

*Graduation report  
Beatrice Chichiarelli*

# ***TUP & MAZ***

*Graduation report*

*Master of Science Design for Interaction*

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*Delft, The Netherlands  
21 June 2017*

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*Dag Piper  
Charlotte Foudrier*

*Thou sayest thou art as weary as a dog,  
As angry, sick, and hungry as a dog,  
As dull and melancholy as a dog,  
As lazy, sleepy, idle as a dog,  
But why dost thou compare thee to a dog?  
In that for which all men despise a dog,  
I will compare thee better to a dog,  
Thou art as fair and comely as a dog,  
Thou art as true and honest as a dog,  
Thou art as kind and liberal as a dog,  
Thou art as wise and a dog.*

— *Sir John Davies, epigram to In Cineam (1594)*

# ABSTRACT

*This graduation project was born with Petlab, a new child lab of TU Delft Industrial Design Engineering. It is divided into three main phases: analysis, conceptualisation, evaluation and conclusion.*

## *Phase 1: ANALYSIS*

*This phase focused on understanding the context and collecting general info regarding the pets' and owners' world. Moreover, the main challenge was to understand, what kind of role should design cover in order to add values to MARS Pet Care products. Literature research was conducted investigating the current owner-dog relationship and which kind of emotion is involved. Thirteen pet's owners were interviewed using the Emotional Capture Cards method in order to understand their concerns, desires & needs. With the ECC Cards method the*

*main emotions related to specific situations such as the feeding moment can be highlighted. By analysing the transcripts, dilemmas and statement cards were created and clustered in more than 35 different categories. Based on the insights collected from the interviews, desktop research and bench marketing, three personas were identified: Structured, Equal, Easy going.*

### *Phase 2: CONCEPTUALIZATION*

*The second phase focused on the easy going persona and his related dilemmas. In order to better depict the persona, his lifestyle and interactions with his dog, a scenario was created.*

*Moreover, within this phase, ideas were envisioned and tested through different mockups. Several ideation activities and the final concepts were co-evaluated with direct and indirect dog's owners. In order to tackle different aspects of the problem found, several concept directions were chosen for further development.*

### *Phase 3: EVALUATION & CONCLUSION*

*In this phase, a final evaluation was conducted. New prototypes elements and additional aspects of the final concept were provided to the participants for evaluation. Participants were very positive about the general concept. Therefore, the design concept meets the needs of dog owners. As a recommendation for further research, the testing procedures should be longer in order to identify the long-term effects.*

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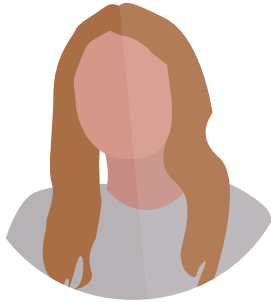
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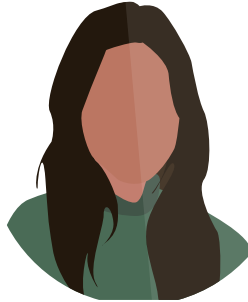
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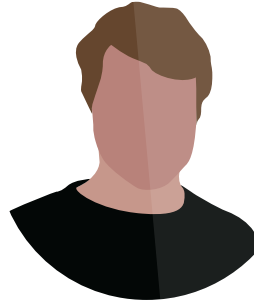
# PET-CREW



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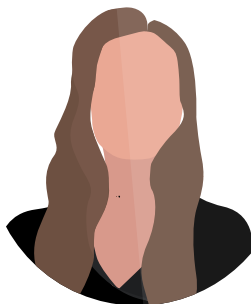
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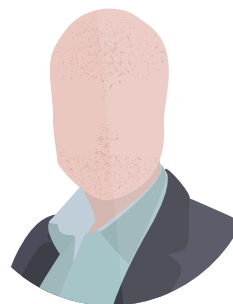
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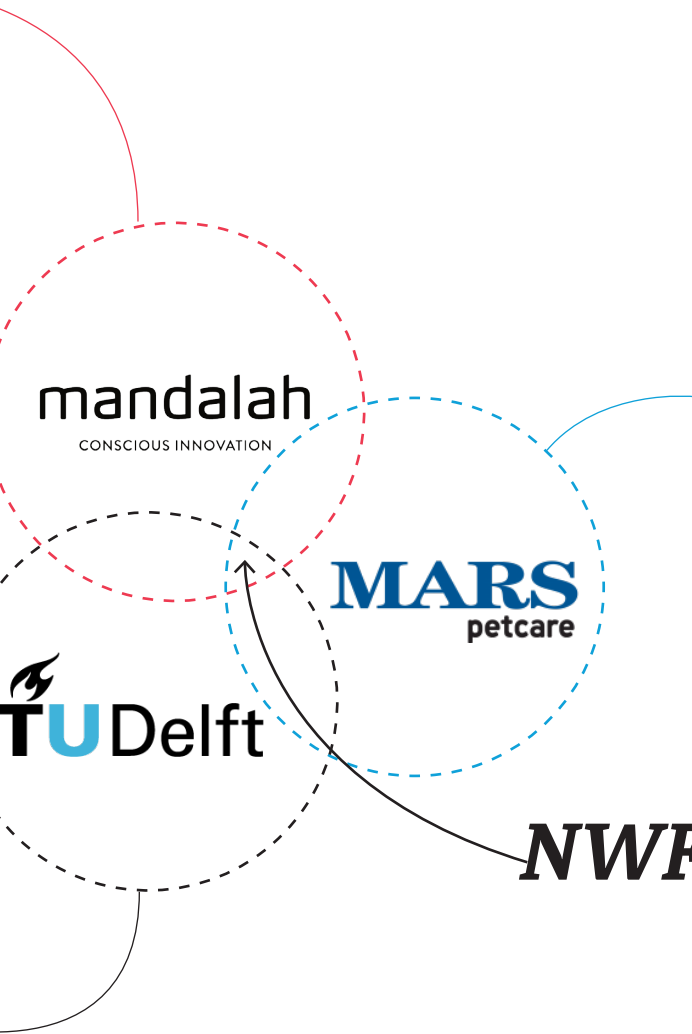


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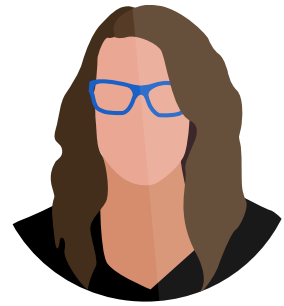


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# 1. INTRODUCTION

## 1.1 DOMAIN

### 1.1.1 Domestic animals

The importance of human-animal bonds has been documented throughout history and across cultures all over the world. The domestication and socialization of animals was an interactive and mutual process of co-evolution and cooperation<sup>1/</sup>. As human populations have grown, so, too have pet animal populations and therefore their relationship. Over the years, animals have evolved from being a stranger and wonderful entertainment, becoming an integral part of all families around the world. It is well-known that cats and dogs are the most common pets. On the one hand, cats are more independent and generally less demanding pets<sup>2/</sup>. On the other hand, dogs are more loyal, respond better to command, but require more attention and exercise, including regular walks. Dogs are highly social and have, in comparison to cats, a special relationship with humans. They are the only animals which can, in a certain way, understand human's emotions by reading their facial expression and predicting how they will behave<sup>3/</sup>.

### 1.1.2 Human-dog relationship

This project focuses on dog-human bond. The lack of knowledge on how to educate and raise a dogs sometimes generates situations where the owner treats the pet as a human companion. Really often, the owner's approach is based only on the parameters of human well-being and not on the ones of the animal. As a consequence, pet owners may (without being aware of it) unintentionally harm rather than ensuring the well-being of their pet. Although this way of approaching can be reflected in several aspects of human-dog relationship, a common one is appeared within the 'feeding' habit. Dog owners increasingly consider feeding time as an important emotional bonding moment with their pet. The mirroring of pet owners eating and exercising habits on pets has led to the rapid spread of diseases such as diabetes and obesity<sup>4/</sup>. Therefore, within the daily routine, the meal represents an important moment in which owners and dogs bond together and establishes interactional rules between each other. Thus,

first it is important to clarify owner's needs and understand their behaviours by investigating which features and why they project onto their dogs, and, second, to consequently define which are the functional boundaries that need to be established between the two. In this context, design and more specifically design meant to address interaction and emotional awareness can provide fresh inputs to generate new ideas.

### **1.1.3 Design for human-dog interaction**

By investigating and analysing the field, designers can enlighten limitations or problems, disentangle complexity, define important constraints and open up opportunities in order to generate solutions that better address the human-pet relationship. In particular, to narrow down the quantity of directions that the project can take and to provide the best solution, this project will focus only on the human-dog relationship. The Design for Interaction approach can enrich intrinsic insights, reveal new dilemmas and bring a possible solution to this subject. Therefore, the needs of the owners and the ones of the dogs will be investigated in their own respective context. Although the effect of the mutual relationship enrichment has been already studied, a Design for Interaction approach was still missing.

## **1.2 PROBLEM DEFINITION**

### **1.2.1 Problem Definition**

Today's rhythm of life in a modern society is so chaotic and intense that leads many people to be distracted and to lose track of their own actions against their own dogs. For instance, owners feed their dogs twice a day because they keep forgetting that they already did. Because of this lack of attention, owners are likely to feel guilty. When we feel ashamed of forgetting the birthday of a close friend, as humans, we tend to make up a situation in which we made a by being more careful. Most likely we would cook a delicious dinner or buy a box of chocolates. Treating a dog as a human is called humanization. The humanization tendency consists of attributing human qualities to a non-human being. As a consequence, the humanization of owners might trigger the owners to feed their dogs referring to their own eating habits which might lead their dogs to gain weight. Because of that, dog owners need to be guided and learn how to get the right balance within the relationship with their canine companion.

### **1.2.2 Mars Pet Care**

In this context, brands such as MARS Pet Care can play a key role in educating pet owners about pet's health issues, in giving reassurance and in sharing knowledge on how to properly feed their small friends, avoiding to harm them. MARS Pet Care: "Nowadays consumers have a higher expectation, they want to receive a clear and transparent information. Sometimes is hard to explicitly show which is the best product to buy, that can also give them a memorable and multi sensory experience and fulfill their caregiving needs as owners". Since 1911, Mars represents an established industrial reality in the chocolate confectionery market and chocolate bars production (e.g. Mars, Snickers, Twix, M&M's). Starting from 1935, Mars decided to expand its business to Pet Care Food. Nowadays, thanks to its worldwide presence, MARS operates in different market segments such as the Chocolate, Pet care, Food, or Drinks. In line with this company development, the goal of Mars is to change and innovate the pet's feeding experience, specifically by using wet food. Nevertheless, the company decides to use emotions as a trigger to boost this change.

Therefore, the aim for the company involved, is to explore possibilities to create a new wet feeding experience by evoking a specific emotion. Sometimes an interaction with a product can generate unexpected and unwanted user responses. Therefore, every products (and related interactions) can evoke many different kind of emotions <sup>5/</sup>.

### **1.2.3 Project Stakeholders**

During the last decade, Delft Institute of Positive Design (DIOPD) devoted a research on why and how conventional products can evoke (un)complex emotions, possibilities of how to take advantage of such emotions and use them as a starting-point for a new design. While following a positive design approach, new opportunities will be created. In order to design new opportunity, it should be identified how human and dog interact during the feeding moment and how design can positively adapt to it. TU Delft has focused its expertise on Design for Emotion. Pet-care Lab has been involved in order to explore possibilities and opportunities to create an innovative concept of feeding experience. Relationship and needs of the owners and dogs will be studied and analyzed during the feeding process to better improve their interactions. NWFE; New Wet Feeding Experience is the main goal of this project. Mandalah C.I. consultancy is the third partner of this project. Together with TU Delft, they are collaborating to investigate, ideate and evaluate by looking at the fields of humans and business fact and emotions (explicit and implicit).

#### **1.2.4 Graduation project questions**

Among the new research fields introduced in the faculty of Industrial Design Engineering of TUDelft, there is a growing interest for Design for Human-Animal Interaction. In fact, in September 2016, Pr. Pieter Desmet & Dr. Steven Fokkinga initiated the “Pet-Care Lab”. The mission of the Lab is to focus on the improvement of the pet owner’s experience. As a first case study, the Lab initiated a collaboration with MARS Pet Care with the aim of introducing design as innovative trigger to develop products much more in line with the needs of the modern pet owners.

As a Design for Interaction master student, I saw an opportunity throughout this graduation project in which all the methods studied, regarding the human centered design particularly Positive Emotion Design, could help in creating a new wet feeding experience. The collaboration within Mandala and TU Delft will generate a new holistic experience, across the most intrinsic concerns of dog owners based on their emotions (TU Delft) to the integration of a tangible product into the market (Mandalah).

***“With the outcomes of this project MARS will ‘WOW!’ pet owners with new holistic Wet Single (SiSe) feeding experience(s) by 2020, removing the penetration barriers to wet food.”***

# 1.3 PROJECT OBJECTIVE

## 1.3.1 Objective

The aim of this project is to create a new meaningful feeding experience based on positive emotion. From an academic perspective is to design a product that guide and support dog's owner during the feeding moment.

Therefore, the project goals of this graduation project are:

Do a study on emotions in human - dog relationship and propose a product concept.

## 1.3.2 Contribution TU Delft

Being the pioneer, this master thesis research generated the main structure for a pet-lab, specifying thirteen domain which can be used as future research. (see 2.1.2 Main Trends)

## 1.3.3 Contribution Mars

Through the research field, users (pet owners) will be involved in order to highlight and understand better their needs and deeper concerns, in a co-creation and co-evaluation process. The results collected will be translated in design opportunities that will add values for MARS Pet Care.

In order to achieve these results a research question was made. The research served as the theoretical framework through the project.

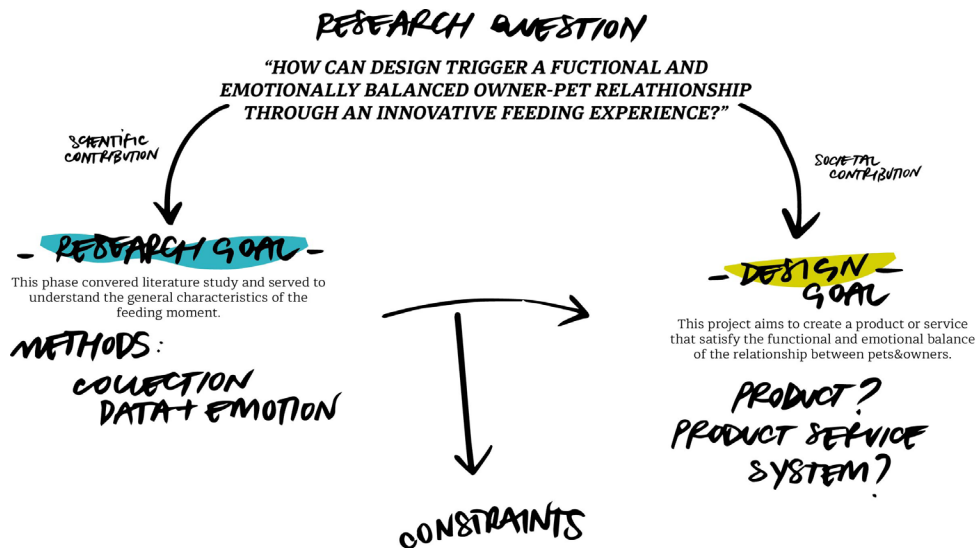


Figure 1: shows the process overview and report structure.

