungry.*



### **Storytelling**

*Children need stories to know why they are doing the things they are doing. A book has been included which the child can read alone or together with the parent.*



A person is sitting on a light-colored chair, viewed from behind. They are holding a tablet computer with both hands. The tablet screen displays a white background with a grey vertical bar and some faint lines. A large white circle is overlaid on the image, containing text. The person is wearing a brown and black checkered jacket. The background shows a wooden floor and a white wall.

### **Activating app**

*The parent activates the app and Ploppi will start making growling sounds. This means the parent is in control of the speech exercises.*



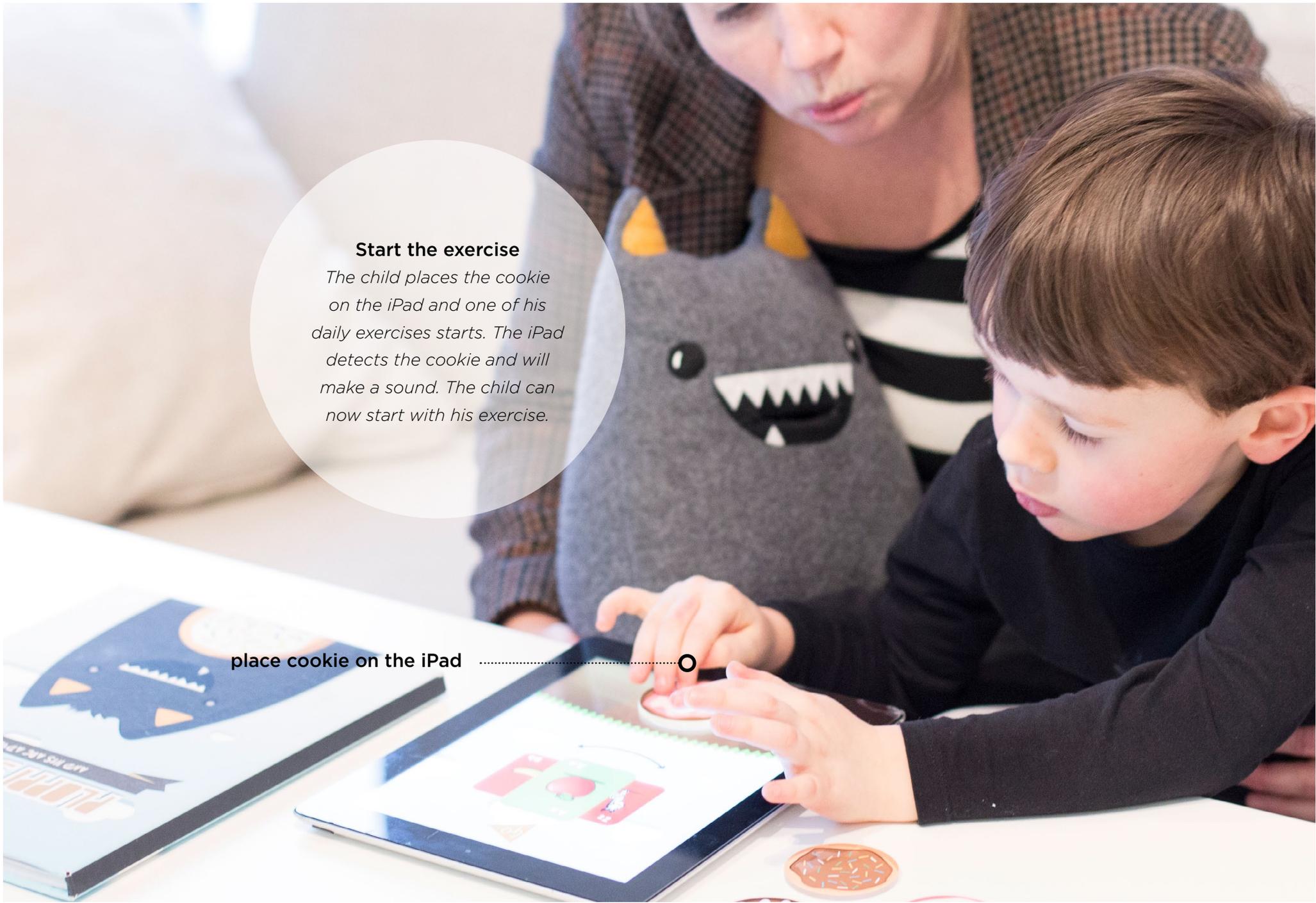
### **Growling Ploppi**

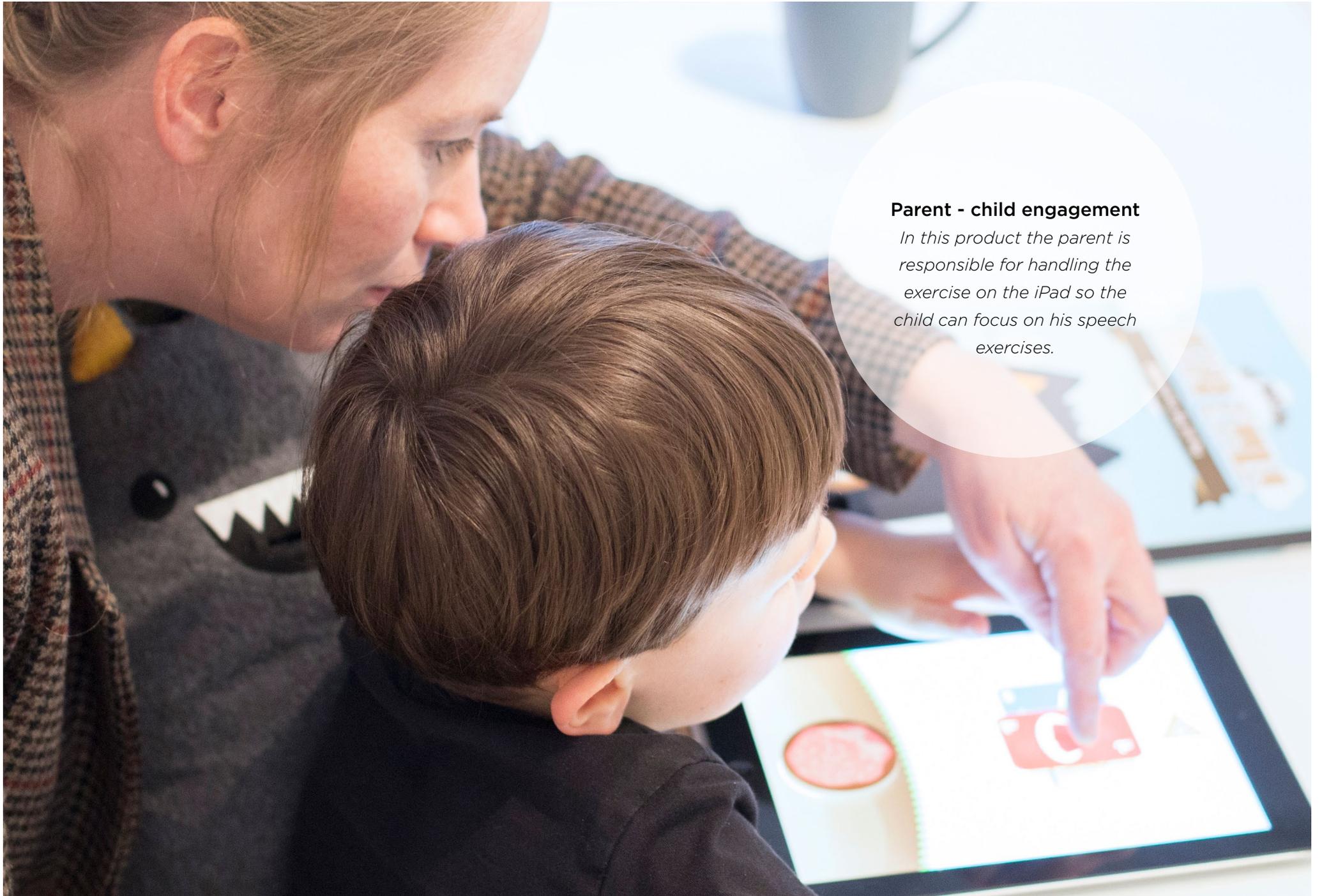
*After the parent activated the app, Ploppi starts growling. This triggers the child to pick up Ploppi and bring him to his parent to feed him by baking cookies.*

**Start the exercise**

*The child places the cookie on the iPad and one of his daily exercises starts. The iPad detects the cookie and will make a sound. The child can now start with his exercise.*