However, in order to answer the research question several sub questions have to be answered to grasp a better view on the situation:

- Why is the feeding moment so important?
  - And how did people experience it?
- Which emotions, activities and habits are part of the feeding moment?



# 1.4 METHODOLOGY

## 1.4.1 HCD & Design For Emotion

The human centered design approach is meant to answer the consumer values and needs. Usually this approach leads to final product that personify their characteristic, such as lifestyle, social and personal needs. The novelty that I going to add through my graduation projects is still regarding the owner's needs and wants but in a deeper level in which the intrinsic emotions and feelings will be highlighted. The process used for this graduation project was divided in two main phases: Research and Design, each phase could be divided in different micro phases as well.

## 1.4.2 Research

The aim of this project is to design a product that guides and supports dog's owner through the feeding moment. The main goal of this first research study was to learn more about what feeding the dog means for the owner and what kind of emotion do they experience while feeding. More broadly, the project ranges from what it means having a dog to understanding and classifying the daily interaction. In particular, this research contributes to understand the dog-human relationship and the effects of their relationship for both sides. During the entire process and especially during the first phase, an extended amount of data was collected across desk research (history research, main trends, market analyses and scientific literature reviews) and field activities (observation, interviews, collection of anecdotes). All the emotions, positive and negative, that are experienced in the context of the dog-human relationship are valid entry points to understand what are their wishes, needs and expectations. To investigate these emotions and concerns, a field research was conducted. Three different studies were proposed. The first approach (Study 1) was useful to get the researcher more familiar with the pets world. In Study 2, thirteen participants were interviewed to collect the desire insights and to answer the research questions below. Within Study 3, an observation was conducted and anecdotes were collected through a puppy training.

## 1.4.3 Design

The findings of each section were collected into a key insights, they were further clustered into persona, providing together the basis of the design process. The design process is structured in four main parts: interaction vision, product concept, user test results and evaluation.

Interaction vision: *How could the final product design help improve the interaction between owners and dog during the feeding moment?*

Product concept: *How do the users interact with this product? (capability, qualities and characteristics).*

User results: *Is the product meaningful for the owners? (user test, user's feedback)*

# **2.ANALYSIS**

**2.1 DESK RESEARCH**

**2.2 FIELD RESEARCH**

**2.3 FROM RESEARCH TO DESIGN**

## 2.1 DESK RESEARCH

To fully appreciate and understand the contributions of companion animals and the strength of the relationship with them, in relation to our physical, mental, and relational well-being, a deeper research is required. Indeed, the Desk research consider owner's needs and preferences, relational dynamics with their dogs, life situation and social cultural context keeping always in consideration also dog's needs and perspective. However, since Human Center Design is a process that focus on the interaction between human - human, for this project it has to adapt to evaluate a human - animal interaction. In order to obtain a general overview and knowledge several questions arise. The Desk research raises the following five questions. In the related paragraphs these questions will be answered through the use of different methodologies.

### **Human animal bonds in history (2.1.1)**

*How does the relationship between human and dog start?*

### **Main trends (2.1.2):**

*Which are the main trends in the modern society?*

### **Market Analysis (2.1.3):**

*Which are the main market's trends and which ones are already covered by MARS?*

### **Understanding human-dog relationship (2.1.4):**

*What does it means to have a dog?*

*What makes a difference in the human-dog relationship?*

### **Understanding reason for dog's ownership (2.1.5):**

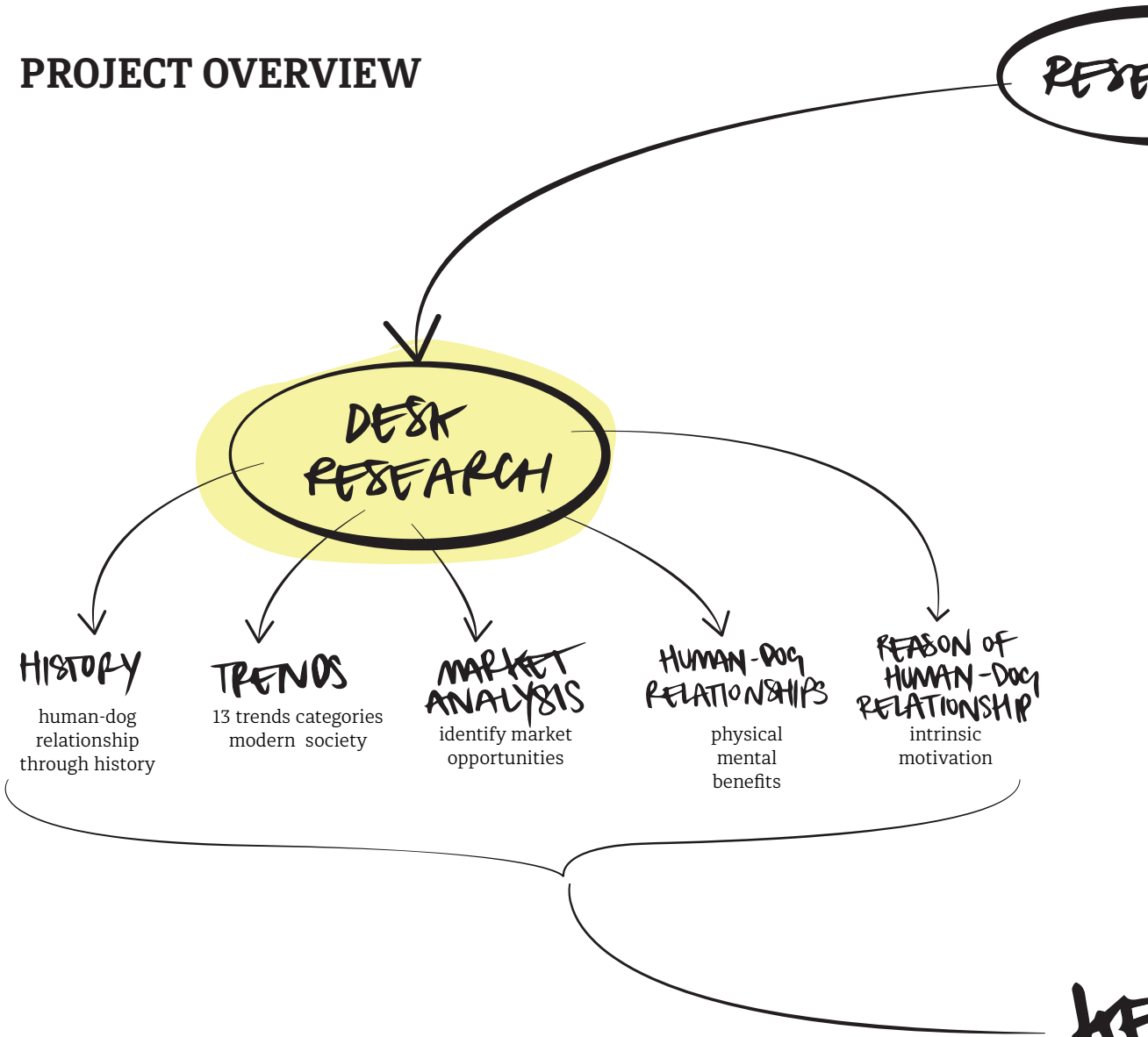
*What motivates people in having pets?*

### **Humanization//Anthropomorphism (2.1.6):**

*What are the reason of anthropomorphism?*

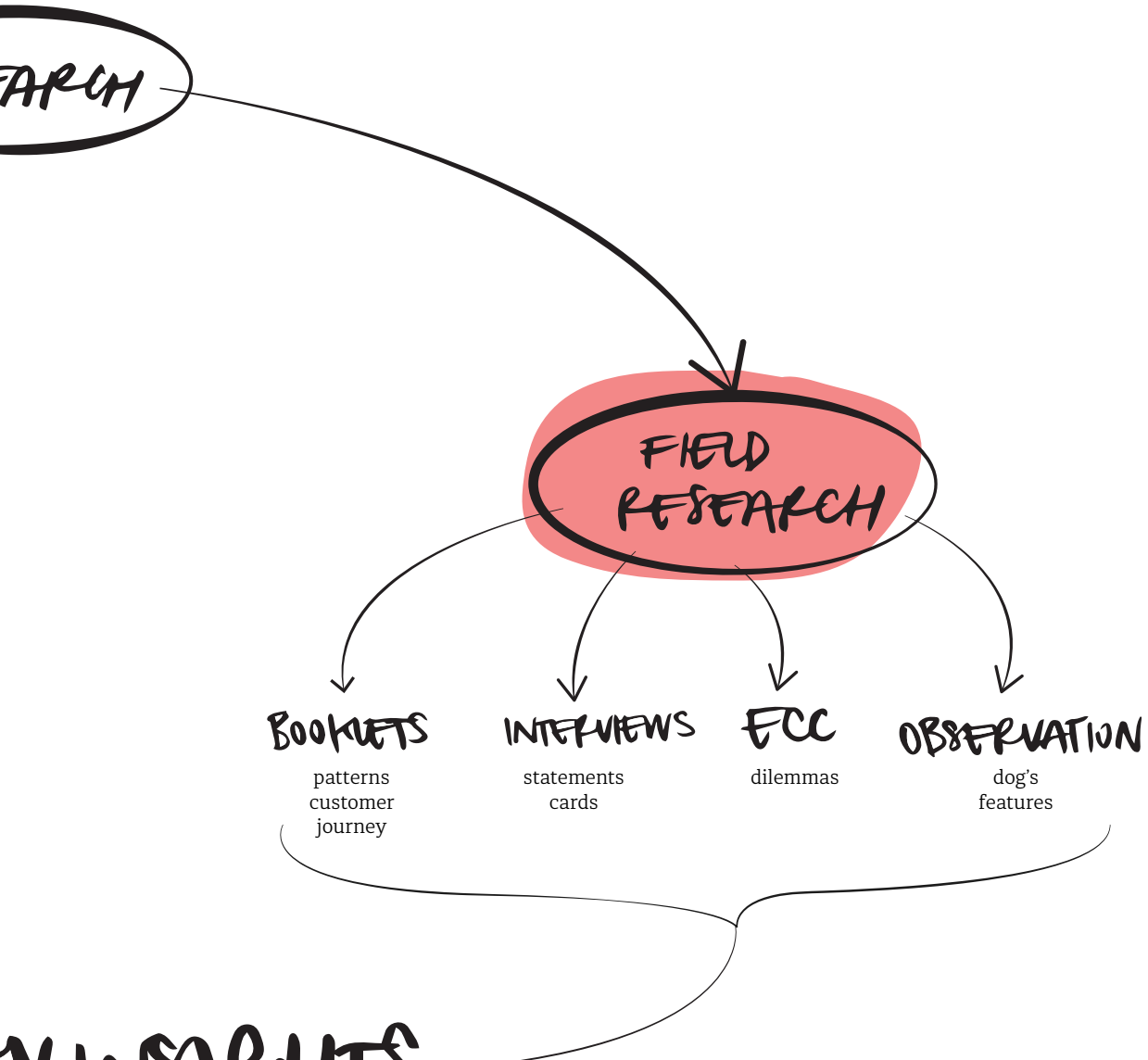
*What accounts for this selectivity?*

# PROJECT OVERVIEW



RE





KEY INSIGHTS

PERSONA

DESIGN

Figure 2: Project overview

### 2.1.1 Human-animal bonds in history

#### *Literature research*

In this paragraph the history regarding the relationship between human and dogs will be explained. Scientists have puzzled about how man's best friend came into existence and the precise timing and location of domestication still is under discussion. Part of the puzzle of the domestication of dogs begins long time ago, such as 30,000 years. Since the ancient time, strong evidence of domesticated dog was reported thanks to tomb paintings, artefacts. These evidences make dogs the oldest domesticated animal in human history.

Dogs slowly evolved from wild wolves, who helped humans in hunting, to domesticated "companion". The human tinkering, first by accident and later by design, has created one of the most varied looking species on earth. From the start we have shaped dogs to make our lives easier.

*How did the relationship between humans and dogs start?*

Dr. Robert, Professor of Ecology and Evolutionary Biology, believes that a hypothetical beginning of human-wolf relationship started with an initially loose association, in which "wolves start to follow humans as they provided resources such as food". Back in the past, even for this top predator hunting was so hard that often they were unrewarded <sup>6/</sup>.

***“By following the human’s camp, wolves could easily get food from human garbage and leftover. It can be concluded that environmental and human influences had given rise to dog. Our ancestors would have feared and admired the wolf’s skills such as speed and stamina, all aspects that made a wolf pack a the perfect killing machine.”***

Another clear evidence of this unique symbiosis is provided by the results of Losey's research. Robert Losey is an anthropologist of the University of Alberta and one of his projects regards the excavation of dog's skeletal remains in Lake Baikal, Siberia, dated between 10,000 and 15,000 years ago. Losey found dogs buried alongside humans, pointing that dogs were held and esteemed as humans <sup>7/</sup>.

***“The dogs were being treated just like people when they died,” says Losey. “They were being carefully placed in a grave, some of them wearing decorative collars, or next to other items like spoons, with the idea being potentially that they had souls and an afterlife.” In one instance a man was found buried in the same grave as his two dogs, one on either side.” Globally you can see that there are more dog burials in prehistory than any other animals, including cats or horses. Dogs seem to have a very special place in human communities in the past. As soon as we see skeletal remains that look like the modern dog—say 14,000 years ago—we see dogs being buried.”***

### Curiosity

Through several researches and observations on the remains of the earliest domestic dogs the immediate and most visible results of taming a wolf are the reduction in body and head size. This happened easily within a few generations. It was also observed in many different species of mammal <sup>8/</sup>.

Figure 3 below you can see one example of the changed breed's characteristics of a Doberman Pinscher, over a century.

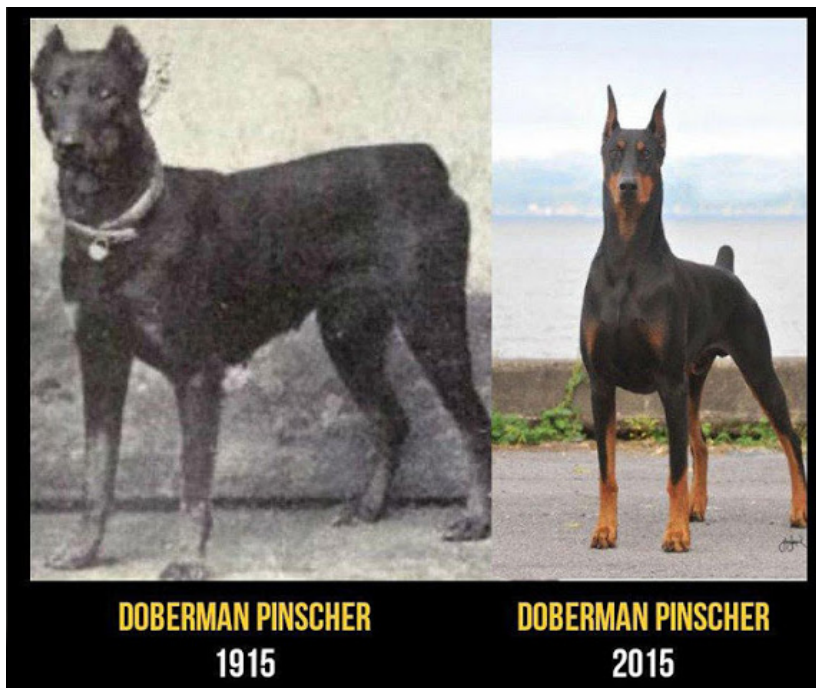


Figure 3 changed breed over a 100 years

In the process of domestication that brought to the actual dog, humans, across generations, have systematically tried to eliminate the wolf's characteristics and or skills that were considered less desirable or less convenient, such as diffidence and aggressiveness. On the other hand, humans enhanced other aspects like a strong sense of belonging to a group, collaboration, and playfulness.

*Most of the dog's breeds that exist today were well-defined during the Roman Empire, such as hunting dogs, guard dogs, sheep dogs and lap dogs were all common. Romans recorded all the qualities and functions, they were aware that selecting specific breed and or mix it up could affect not only the aesthetics of a breed but also its capabilities and behaviour. They also knew that early training was very important in the rearing of a useful animal.*

*So the evolution of dogs may involve three stages the pre-domesticated scavengers, domesticated non-breed dogs with close human-dog interactions, and breed formation following intense human selection for diverse sets of traits.*

*During the early stages of dog's domestication the facial region (muzzle) become shorter and wider with consequent crowding and displacement of the cheek teeth. The shape of the mandible became more curved, and an angle developed between the facial region and cranium, this being termed the 'stop' in modern breeds. The eyes became rounded and more forward looking and the frontal and the frontal sinuses become swollen.*

*In the later stages of domestication different kinds of dogs were developed as a result of artificial selection. They were selected for colour, length of coat, long or short legs, carriage of ears or tail, as well as the aspects of temperament behaviour. In time, this selective breeding led to the development of the 400 or so different breeds of dog that we have today.*

*Through the history and in different societies, dog got different roles; in some parts of the world dog's power was used to carry human's belongings.*

*Perhaps, in the Middle Ages, during the time of feudalism dog was the symbol of power and status establishment of the aristocracy to whom hunting was of supreme importance.*



*Legendary Dogs:*

*Dogs were honored and even associated with goddess, in ancient Egypt. In the early Greek and Roman empires, dogs were considered as loyal and beloved companion<sup>9/</sup>.*



*Figure 4 Anubis*

*Anubis was one of the most frequently represented gods in ancient Egypt, with a dog's head. He is associated with mummification and the afterlife in ancient Egyptian religion. His role was the lord of the underworld, depicted as guide for individuals soul across the gate from the world of the living to the afterlife.*



*Figure 5 Argos*

*The dog, Argos, is important in early Greek literature and mythology. Argos was the dog of Odysseus. He belonged to Odysseus as a pup. Odysseus left for the Trojan war and was gone for twenty years (ten years fighting the war and ten years on the return home). Finally, when Argos was twenty years old, Odysseus returned to his home disguised as a beggar to see how things stood. No one recognized him – not his son, not his wife or any of his servants. Only old Argos knew his master. When he saw him he wagged his tail. He gave a final whimper and died.*



Figure 6 La Lupa di Roma

*A good example of the importance of the relationship between human and canine animal, it can be found in the story of Rome and the city's birth : In Roman mythology, Romulus and Remus are twin brothers, whose story tells the events that led to the founding of the city of Rome. Romulus and Remus being nursed by a female wolf, after that she found them in a basket floating on the Rome's river. King Numitor, the father of the twins, was displaced by his brother Amulius, who ordered 'to throw his nephews, legitimate successors to the throne, in the Roman's River, Tiber. The female wolf grow up the future founder of an Empire that would become the centre of the world -Roman Empire-.*

## 2.1.2 Main Trends

### Web research


Trend analysis is a practice of collecting information and attempting to a pattern. Although trend analysis is often used to predict future events, it could be used also to estimate events in the past. Several aspects and meanings of the relationship with a canine companion are leading different trends in our current society. In order to describe these trends, thirteen categories (see the list below and Figure 7) were found and collected in a brochure. Each category represents a small aspect of human-pet relationship. The thirteen categories are not constraining, but are meant to be inspirational and a guidance. Each theme could be the starting point of a new research/design project. It is expected that each category will be expanded in different directions and new insights will be added. In addition, a common concern of pet's owners, trends and main issues regarding the relationship with their pets, were highlighted in three keywords, to better interpret the needs of both human and pet. The goal of this research was to find inspiring inputs and a nice starting point.

The thirteen trends categories are :

1. Technology
2. Wild pets
3. Sharing
4. Pet emotion
5. Rent a pet
6. Knowing your pet
7. Home made diet
8. Travelling
9. Like pet like owner
10. Caring
11. Daily rituals
12. Owner's emotion
13. Indulgence

1

TECHNO-ENRICHING



- > Playful Interaction
- > Remote Interaction
- > Free in control

A lot of owners wondered, how technology could help them to better understand their pet's feelings? But if the real users of these technologies are the owners, then what role do animals play? We question whether the design these new devices and technologies for domestic pets is for the benefit of the animal or for amusement of the owner.

"we are concerned about the potential for negative impacts on animal welfare, since innovation appears to be driven largely by technology rather than the needs of the animals"

4

3

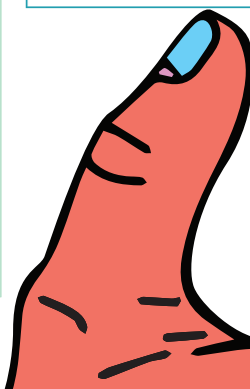
SHARIN

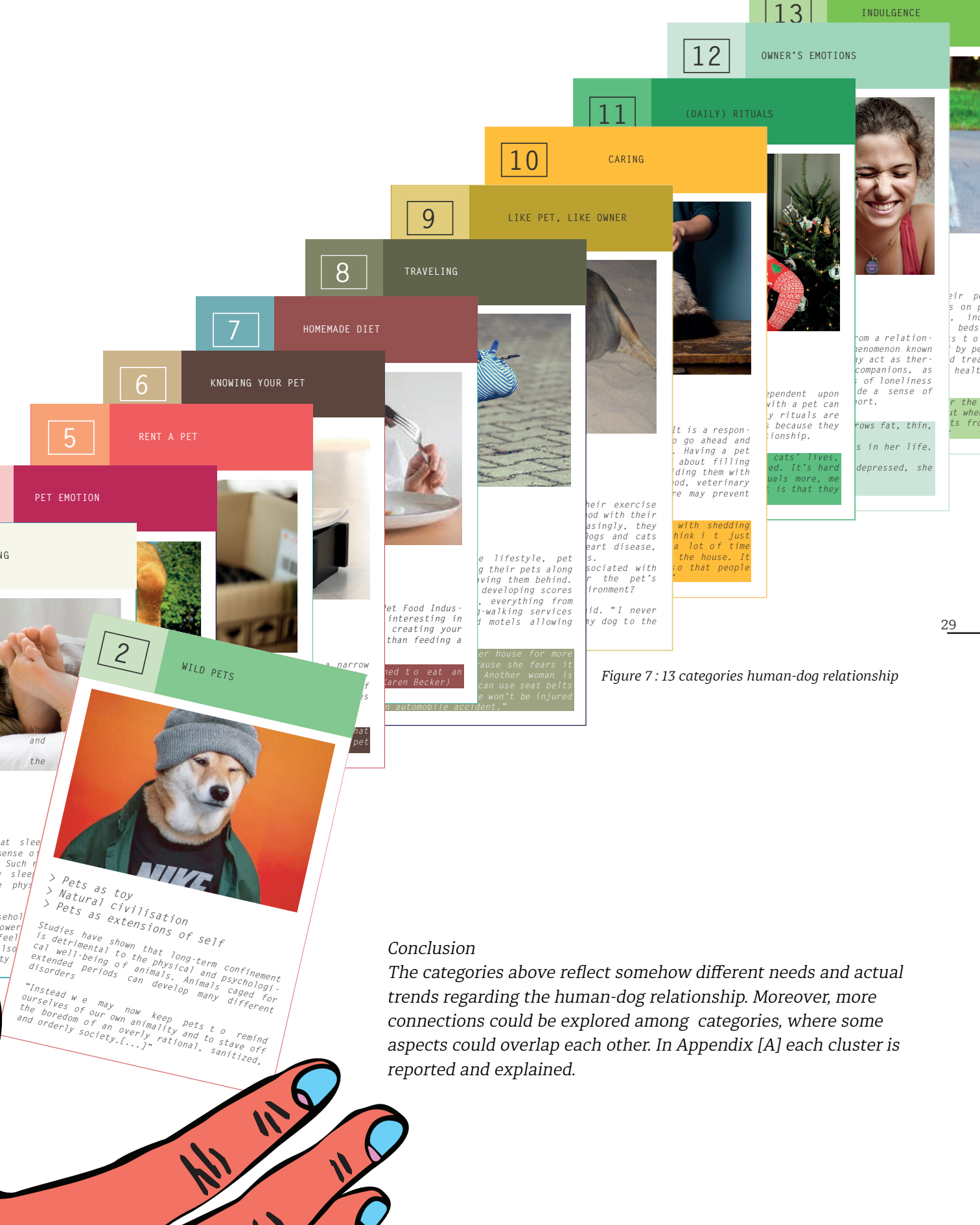


- > Benefits
- > Codependency
- > Be connected

Study subjects said that having pets in the house allows them to feel a sense of security and relaxation. This relaxation is often ignored because quality relaxation of both the human and the pet states.

"having pets in the house has many benefits. This includes lower cholesterol levels and lower blood pressure. Aside from that, it can also provide a great outlet for physical activity."





2 WILD PETS

> Pets as toy  
 > Natural civilisation  
 > Pets as extensions of self

Studies have shown that long-term confinement is detrimental to the physical and psychological well-being of animals. Animals caged for extended periods can develop many different disorders

"Instead we may now keep pets to remind ourselves of our own animality and to stave off the boredom of an overly rational, sanitized, and orderly society.[...]"

Pet Food Industry interesting in creating your own than feeding a

the lifestyle, petting their pets along with leaving them behind, developing scores, everything from walking services to motels allowing

their exercise routine with their dogs and cats heart disease, s. associated with r the pet's environment? id. "I never ny dog to the

It is a responsibility to go ahead and about filling them with food, veterinary care may prevent

with shedding think it just a lot of time the house. It so that people

dependent upon with a pet can y rituals are s because they sionship.

cats' lives. ed. It's hard uals more, me is that they

from a relationship-phenomenon known by act as therapeutic companions, as of loneliness de a sense of port.

rows fat, thin, s in her life. depressed, she

### Conclusion

The categories above reflect somehow different needs and actual trends regarding the human-dog relationship. Moreover, more connections could be explored among categories, where some aspects could overlap each other. In Appendix [A] each cluster is reported and explained.

### 2.1.3 Market Analysis

#### *Web research*

The market analysis studies specific market of specific industry. Through all these analyses, the strengths and weakness or opportunities of a company (in this case MARS) will be identified, (*the graph in Figure 8 gives of the general aims of the bench markt*). Together with Mandalah, a market analysis has been conducted in order to contribute to the literary and desk research follow-up. Moreover, an interdisciplinary workshop was organised in Bremen between Mandala TU Delft and the expertise of MARS. During the workshop two main themes were introduced to the the core team of MARS: Pet World and overall trends, i.e. Benchmarks. The aim of this workshop was to bring together all the knowledge of MARS regarding the “Pet world” and all the trends found in the brochure introduced before.

The market analysis was the starting point for an open discussion with MARS. The categories discussed were six, and they were divided into the following several subcategories Appendix [B].

#### *Pet owner's needs*

High quality  
Pet knowledge  
Variety of food  
Transparency through information  
Fresh appearance of food  
Convenient packaging  
Internet communication  
High quality food

#### *Trends*

Health optimisation  
Urbanization  
Remote relationships  
Personalization  
Humanisation  
Brands supporting community  
Back to nature  
Sustainable packaging

#### *Relationship*

Pet role  
Pet as a family member  
Responsability  
Interactions  
Communication between both  
Human entertainment  
Emotional value for owner

#### *Routine & rituals*

Training (with pet)  
Reuniting  
Rules  
Eating & feeding

#### *Food technology*

Wet  
dry

#### *Benchmark*

Gamification  
Bio mimicry  
Functionality  
Personalisation  
Holistic  
Smart technology  
Senses perception  
Senses association  
Memorable experience  
Community  
Education

For more information, conclusions and reflections on each theme, please, have a look at Appendix [B].