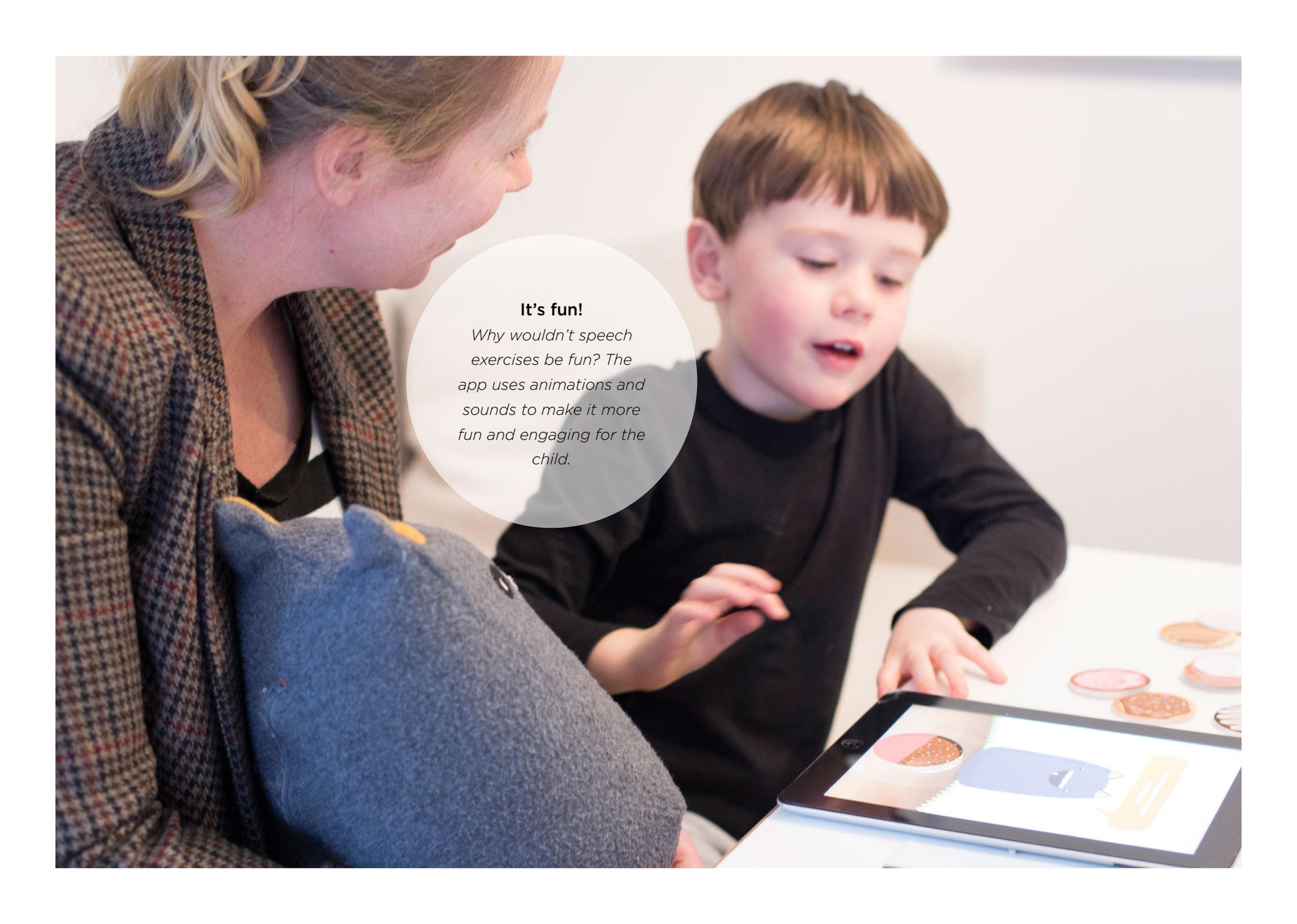
place cookie on the iPad ..... ○





**Parent - child engagement**

*In this product the parent is responsible for handling the exercise on the iPad so the child can focus on his speech exercises.*



**It's fun!**

*Why wouldn't speech exercises be fun? The app uses animations and sounds to make it more fun and engaging for the child.*



**Reward**

*The child will be stimulated to do his exercises because his buddy Ploppi needs to get feed.*

## PROFESSIONAL EVALUATION

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*“THIS WOULD DEFINITELY MAKE CHILDREN EXERCISE  
MORE IN THE HOME ENVIRONMENT”*

*‘FOCUS ON THE SOUNDS OF LETTERS,  
NOT ON WORDS.’*

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**‘NEVER TELL CHILDREN THEY DO IT WRONG,  
ENCOURAGE THEM TO DO IT AGAIN!’**

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*‘I REALLY LOVE THIS AND I CAN TRULY SEE US  
USING THIS AS A PRIMARY TOOL!’*

*‘AUDIO INPUT IS ONE OF THOSE THINGS  
THAT WILL MAKE THE DIFFERENCE’*



**Umeå Institute of Design**  
Umeå University

**Advanced product design**

Rik Oudenhoven  
Daan Hekking

**Interaction design**

Hector Mejia  
Lene Rydningen

*In collaboration with*