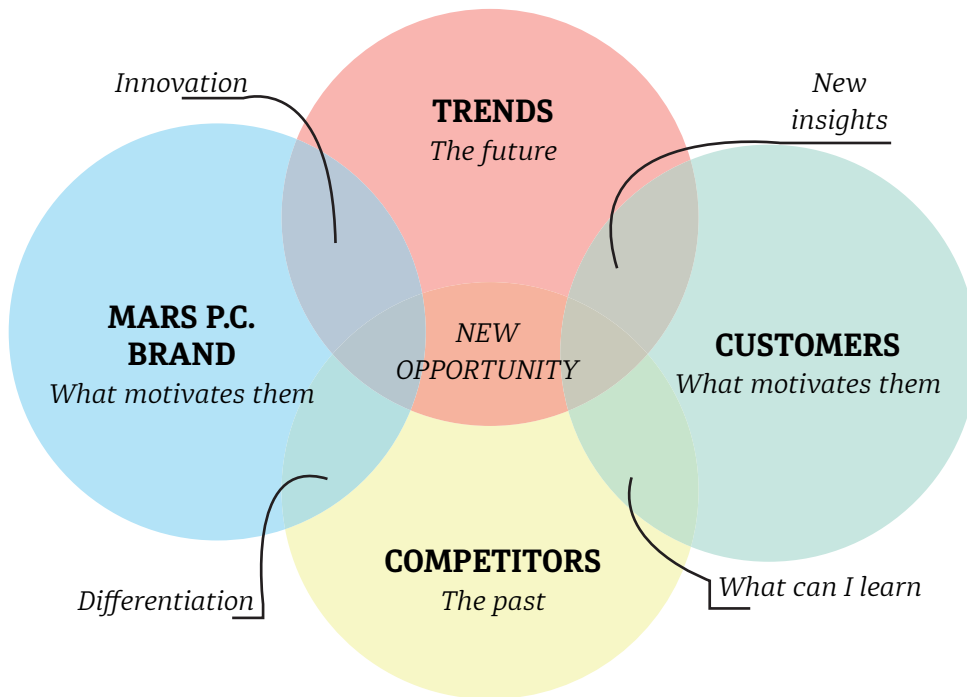


Figure 8: Bench Market findings

#### Conclusion

All the categories above have more or less a strong potential for MARS Pet Care. This graduation project is mostly connected to the subcategories 'Humanisation' and 'Back to nature'. Both of them are part of the main category 'Trend'. Interestingly, three categories investigated within this graduation project were highly rated by the Mars Pet Care team. The discussion on the 'Back to Nature' trend was very long. The tension between this trend and Humanisation is very strong. However, from the category 'Relationship', three more subcategories were highlighted as strong ones implying that MARS Pet Care should take those into account, deeply exploring them during the design process. These subcategories are:

#### Emotional value for owner

*This points out the importance of different senses. The physical contact with the animal provides reassurance to the pet owner, as well as highlights the importance of making an expression of love through the food.*

#### Communication between both

*This has a strong potential to provide more information about pets behaviour so that the communication with the pet can be more enjoyable and healthier for both of them.*

#### Pet roles

*It is considered important for pet owners as the relationship with the pet differs significantly depending on the size and age of the pet. This aspect will need to be considered in order to personalize the type of interaction.*

### 2.1.4 Understanding benefits of the human-dog relationship

#### *Scientific literature review*

Health and mental benefits of companion animals

There is a lot of evidence that shows how interactions with dogs improve health, psychosocial well-being, and recover from serious conditions. Therefore, there are several reasons and benefits for people in owning a pet <sup>10/</sup>. Studies show that pet ownership improves physical and mental health. The most common benefits of human-dog interaction are:

The most common benefits of human-dog interaction are:

*Having animals helps people have happier and healthier lives and strengthens communities.*

*Stress reduction*

*lower cholesterol level*

*heart disease reduction*

*helps alleviating depression*

*alleviate loneliness*

*facilitate recovering of hospitalized children*

*either improving the child's sense of self esteemed <sup>11/</sup>.*

Many interactions are mutually beneficial for both owner and dog. Perhaps, simply stroking a dog reduces blood pressure in both. More general interactions are associated with relaxation and bonding moments which increase neurochemicals and improve the human immune system. Moreover, a recent research shows that dogs could also perceive and may be able to detect early signs of cancer by sniffing our urine <sup>12/</sup>.

Looking in each others eyes increases the level of oxytocin (*called also "love hormone or the hug's hormone, oxytocin is the bliss hormone due to its effects on behaviour*).

Meaning and significance of bonds with companion animals

As humans, we will never know what animals feel or think. People then tend to understand/read/interpret dog's behaviour based on their own knowledge. Perhaps, we strongly believe that dogs deeply love humans, even though we are different species. The origin of this unconditional love comes from the natural instinct of wolves in belonging to a group rather than dog's emotions. Usually, puppies spend the first months of their lives with the humans. This becomes a crucial moment because, by doing so, they will identify humans as a member of their species. This bonding moment it is reinforced within the contact (eye contact as well as touch), throughout our voice and smell and our shape. This phenomenon is called "imprinting". Although earlier workers had observed this effect, Konrad Lorenz was the first to named such phenomenon at the beginning of last century <sup>13/</sup>.



### *Imprinting*

Imprinting: in psychobiology, it is a form of learning how a baby animal fixes its attention on the first object with which it has visual, auditory or tactile experience, following then that object. This phenomenon is an untimely and irreversible way of learning, that can happen just during the very first period of formation for both animals and humans. Imprinting is an effect of early experience, which determines later social behaviour in animals.

During those early stages of their life, young animals can acquire a sense of belonging and attachment to the same or other species. As a result, the early experience determines the adult behaviour.

An early experience is usually affected by three main statements: *an early habit may prevent the formation of new one.*

The second is that:

*an early perception deeply affects a future learning.*

The third statement concerns the social behaviour:

*early social contacts determine the character of adult social behaviour<sup>14/</sup>.*

This is one explanation of how it was possible to evolve from wolves to human-dog society. However, while being forged the relationship or simply interacting with a dog, owners must remember that some aspects of wolves are still unconsciously anchored in their dogs.

A lot of puppy training will agree in giving specific training and educating dogs to let human cover the role of the alpha or higher-ranking member. Perhaps, as wolf pack is based on a clear hierarchical model so do dogs follow the same structure which, once established, is unanimously accepted as their own social status. Therefore, dogs can be much more devoted to their owner if they recognize us as a higher-ranking member instead of deemed themselves as the dominant entity. Unfortunately, while achieving this goal, owners unknowingly can hurt dogs. Often people are too indulgent: this can happen in different ways. One of the most frequent mistakes during trainings is that owners overfeed their dogs in order to obtain specific results.

### *Conclusion*

*The domestication and socialization of animals is an interactive process of mutual cooperation and co-evolution based on a shared need, food, and protection<sup>15/</sup>. Since ancient times, people valued the profound connections between humans and animals. Pets are an integral part of human society, they are seen as medical or therapeutic, they provide companionship and provide focus and affection. These characteristics are also viewed as opportunities to develop a sense of caring and responsibility in children.*

## 2.1.5 Understanding reason for dog's ownership

### *Scientific literature review*

#### *Classifying the relationship*

Human have many reasons for owning pets. In addition to providing emotional benefits, pet ownership improves physical and mental health. According to <sup>16/</sup>, the relationship within human-dog sometimes is even more reliable and consistent than human-human.

According to Michael Fox<sup>17/</sup>, four categories of human-dog relationship can be identified:

1. Object oriented (with the dog as a possession)
2. Need-dependency (with a dog as a companion or child surrogate)
3. Actualizing (with a dog respected and significant other)
4. Utilitarian/exploitative (with the dog providing benefits to the human)

These categories can be seen as different directions of exploration. On the other hand, a lot of research would agree with AVMA (American Veterinary Medical Association)<sup>18/</sup>, in defining a human-dog bond as “a mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviours that are essential to the health and well-being of both” (American Veterinary Medical Association, 2001). This symbiotic relationship is called mutualism, which is a combination of enjoying the caring component of having a dog along with the benefits obtained from and for both species' interaction. On the other hand, it can be argued that this kind of relationship is similar to amensalism, where two or more species hurt each other unknowingly <sup>19/</sup>.

#### *Conclusion*

*We can conclude that besides the reason in having a dog, sometimes situations where the owner's behaviour hurts the dog could be generated unconsciously. But what is generating those situation? In which way dogs will be hurted? A further research on this aspect, drove to one interesting phenomenon concerning the relationship between human and pets, that has been defined as “Anthropomorphism”. This concept defines the “attribution of human mental states (thoughts, feelings, motivations and beliefs) to nonhuman animals” <sup>20/</sup>.*

### **2.1.6 Humanization//Anthropomorphism**

#### *Scientific literature review*

##### *Animals as Human*

The word anthropomorphism comes from two Greek words, Anthropos- “man,” and morphe - “form.”<sup>21/</sup> Anthropomorphism carries several implications. Eventually, thinking of a nonhuman entity in human ways makes it worthy of moral care and consideration. In addition, anthropomorphized entities, like animals, become responsible for their own actions, deserving a punishment or a reward. However, there is a selection behind this unconscious behaviour as not every non-human being that we encounter has been anthropomorphized with human qualities. Therefore, a few questions arise:

*What are the reason of anthropomorphism?  
What accounts for this selectivity?*

According to Rick Nauert, professor for Rocky Mountain University, one factor is “similarity”. Several motivations for entity to be anthropomorphized are:

*There is a lack of social connections - people that feel more lonely are seeking to be more connected with non-human items.*

*Similarities - (for example, through human-like movements or physical features such as a face)*

*Selfish as Simplification of complexity entities - here perhaps anthropomorphism gives motivation in dealing with something unpredictable*

*Knowledge - having or not accurate knowledge regarding other living beings influences specific attitudes toward them in different circumstances.*

Humans are willing to perceive similarity in other living beings like animals, in particular cats and dogs. As humans are more familiar with cats and dogs, those are viewed as more similar and correspondingly more cognitively complex than other species. In this case, familiarity becomes a powerful variable in cognitive attributions. According to Szasz <sup>22/</sup>, dog’s owner are more inclined to humanize their pets than cat owners. Moreover, familiarity is likely to enhance an affectionate bonds as well. Examples of how this phenomenon can be associated to dog are for instance when pet owners consider their dogs as children. In fact, they give them

gifts, celebrate birthdays, and create dedicated pages and personal profiles on several social networks; thus bringing this phenomenon to its extremes.

According to Anthony Kenny, a former President of the British Academy and the Royal Institute of Philosophy, a wrong use of anthropomorphism can become harmful. He believes that people, nowadays is straighten by the use of the term. "Anthropomorphism, it has become a tool to de-humanizing", he said. It is mostly used to describe animals, machines, as well as to describe politics and religion. Kenny identifies five forms of anthropomorphic areas: Biological - Zoological - Technological {subhuman fields as a natural entity }- Institutional and Theological {super-human fields, as not natural entity}.

#### *Biological*

*Applicable only to whole human beings aspects. Human beings, like other animals, breathe, digest and grasp food as a body. Human's body can speak as organic part while performing these activities, the stomach digests and hands grasp. He said; "It can be dangerous to speak part of the body as performing mental activities that just human beings can performed, because only of a living human being can one say if is a conscious or unconscious action".*

#### *Zoological*

*In the areas of animal's behaviour, anthropomorphism takes the form of attributing some intellectual and moral qualities. Many animals behave like humans enough that you can associate with them mental and emotional aspects. Here the anthropomorphic mistake is committed if humans think that they are able to possess concepts that can be manifested only by language. The error has practical consequences when animals are treated as members of the same the moral community as humans.*

#### *Technological*

*This is the most popular form of anthropomorphism, the attribution of human concepts and activities to computers. This becomes more widespread and influential since people become more used to computers. As a consequence, computers become more user friendly. An extreme overview of this form is that in the future, robots will displace the humanity. Technology in general should be seen as an extension of human intelligence rather than a rival.*

#### *Institutional*

*Anthropomorphism can work not only in the sub-human sphere but also in the supernatural one. It might be harmful to transfer from individual human beings to social and political institutions. This may generate inappropriate emotional responses. In its extreme form, it can lead to fascism.*

#### *Theological*

*Believers literally reflect on God many features applicable only to human beings. Not all religious statements are on the same level, however, all religious language should be understood and interpreted for their metaphorical nature.*

*"Anthropomorphism comes very naturally to human beings. We must be continuously on our guard against it" he said in a seminar, Ian Ramsey Centre - Humane Philosophy Project 2014-2015.*

### *Anthropomorphism in human-dog relationship*

Since the past, in Western cultures, domesticated animal like cats and dogs obtained a special place in human's life<sup>23/</sup>. Often pets have been labelled as human elements, such as a friend or family members. As mentioned before, this way of describing non-human animals by using human-like characteristics is called anthropomorphism<sup>24/</sup>. Eventually, pet owner's express their anthropomorphic tendencies also in other aspect as well: by namely their pets, bring their pets to medical treatment and celebrate their birthday<sup>25/</sup>. The most interesting aspect in relation with this research, is the feeding aspect where owners share the same habits and food, such as leftover, with their pets<sup>26/</sup>. According to Scherk<sup>27/</sup> both, dogs and owners, train each other through the food, to respond to specific needs. For instance, sometimes dogs 'train' their owners to respond to their boredom or their needs by providing them more food. On the other hand, owners want to have some control on their dog's behaviour. These interactions between the owners and pets can hurt the animal and sometimes also contribute to the obesity of pets.

### *Conclusion*

*Anthropomorphism is profoundly important for humans, because we use it as a parameter to evaluate the relationship with other living beings or our own behaviour. It also tells us when we treat other living beings with fairness, dignity, and compassion, and when we fail to do so.*

*A lot of owners consider their pets as their friends and/or family members. Therefore, pets became so important that most of the owners are willing to fulfil every dog's needs. However, each dog has different needs, based on the size, breed and the society context in which they are growing. Here the anthropomorphic phenomena become indicators of the necessity to focus the attention on owner-animal relation. Together with an improvement and evolution of the relationship between human and pets also a lot of contradictions and oddities arise and these can turn into points of action for future interventions. The differences in typology of owner-pet relationship are based mainly on personal habits, motivations and level of emotional bonding. That is why owners tend to transfer personal beliefs on well being to pets, most common on dogs or cats. However, this behaviour is not always positive as it unconsciously might create dysfunctions in the way humans interact with their pet and vice versa. For instance, by seeing pets as children, owners might interact with them by following the same rules they will use in relating with other human beings. Especially when knowledge or a logical explanation regarding dogs behaviour is missing, owners have hard time to understand their companion canine needs. As a consequence, people tend to humanize their pets. In order to avoid that, the lack of proper knowledge drives owners to indirectly hurt their dogs.*

*Therefore, it is important for the design intervention to answer the following question:*

***What is the knowledge that owners are missing?***

# DESK RESEARCH KEY INSIGHTS

## 2.1.1 Human-animal bonds in history

*How the relationship within human and dog start?*

Human tamed wolf into dog

Physical change  
(most visible in the muzzle after few generations)

Character change  
(more and less aggressive)

Same level of fondness  
Oxytocin  
(hormonal bonding effect more strong  
between humans and dogs)

## 2.1.2. Main Trends

*Which are the main trends in the modern society?*

Trends are directly linked to the expectations that consumers have about an experience.

These expectations are starting to become a 'need' in human-pet daily life. Two main trends were discussed for long time between the author and expert team of MARS :

### BACK TO NATURE

Seem as a relevant aspect for dog's owner which MARS hasn't tackled yet. As organic/good quality of food also become a trend within pet food

### HUMANISATION

As a way for going back to nature, it might even lead to several issues such as using human habits to feed the dog. It has been discussed that 'humanisation' should not be considered as human entertainment, but it should be a way to relate a product to something that people recognize.

## 2.1.3 Market analysis

*Which are the main market's trends that MARS Pet Care have to covered?*

EMOTIONAL VALUE FOR OWNER  
COMMUNICATION BETWEEN BOTH  
PET ROLES

## 2.1.4 Benefits of human-dog relationship

*What does it mean having a dog?*

- Reduce stress
- Lower cholesterol effect
- Helps alleviating depression
- Alleviate loneliness
- Improving socialization, physical exercise, sense of self  
esteemed
- Mental health

## 2.1.5 Understanding reason for dog's ownership

*What motivates people in having pets?*

- MUTUAL BENEFICIAL

## 2.1.6 Anthropomorphism

*What are the reason of anthropomorphism?*

*What accounts for this selectivity?*

*Lack of knowledge drives owners to treats their pets improperly  
Selfish as Simplification of complexity entities  
Similarities*

## 2.2 FIELD RESEARCH

Through the first part of the research the basic and general information of human-dog relationship were collected, which show; *How and why the relationship within humans and domesticated dogs start. And which are the main trends that shape the relationship between human and companion canine in a modern life, and what does it mean having a dog.*

The coevolution between humans and dog has forged and changed several aspects in dogs through the history: their behaviour, their physical aspects and healthiness. We can claim that dogs are now depending on human! Therefore, by sharing their lives with their pets, owners develop an intuition-based approach to ensure the wellbeing of their pets. This phenomenon is called “anthropomorphism”. However, the lack of proper knowledge on how to interact with dog drives the owner in treating the pet as a human surrogate. Doing this owners can justify and give more sense to incomprehensible and unpredictable behaviours of their pets. Because of this condition, a question arose;

*How much our behaviour/approach influence and enrich or not their well-being?*



To reply to this question, several sub-questions were made. These sub-questions are further clustered in the following four methodologies used to reply. Please relate to the paragraphs in the bracket to see the results.

**Context mapping (sensitizing booklets) (2.2.2):**

*What are the human-dog interactions (and subjective experiences involved in these interactions) in a general day?*

*Do these activities involve certain recurring rituals?*

*Which aspect is more important for dog owners when it comes to their dog's well-being?*

**Follow up interviews (2.2.3):**

*What kind of rituals do owners and dogs have?*

*What drives people to treat their dogs in a specific way?*

*How do people experience the relationship with their dog?*

*What do they generally like and dislike?*

**Emotional capture card (2.2.4):**

*What aspect of feeding moment does owner like most?*

*What are the negative and positive emotions that affect owner's experience?*

**Puppy training observation (2.2.5):**

*What is the role of the dog?*

*How do people prefer to improve the relationship?*

*Are owners aware of what should be done and what should not be done?*

### **2.2.1 Process**

The user research was conducted to gain insights in the human-dog interactions during the feeding experiences. Here will follow the methods that I used to gain insights in this specific research. They will later be explained in each paragraph.

#### ***Context mapping study 1 (sensitizing booklets) (2.2.2):***

*from those i could create the “customers journeys” with the 5 main concerns of the dog owners regarding the wellbeing of their pet.*

#### ***Follow up interviews study 2 (2.2.3):***

*here i could identify 31 main “themes” and 8 “dimensions” in the relationships between dogs-humans.*

#### ***Emotional capture card study 2a (2.2.4):***

*here we could cluster the main emotions that came up during the feeding moments of the dogs.*

#### ***Puppy training observation study 3 (2.2.5):***

*here I could observe more closely how we human interact with dogs.*

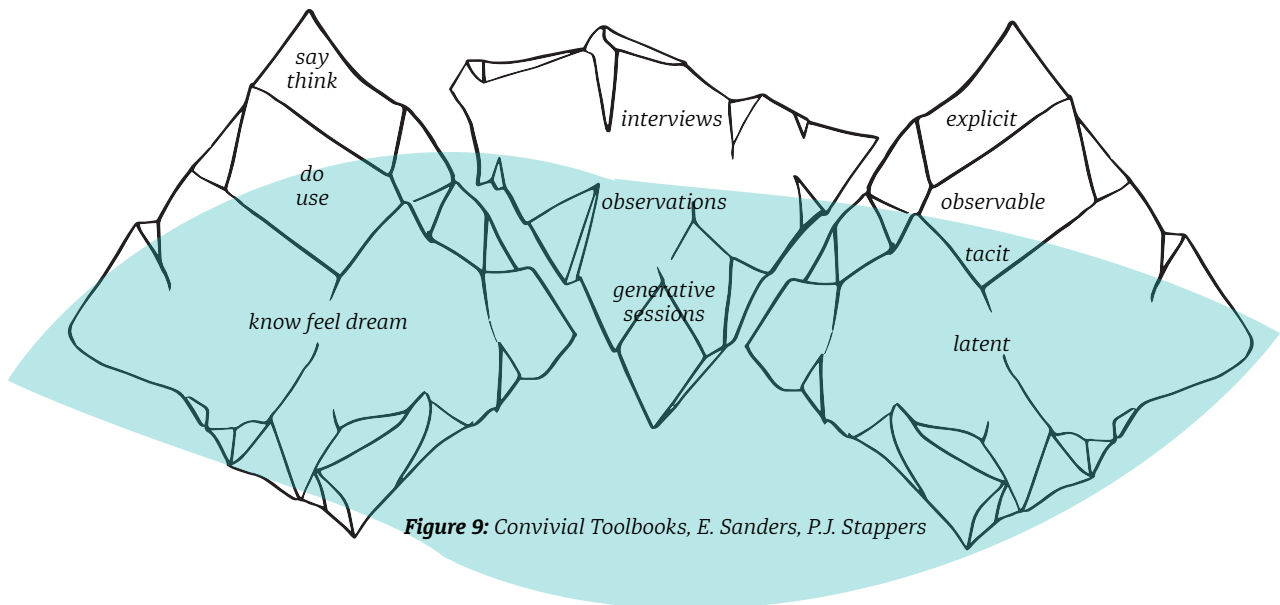
The results of these studies were clustered in “*personas*” and “*dilemmas*”. With the first i refer to a specific kind of owner and with the second to specific struggles they experience with their dogs daily.

### 2.2.2 Study 1 - Context mapping - sensitizing booklets

#### Overview

Context mapping<sup>28/</sup> was used as a research method for this study to gain knowledge on deeper levels, see the *Figure 9*. In this early study, dog's owners were asked to provide basic information about their pets, such as age, breed and more background info. This was done through the sensitizing booklet, for more example see Appendix [C]. A sensitizing booklet is a tool that was used to prepare participants for the interview. The booklet was used to give participants insights regarding their experience and trigger their memories, eventually enabling them to talk about this experiences or memories during the interview. The expected outcome is a collection of qualitative data and unexpected inspiration.

#### *Insights in latent needs*



**Figure 9:** Convivial Toolbooks, E. Sanders, P.J. Stappers

## Process

One week before the interviews the participants received a sensitizing booklet that was used as a warming up exercise for the interview. The booklet included 4 exercises about a typical daily routine, pet's well-being and meaningful moments. Furthermore, the participants were asked to capture, through drawing or photos, different aspects of the pet's daily environment.

Those exercises could be completed in about 10 min each. The most interesting patterns that connected, like a spider web, all participants are reached through the timeline and the wellbeing circle exercise, you can see an example below in *Figure 10*. With the first exercise, people were asked to describe their typical day spent with their dog, including the time when they are not at home.



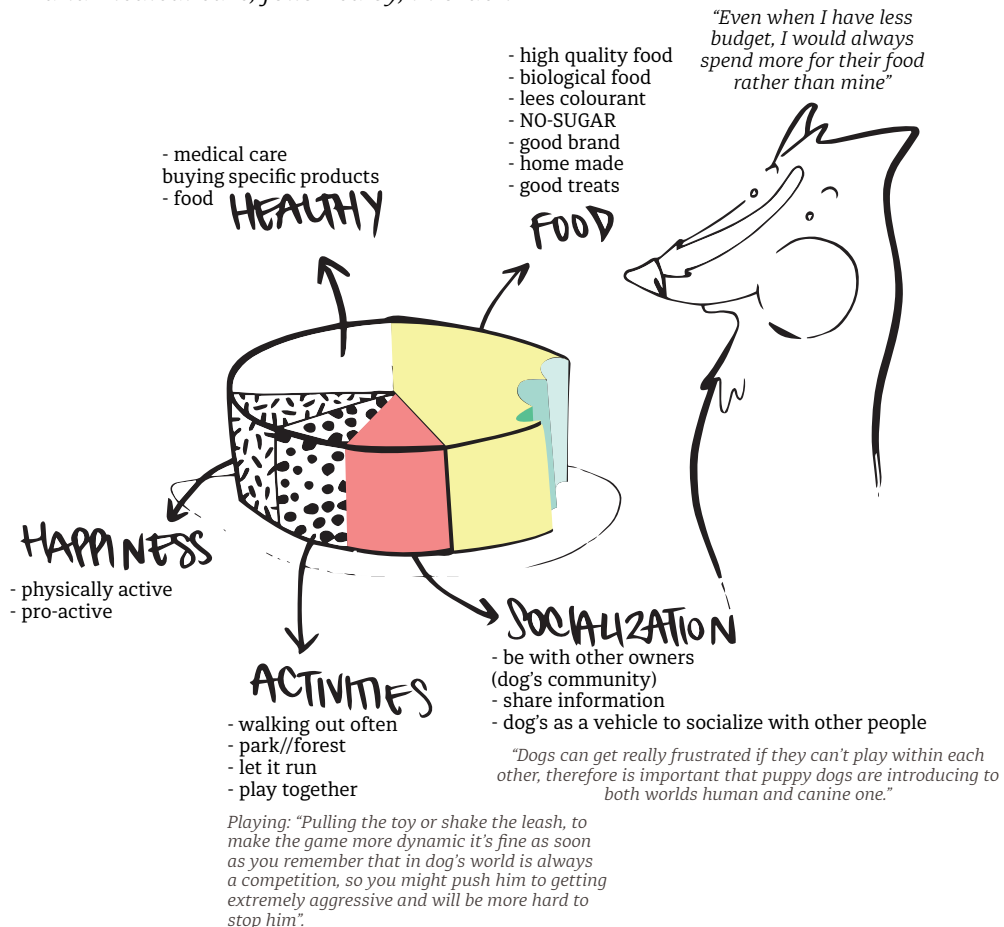
**Figure 10 :** Example of sensitizing booklet

## Outcome

Finding have been analysed and clustered together. As a result “consistency patterns” of a typical dog ownership were founded and a general customer journey was made.

The pie chart below (see Figure 11), shows the five main aspects in which are reflected the concerns of owners when it comes to the well-being of their companion canine.

A lot of owners believe that the Healthiness of their dogs is the most important aspect. With Healthy people refer to general caregiving and medical care, followed by, in order:

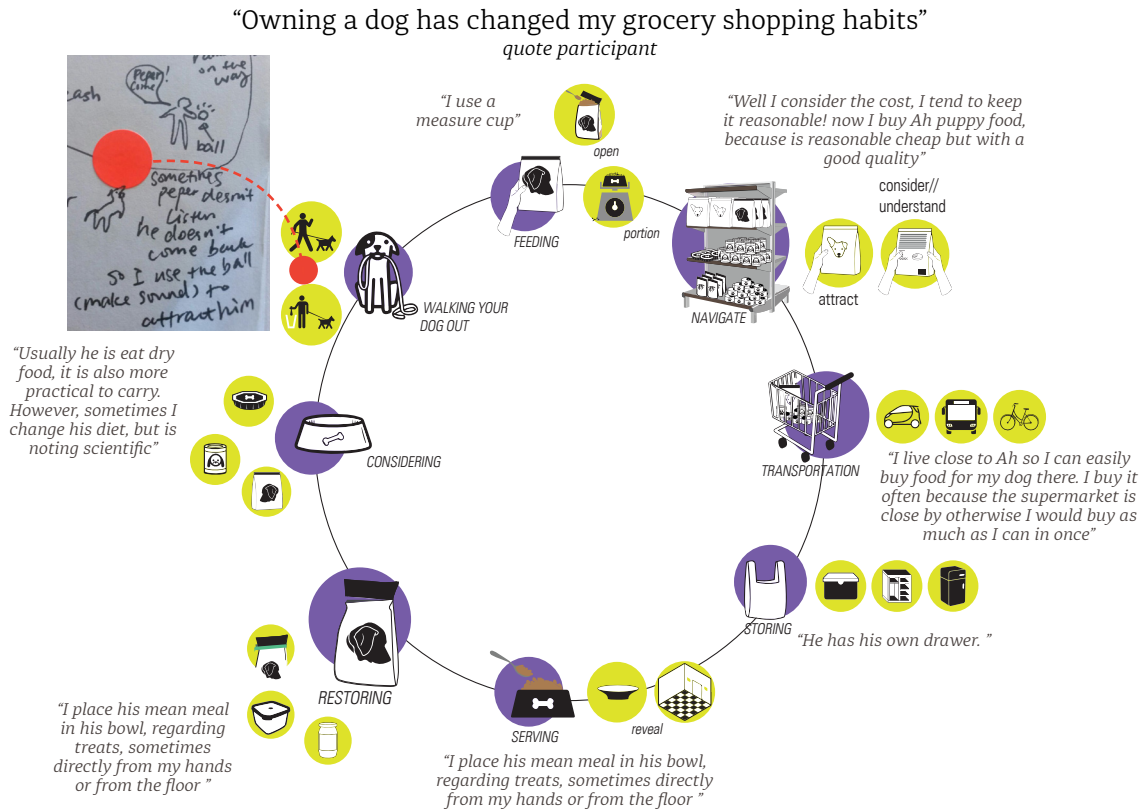


**Figure 11** : Five main concerns of dog owners

Healthiness is the main concerns of dog owners. One of the common way to fulfill this concerns is food. Food and the related feeding moment seem to be an important touch point in dog-human relationship. It is representing one of the main bonding moment for both, and this let the owner express his affection to his loved companion canine.

### Customer journey

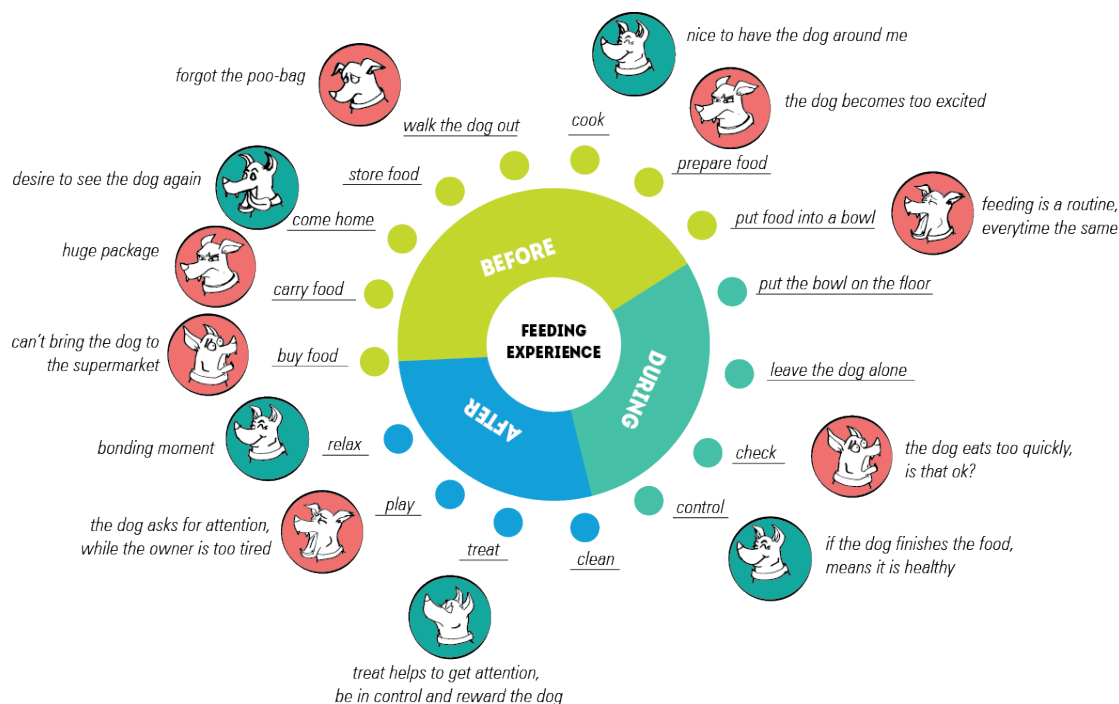
Different elements of the feeding moment were identified from the different owners and several anecdotes were collected. The customer journey *Figure 12* reveals step by step all the activities connected with the feeding experience. For example, buying pet-food at the store, transporting it home, store it, serve it and so on. Illustrations are used to represent the main pain points of the owner's situation. Additionally, "interview power quotes" are introduced as a way to simplify the arguments. This evaluation helps to find pain points that can be improved in the experience itself.



**Figure 12 :** Holistic owner's journey regarding pet's food

### Feeding Experience journey in three phases

Figure 13, depicts the whole feeding experience throughout the three main phases identified (before, during and after). Moreover, several actions and 12 (between positive and negative) emotions related are illustrated. For some of the participants, an important aspect of pet food is the feasibility and practicality in carrying, giving and store it. They declare that most of the time they feed their dog with dry food rather than wet food because is more easy to carry in their bag (for example), plus it does not small as the wet one and its cost less if you compared the amount of dry food contained in a big pack with the single portion of wet pack.



**Figure 13 :** Actions and emotions of dog owners during the feeding experience

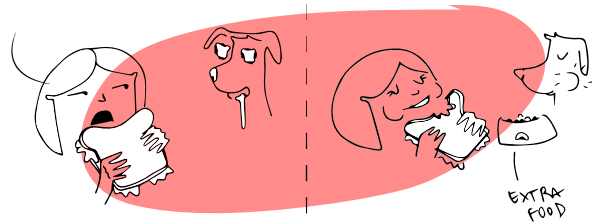
### Journey+feeding moment

The owner's journey starts as soon as the sun rises. It was identified that especially in the morning ritual, when usually people are in a hurry, they automatically feed the dog's bowl using a simple cup or glass found in the kitchen, that means that sometime the portion can slightly change. More than half participants would feed their dogs two times per day plus sometimes, several treats spread during the day. It was recognized that a different lifestyle/daily rhythm has a different effect on the owner's perception of pet food. Most of the owners had difficulties to admit that they have a lack of knowledge regarding the proper amount of food that their dog should get daily.

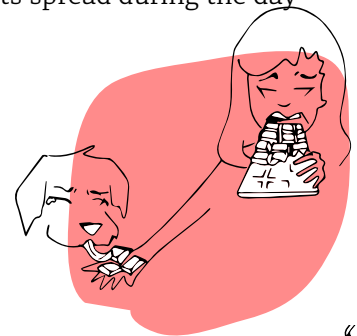
Three pain points regarding the owner's journey among the pet's food were identified.



1 Be in a hurry



2 Treats spread during the day



3 Personal perception of the food



### 2.2.3 Study 2 - Follow-up Interviews

#### Overview

Figure 14 shows an overview of the characteristics of the 13 participants and the 13 different breeds. Some of them has a dog for the first time others are owners from more than 10 years. Some of them raise their dog since they were puppy others got their dogs already adult. It was interesting having so much variety for our case study. The respondents varied from 25 to 65 years old. Nearly all were in a relationship and about half of them had children. Their occupation varied heavily. 12 participants had one dog and one participant had two dogs. Two participants had also a cat. 9 dogs were adopted as a puppy and 5 dogs as an adult dog.

NAMEA	GE	OCCUPATION	DOG'S NAME	DOG'S AGE	BREED	OTHER PETS
Andrea	50	student	Lucca	11 years	English cocker spaniel	no
Carla	55	worker	Tessal	2.5 years	Nova Scotia duck tolling	no
Carol	25	worker	Jojo	9 years	Shetland Sheepdog	no
Chen	28	PhD student	Pepper	6 months	Markiesje	no
Debz	38	worker	Faya	10 years	Staffordshire Bull Terrier	no
Hans	53	worker	Bikkel	9 years	Labrador	no
Marja	48	worker	Jazzy	3 years	Nova Scotia duck tolling	no
Ricardo	43	PhD student	Olmo	7 years	Weimaraner	cat
Daphne	36	student	Arash & Nefer	1 & 3 YEARS	Chihuahua	no
Krista	41	worker	Maxx	6 years	Jackrussell	no
Gerard	65	retiree	Britt	9 years	Pointer	no
Gerard	60	worker	Max	7months	Entlebucher Mountain Dog	2 cats
Gonny	58	worker	Coco	unknow	Galgo espanol	no

Figure 14 : 13 participants characteristics

### Process

They were approached through the Consumer Panel of TU Delft, on the street and Facebook. At the beginning of the interview they were asked to sign an informed consent, which stated how the data would be used, added in Appendix [C]. After the interview the participants received a voucher of 30 euro and a MARS treat for the dog. Also they were invited to participate in a WhatsApp Appendix [D]community where they could share pictures and videos with other participants. The three study resulted as a rich collection of data: 13 sensitizing booklets, 13 voice recordings of approximately two hours, videos, audio and pictures(which were taken by the facilitators or shared on the WhatsApp group by the participants). The audio recordings were transcribed for transcripts see Appendix [E]. The most interesting quotes were selected and for each a statement card was made, see an example *Figure 15*. The statement cards showed paraphrases of the data with the corresponding part of the transcript. Afterwards we clustered the cards and created 31 themes, which were converged in 8 dimensions. An overview of each themes can be found in Appendix [F].

### Outcome

The interviews have been transcribed and paraphrases in more than hundred cards clustered in 31 themes (which are all provided in Appendix [H]). In addition one more cluster was created with references to anthropomorphism attitude of human and natural behaviours of dogs. In order to map the relationship between owners and domesticated dogs, with references to anthropomorphism attitude of human, the 31 themes were converged in 8 dimensions. The 31 themes are listed below :

<i>Adaptability</i>	<i>Leaving your dog alone</i>
<i>Adult vs puppy</i>	<i>Knowledge intuition</i>
<i>Anthropomorphism</i>	<i>My timer</i>
<i>Benefits (ultimate feeling)</i>	<i>Other people</i>
<i>Be Consequent</i>	<i>Physical activity</i>
<i>Breed</i>	<i>Planning your life</i>
<i>Character</i>	<i>Regret</i>
<i>Communication</i>	<i>Rules//Boundaries</i>
<i>Control</i>	<i>Responsability</i>
<i>Dependency</i>	<i>Reward</i>
<i>Dog vs Cat</i>	<i>Training</i>
<i>Pet Role</i>	<i>Special moment</i>
<i>Feeding/food</i>	<i>Territory</i>
<i>Health</i>	<i>Trust</i>
<i>Hierarchy</i>	<i>Wants &amp; Wishes</i>
<i>Human &amp; animal</i>	

Therefore, the 8 themes highlighted, became the 8 dimensions were used as a criteria for design opportunities and to create personas and dilemmas.



Figure 15 : examples statement cards

**It's important for me that my dog eats when I allow him.**

16:31 I say "sit" before feeding him. I think it's important that I have so much control that I can take food away and he is eating when I allow him to eat. That's an important moment for him.

**We don't need to over-interpret them. Dogs let you know if there is something**

0:00:41:47  
Nature is really simple (the animal will give you a signal) If the animal is not happy it'll do something that they usually don't do

**The relationship you have with a dog depends on its personality**

00:19:25 With the one you have a very close relationship - you can do what you want. You can leave him, go back without having on a line. Another dog, you have to train it to get it.

**Sometimes, I need to be free without the pressure of someone else**

0:00:52:08  
So, for me is also nice to have a week, couple a days per year without having a dog  
And without having the concerns to look after to someone else.  
That's for me is a holiday

**Sometimes I need to get rest from my dog**

0:00:51:48  
To go in holiday is also to have rest, rest also away from your dog

**The ultimate feeling in having a dog is warmth**

0:00:06  
This is the ultimate feeling  
  
(I wrote it down. This is exactly the reason of why you want a dog to make; you feel safe to keep you warm and as company.)

**Sometimes I wish I could choose a different path**

0:00:15:43  
It's a negative feeling/moment, you have difficulty with making the decision  
"Shall I go care to my dog or shall I go on with my social life?"

**I want the feeding moment to be as smooth as possible**

0:17:39.830,0:17:48.139  
problems of adaptation with his food..took sometimes to adapt him, and I don't want to say to force him.. but motivate him to eat! was long long time a real pain in the ass..Because you have to be with him all the time.

**I celebrate birthday of the dog to amuse my son**

00:20:20 He is almost 7. My son is 5. When it's Max's birthday I will buy a present for him, a bone or a ball. Because my son likes it.

## 2.2.4 Study 2 a - Emotional Capture Card

### Overview

The emotional capture card method<sup>29/</sup>, is used to identify user emotions during the feeding moment. After the interview, when all the activities were finished, ECC (emotion capture cards) were discussed with the participant in more detail. All the emotions that arose during the interview were verified and clarified with the participant. Thus it was possible to understand the underlying thoughts related to the the feeding moment.

### Process

The interviews took place in the home environment. This was important in order to mimic a real-life situation. Moreover, it was essential that the dog was observed in a surrounding in which he feels confident. In this way it was more likely to capture the normal behaviour of the dog.

In the first hour we interviewed the participants in a relatively unobtrusive way. We asked them to tell us about their relationship with their dogs. Based on the insights collected from the booklet, participants were asked to describe how their daily interactions looked like, such as their socialization, care-giving and feeding. Different moment of the day were explained such as morning-afternoon and dinner ritual, and the related activities. In the second hour of the interview, specific moment were emphasized to report emotions as they incurred. Therefore, participants were asked to mimic the typical procedure of the feeding moment. These emotional events were written down on separate Emotion Capture Cards (ECC)<sup>30/</sup>.

### Outcome

Similarities were recognised between the thirteen owners. Almost all of them have the same procedure in feeding their dogs. The average perhaps, feed their dog twice a day, early in the morning and after the owner's dinner. Just four, out of thirteen, feed their dog three times a day. Three out of thirteen when they see the bowl empty! It was possible to create different pattern regarding the interaction context around the feeding moment. However it was identified that the different time in feeding the dog was strongly connected with the different lifestyle of people.

The presence of a dog into a household reflects a significant change in the lifestyle of people. Most of the owners are more willing to change their patterns of living and consuming, others are more willing to change grocery and medical-supply shopping behaviour in order to accommodate their dogs. However, there is a type of people who are not willing to compromise their daily routine for their dog. Those are likely to be owners that never had a dog in their life and are therefore inexperienced. However dog ownerships vary often and for different reasons, personal character, social behaviour, demographic characteristics. By using emotion capture cards, a lot of deeper concerns of dog owners arise. Overall, it was interesting to note that most of the owner's concerns are regarding the welfare of their dog with particular attention to their natural instinct. Owners are wondering how to better fulfill their dog's natural needs.

### Additional data

*The tendency to see dogs as a canine companion- friend or family member, noticed between participants and from literature, is also reflected in the way people talk about their dog. Moreover, it is possible to understand from the way in which the dog is included in a daily rituals and activities.*

### **2.2.5 Study 3 - Ethnographic Observations**

#### *Overview*

This observation study was conducted during two puppy training lessons, in order to provide insights on dog's behaviours, skills and how they interact with their owners.

Two couples, two single owners and one family was following the doggy course with their dogs (5 in total). Since not everybody of this user group was capable to express their own experience, emotion and concerns in english, during the observation, some aspects of dog's behaviours were asked and clarified directly with the trainer. The aim of the course is to let owners understand the general unwritten rules of dog's world. Structure dog's behaviour and let him responding positively to owners command and set the roles between the two of them.

#### *Process*

This puppy training takes in total 11 weeks, one day per week of one hour training. Unfortunately there is not a location designate to this course, so people have to standing by in the street, that was during November in a parking spot nearby the cultural center of TU Delft. During this hour basic tricks, commands (such as stop! come here!!) and how to approach dog are explained. Besides that, all owners and dogs have to exercise together and mimic different situation therefore practical demonstrations were made..

#### *Outcome*

Apparently young dogs are getting excited more easily than adults. driven by curiosity and the amount of energy they have to spend somehow. The first things that dogs have to learn is the difference between human's interaction and human-dogs interaction. The most interesting insights was regarding the main difference between the game moment and the social moment. For example, "if your dog is getting excited while you greet someone in the street and it start to jump on your legs, you must ignore him. While, during a playful moment with him there are less rules, even 'aggression' is admitted"-the trainer said.

Overall, dogs were perceived as being playful confident and relaxed even in an unfamiliar situation. In terms of their owners, dogs differed significantly from one to another regarding their behaviour. Perhaps the single owners and the two couple were more active and energetic in interacting with their and others dogs, while the family was more introverted and unconfident. The latter dog had more problem in claim his own place with others dogs and react positively to the command. As a matter of fact the relationship between companion animals and his owners influence and shape the dog's basic instincts.

Observing the live interaction between people and dogs changed completely the perception of the situation. During the training the difference between theory and practical became very clear. Even though dogs are well introduced in our society, it is a mistake to think that we/human can understand dog's behaviors or even predict it. People tend to classify good dogs (as calm dogs) or bad ones (as aggressive), without taking into account that we might be the cause of their aggressive response. It depends on the situation that the dog can feel attacked and automatically it is defending himself, someone or something. Sometime we adapt the same kind of gestures that we usually use to communicate with other people, in fact, really often we fully wrap the dog to express our affection as we'll use to hug people. In dog's world, that can be read as the beginning of an aggression. We are overwhelming them, invading their physical space.

## Curiosity Dog's features

Dogs have a visual fields of 250 degrees while humans have a total visual fields of only 180 degrees.

According to several behavioural measures, Coren says dog's mental abilities are close to a human child age 2-2.5 years old. Dogs are red/green colorblind, estimated 6 times less effective than human eyesight.

**VISION**

**SLEEPING PATTERN**

Dogs sleep for a total of 12 hours per day while humans sleep 7-9 hours.

**DIGESTION PROCESS**

In raw foods, dogs stomach takes 4-6 hrs to digest while dry food takes 10-12 hrs in the stomach. Humans take 1-2 hrs to digest foods in the stomach.

**NOSE**

Perception and touch- Dog perceive the world through smell the other senses are secondary for it. Regarding the olfactory sense, our companion canine has 220 million olfactory receptors which capture odours compared to humans, we have only 10 million.

**TONGUE**

Dogs have about 1,700 taste buds clustered around the tip of the canine tongue. While the average human has 10,000 taste buds however they are not all in the tongue. Some are under the tongue and some are inside the cheek.

**BONES**

Dogs has around 320 bones in its body (depending on the tail/dew claws), while a human has a total of 206 bones.

**PREGNANCY**

An average canine pregnancy last 63 days (2 months) while human pregnancy last for 266 days (9 months).

**DNA**

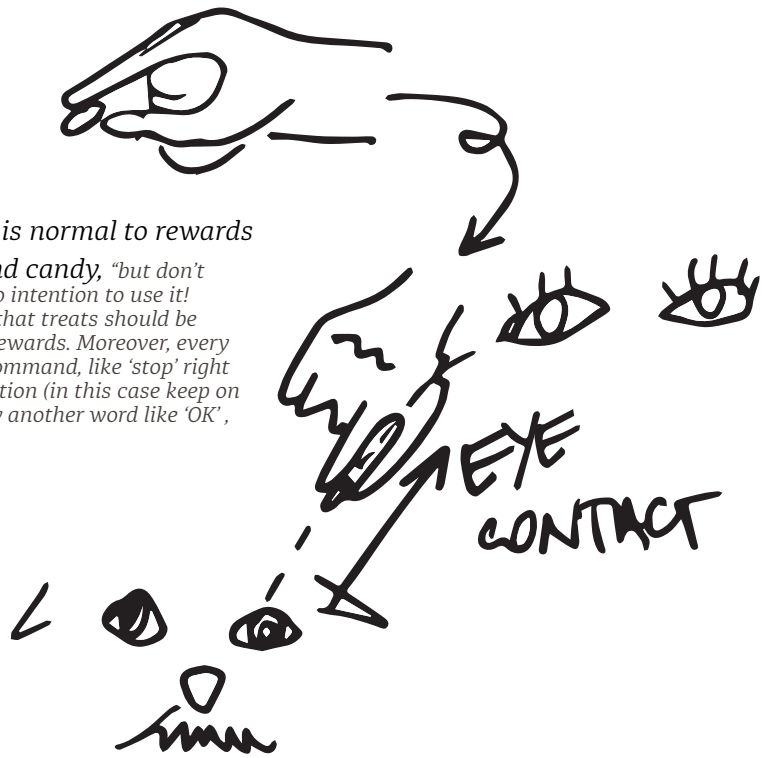
Figure 16: Dog's features

In all DNA of living beings, there are small sequences repeated several times. In dogs these repetitions are more present than others species, this would shape their appearance. A certain number of times in which is repeated with a certain frequency is correlated with a number of projections of the muzzle; so a specific amount of this number creates a Boxer's nose, others the nose of a Borzoi.

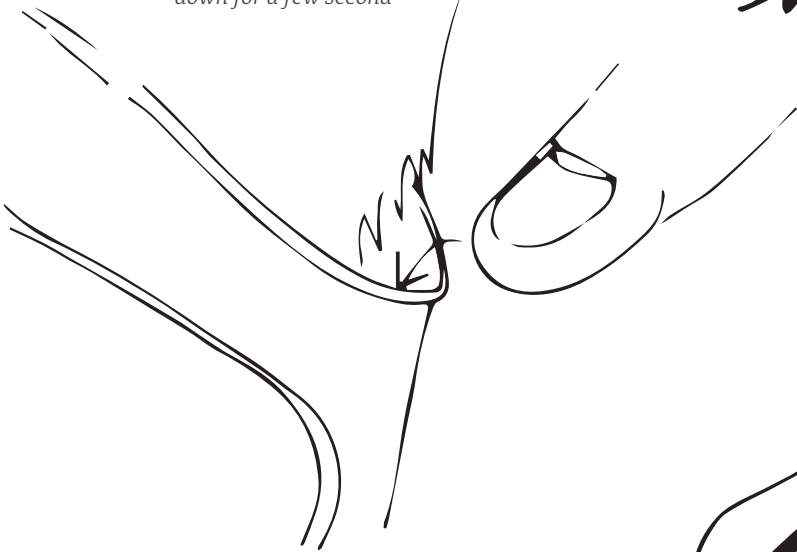


## Notes Observation

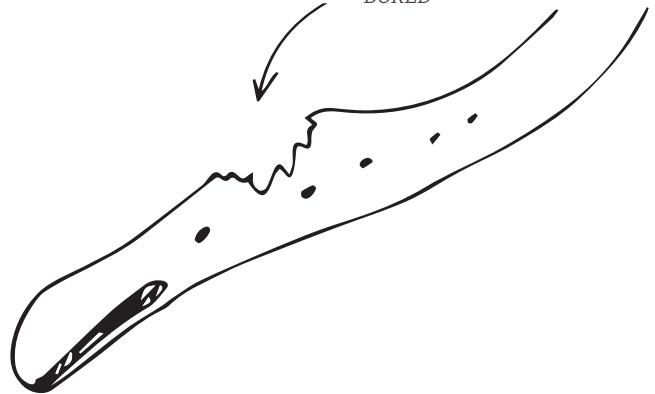
At the beginning it is normal to rewards dogs with treats and candy, "but don't show him if you have no intention to use it! And most important is that treats should be followed with a verbal rewards. Moreover, every Time that you start a command, like 'stop' right before change your position (in this case keep on walking) you should say another word like 'OK', then move again".



"When the dog is jumping on the table or you guest, put your finger inside the collar and push him down gently, keep it down for a few second"



"THE DOG IS CHEWING WHEN IS BORED"



## Dog's features what did I learn

What I realized, mainly during the observation studies, is that dogs can be very unpredictable if not well trained and their mood is influenced by many external factors. Moreover, each dog's race has its qualities. Some of them are easier to train, others adapt better to home environment, others bark or howl more than others. Compared with human brain, researches said that the brain of a dog is like a baby of two years old. But regarding the olfactory sense, our companion canine has 220 million olfactory receptors which capture odors compared to humans, we have only 10 million. Therefore, sight and hearing senses are secondary for dogs. Infact, when the dog enters in a new environment it will start to collect all the information through its nose. His senses are so sensitive that are able to smell things that are no longer present, even after days, weeks in some cases months. When these qualities are trained dogs can also save lives, found specific things like drugs or specific food such as truffle..

## **Results (dimension-persona-dilemma)**

### *Tools description*

*The 8 dimensions* identified eight different aspects of human-dog relationship, which refers to owner's need-wishes. The nature of the relationship between companion dogs and their owners has important impact on the effect of life for both dog and owner. Identifying factors that affect the dog-owner relationship will assist the understanding of how the successful relationship is achieved and how the less successful relationship is mended, with potential benefits for the welfare of both species.

*The personas* are archetypes of people created after an exhaustive observation and collection of data. Each persona represented a character whose profile show up the features of an existing social group, by assuming the attributes of the groups they represent: from their social and demographic characteristics, to their own needs, desires, habits and cultural backgrounds <sup>32/</sup>.

*The dilemmas* are derived from the experience of having to make a choice between two mutually exclusive alternatives, where each alternative evokes mixed emotions due to the conflicting personal concerns associated with them. Three main psychological ingredients of dilemmas are: choice, mixed emotions and conflicting concerns <sup>31/</sup>.

## 8 DIMENSION

These eight dimensions were created during interviews, presented by the participants as characteristics and/or wishes that participants aim to achieve in their daily routine with their dog. These findings are in line with previously found results<sup>33/</sup>, Dotson & Hayat identified seven dimensions which describe the construct of dog companionship. Moreover these dimension embrace several academic researches on the human-canine relationship. The dimensions are first generally explained and then introduced by the quotes of the participants see the coming pages (56-61).

**1 Pet role:** *How do you consider your pet?*

*The way people treat their pet is strongly related to the role the pet plays in their life. Some people see their pet, for example, as close family member or as a possession.*

**2 Adaptability:** *Did you adapt your lifestyle to the dog or the other way around?*

*This dimension refers to people's willingness to change their patterns of living to the dog and vice versa. Choice of living space, home, or outdoor set-up, traveling and other activities are altered due to the presence of the dog.*

**3 Trust:** *Can you trust your dog?*

*Dogs, even though domesticated, are animals whose behavior can be unpredictable. Trust refers to the extent people are confident about their dog's behavior.*

**4 Rules//Boundaries:** *Are rules important for the dog?*

*This dimension has to do with the rules and boundaries that owners create or thought specifically for the dog. Creating rules, boundaries, and limitations provides clarity and consistency.*

**5 Health:** *How do you maintain health of your dog?*

*This dimension refers to the importance of physical and mental well-being of dogs and the action to maintain this.*

**6 Leaving alone:** *Would you mind to leave your dog alone?*

*Dogs are highly social animals and experience stress when they are leaved alone. This dimension indicates if the dog owner tolerates to leave the dog alone.*

**7Anthropomorphism:** *as attribution of human mental states such as; thoughts, feelings, motivations and beliefs to non-human being.*

**8 Feeding:** *How do you feed your dog? Which kind of food do you feed your dog?*

*This dimension refers to the motivation for buying and preparation of certain food for the dog. Both for humans and dogs meal time has a social value.*

### 3 PERSONA

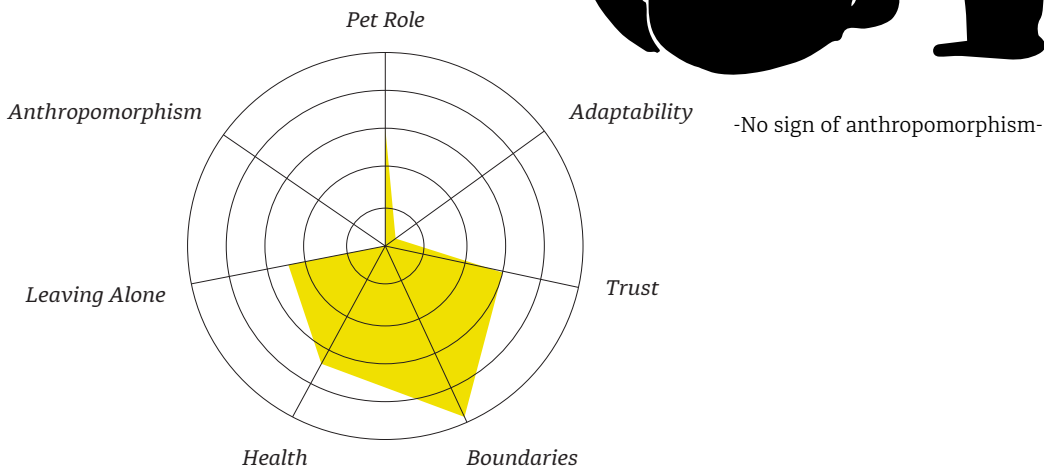
While reading through the final results it must be taken into account that, this research was conducted mostly with Dutch participants. Therefore, the results are focusing on Dutch society, habits and traditions. While analyzing the data, three persons were evaluated through eight dimensions. The follow up persona are representing three different type of owners, which are interacting with their dogs in three completely different ways. Persona n.1&3 represented two extreme ways of ownership; from a very straight relationship based on specific rules to a very chillaxed mood inspired by owner's assumption and instincts.

#### *Persona 1 Structured*

This represent a really structured person who needs of specific rules, straight organization and planning for each daily activity. Roles also are essential to cope and living together with his dog. He is a consequent person, he needs to have everything under control. In addition he is kind of possessive within his loyal companion dog.

*"I Don't really trust other people's approach in specific situations!"*

He trusted more his way of thinking and even when he does not something he is going to fix himself. Perin <sup>35/</sup> assert that for some people "having a dog is a satisfaction of giving and receiving complete and total love and devotion".



### **1 Pet role**

“He is my buddy”

“I want to feel my dog  
mine”

“I always saw my dog as a  
friend”

### **2 Adaptability**

“I want the best for my  
family also for my dog”

“we have a very strict  
timetable, also him”

“since we have the dog, we  
don’t go out anymore. we  
cook more often, save  
money”

### **3 Trust**

“Is important to have dog  
passport for his story”

“he is focused on me and  
walks behind me”

“is important for me to  
trust my dog”

### **4 Rules//Boundaries**

“having control on my dog  
make me feel like...nice!”

“ with some kind of dog  
you have to spend more  
time outside”

“I need to have control &  
straight routine with a  
straight schedule!”

“is not allowed to eat in the  
kitchen”

“dog is allowed in my bed  
just when I change my  
blanket”

“there is a line in the  
kitchen that can’t cross”

“I should learn my dog how  
to react and behave when  
he is outside”

“I don’t want dog in the  
kitchen”

“the ‘real’ owner should  
feed the dog”

“cats get food first, as they  
are older”

“I want my dog to do what  
I am saying”

### **5 Health**

“I want to give the best to  
my family and my dog”

“He is my buddy”

“when I am not at home he  
is going to my boyfriend  
office or my friend”

“always specific food for  
dog”

“is important for me the  
healthiness of my dog, I go  
to the vet everytime he  
needed”

### **6 Leaving alone**

“my dog is never alone”

### **8 Feeding**

“hide the food is good for  
his sniff”  
*satisfaction when she find  
the food*

“my dog is eating every  
day at the same time”

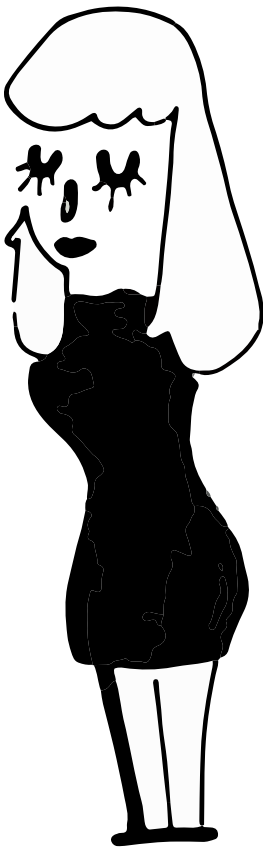
“i like to feed him! i can  
decide the weight”

“normal food is a routine,  
candy are more special”

“I give a small portion of  
food before walking,  
otherwise is not good for  
her stomach”

*Persona 2 Equal*

For the second persona the rules are not essentially needed. She is more moderate and communicates a lot with other owners when she needs suggestion. She keeps balance between being completely free and super straight. She is the type of person who is willing to describe the special relationship that she has with her dog.

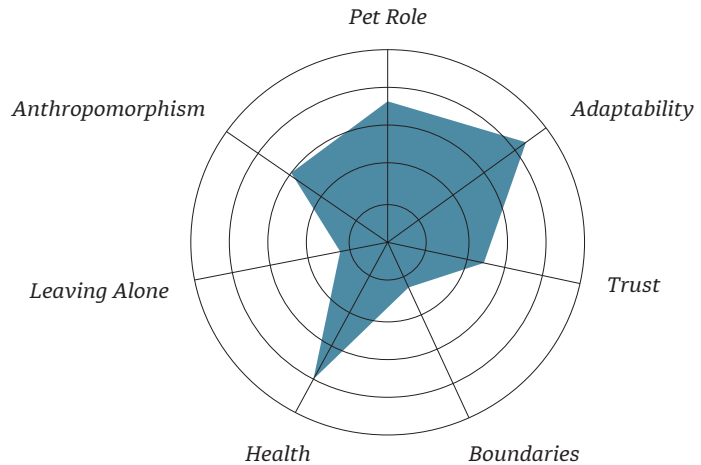


*"My dog will let me know when he wants to eat"*

*"My dog is a top dog! So she will never share stuff with other dogs"*

*"Here the presence of the pet, who is partly anthropomorphized, serves as a surrogate for human companion",<sup>36/</sup>*

-Anthropomorphism, here the dog is perceived as a child surrogate or as part of the family, who can be communicated with much like other other human-



### **1 Pet role**

“He is my child”

“I need my dog be part of my family”

“I want to feel my dog mine”

“I like that my dog make me feel safe”

“I want my dog keep motivating me”

“during christmas he is getting a present to like my son”

### **4 Rules//Boundaries**

“he is allowed on the couch just when I am there”

“I will no go in a places where my dog is not allowed”

“I wish my dog is allowed everywhere, even in my office”

### **2 Adaptability**

“he has a straight rutine because of his pills”

“I want my dog to be with me everywhere but need to have social life without restriction”

“I need to be quick when I do the grocery”

“I like to go to the nature, I didn't went so often before”

“we adapted to each other”

“we built together our routine”

“I bought a book, how to rise a dog!”

“I want to be with her at home”

“I should adapt the environment for my dog's needs”

“I want to change my lifestyle to be together with my dog”

### **6 Leaving alone**

“My dog should be always with someone”

“I have a doggy bag store, to carry him with me everywhere”

“I am disappointed that dog are not allow in the supermarket and children are”

“I felt guilty to leave him alone, I don't know how he feels while is at home”

### **3 Trust**

“Is important to have dog passport for his story”

“I don't trust other people approach when is come to my dog”

“I can do everything with her, she will always react to my commands”

### **5 Health**

“I want to give the best to my family and my dog”

“He is my buddy”

“we are going to the doctor regulary”

“I brush his teeth”

### **7 Anthropolomorphism**

“he doesn't want that I pet him”

“when he wants something he asked me and I will give it to him”

“I do like when my dog assisting me! he can understand when my dog is sick before than I do”

“I like my dog to have the same personlatily”

“I like to have no-verbal communication with my dog”

“my dog has a different language from other dogs”

“he point on specific game to get my attention”

“when he is sitting in a specific position its mean that he wants food”

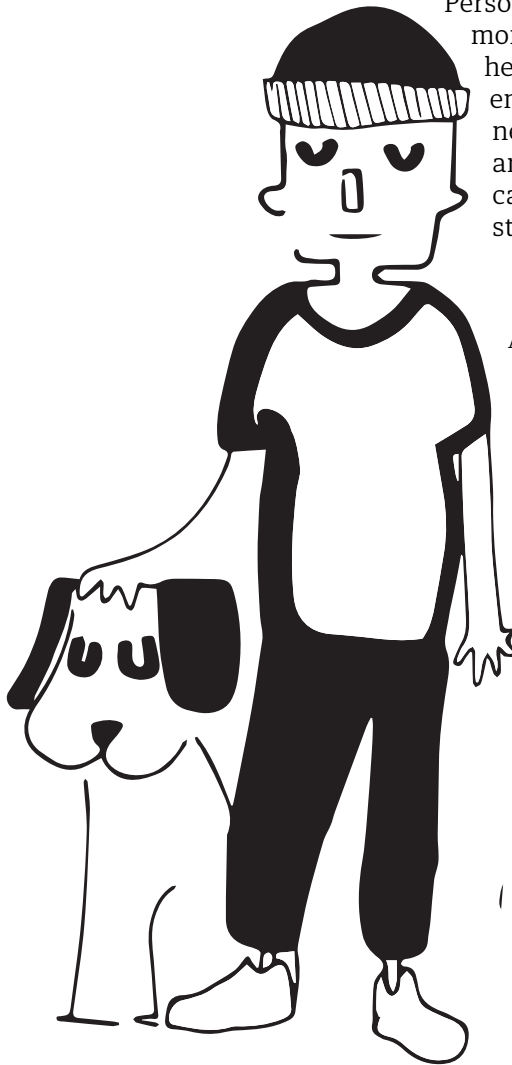
*Persona 3 Easy going*

No structure at all, chaotic and unorganized, unable to follow a structured plan.

*"In the car she sits behind me, I look back because i have the feeling she is not there" ...*

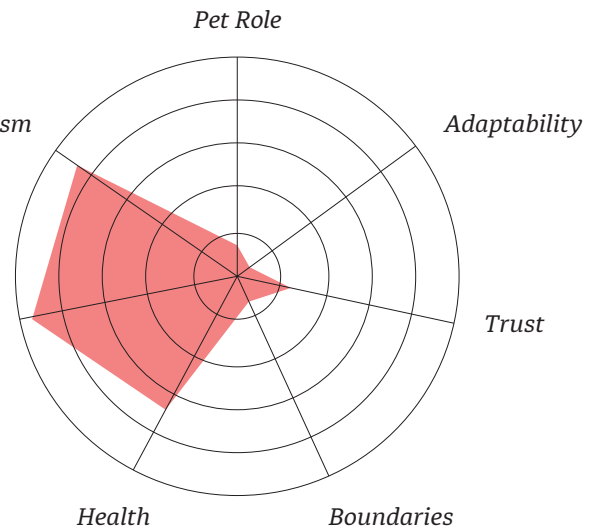
Persona 3 take decision regarding his dog, based more on feeling regarding the relationship within he and his dog. The only rules is being as much empathic as possible. Here the owners are often new in the dogs world. The lack of experience and knowledge on how to deal with his dog may cause damages regarding moral and physical state.

Anthropomorphism as a "reflex consciousness", the ability to use self-knowledge, knowledge of what it is like to be a person, to understand and anticipate the behaviour of others <sup>37/</sup>.



Anthropomorphism

Leaving Alone





**5 Health**

**3 Trust**

“I want to feel emotionally connected with my dog”

“human are not that transparent as they are”

“I can’t predict what my dog will do, I can just trust him”

**2 Adaptability**

“I need to have social life without restriction”

“I don’t like walk with my dog & others, the speed is always different”  
*irritating*

“I want to feel emotionally connected with my dog”

“I should learn from other dog owners”

“sometimes I want grab a beer with my colleagues after work, but I cant because of my dog”  
*regreat*

**“dog does influence the lifestyle but it should fit your lifestyle, I want my dog follow my lifestyle”**

“human are the priority”

“I want to give the best to my family and my dog”

“He is my buddy”

“my dog should eat healthy food”

“I like my dog eats tasty food”

“varieties is important, to stimulate him”

“I need to know what is the best food ‘formula’ for my dog”

**4 Rules//Boundaries**

“having control on my dog make me feel like...nice!”

“ with some kind of dog you have to spend more time outside”

“I need to have control & straight routine with a straight schedule!”

“I need my dog to enjoy a special moment with us but I want my space”

“I want to control the instict of my dog but he should be express his insticts”

“I might be some rules and having discipline to live together, but i want to feel freedom”

**1 Pet role**

“He is my buddy”

“I like that I got a dog already well trained”

**6 Leaving alone**

“leaving the dog alone for 7/8 h is fine, she doesn’t destroy the house”

“when I leave my dog alone she is upset”

“I need a method to calm down the dog when is at home alone”

**8 Feeding**

“there is not a real difference in who is feeding the dog!”

“I need to be more focus while I feeding my pets but I want a social moment”

**“she already depend on me for everything at least food she can choose alone”**

“when he doesn’t want to eat is a pain in the ass”

“If i don’t have time, I will add food for her to keep her entertained”

“licking her lips, meas she likes it!”

“I change food so me-times to make it more appealing to her eyes”

“my dog likes the person who feeds him”

“he is always invite me to stay next to him while he is eating, and I like to be together with him”

I can’t understand the difference between barkings”

“I observe his behaviour and I try to put myself in his mind”

“she stay in front of me looking at me like: -did you forget something?-"

“she was upset, she didn’t look to the eyes”

“when she is sitting on one couch is because she want to have an overview of the environment”

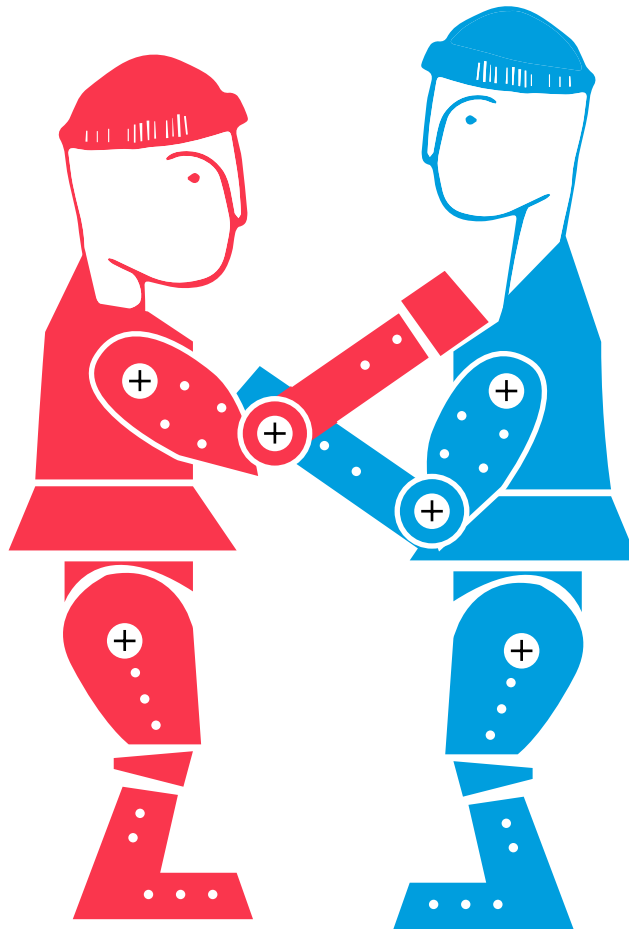
“when my dog is getting exited for food, means she is fine”

“I like that we have different language but still understand each other”

“once she look at me disappointed: *how can you give this to me?-*  
*(refferign to food)*

## 20 DILEMMA

As described before, through ECC concerns and mixed of emotions regarding specific moment and action of participants were founded. By analysing the relationship among these concerns by comparing and contrasting them and thereby potential concern conflicts, i.e. dilemmas, were formulated. These dilemmas are a way to understand the complex relationship between humans and dogs and a starting point to respond to them through design. Each dilemma provide detailed insights on ownership experience in daily life.



Dogs should have the same rights as human VS. Dogs are not humans  
 I want my dog to eat natural food/ in a natural way (natural meat, bones) VS. Taking food with me and feeding should be easy (dry food)  
 I should give attention to my dog VS. I want to be flexible with my life  
 I like when my dog is giving me or others attention VS. I don't like my dog being too pushy  
 We both like to be together VS. We need our personal space  
 I like my dog to behave in the way I want VS. I want my dog to behave in a natural way  
 Feeding moment is a bonding moment VS. Time for the dog  
 I like when my dog motivates me to do something VS. I don't want my dog to insist in doing something  
 My dog is my responsibility VS. I need assistance with my dog  
 I do care about my dog's natural need/processes VS. I don't want to limit my life  
 I want to care for my dog VS. I want social life  
 Tricks are a tool to obtain a specific behavior of a dog VS. Using tricks is a fake way to get // buying attention of your dog  
 I do domesticate my dog VS. I think it's unnatural to domesticate my dog  
 I want my dog to feel better by taking her out of her comfort zone VS. I want my dog to feel comfortable  
 I have these rules VS. My husband has different rules  
 It's cruel to leave a dog alone VS. As long as he doesn't destroy stuff it's ok  
 It's not good to leave the dog alone VS. A long trip is not good for a dog  
 A real dog is a big dog VS. Small dog is practical  
 I don't want my dog to get sick VS. I don't want to spend too much  
 Be a typical dog VS. don't do some of the doggy stuff

In total 20 dilemmas are collected but just 5 of them were selected as most valuable for the aim of this graduation project and MARS Pet Care. At this point it was necessary to converge the research even more for the given brief and with the research question in the back of the mind - **How can design trigger a functional and emotionally balanced owner-pet relationship through an innovative feeding experience?**-, one dilemma was identified as the most relevant. Thus it address the main criteria which are - *Relevance* ( it is relevant for the project as it has a direct impact on the well-being of the user) - *Inspiration* (it bring aspect of dog-human relationship that was not taken into account before) - *Meaningful Formulation* (the dilemma gives several possibilities to work on during the ideation phase). However, it must say that all the others dilemmas have been kept into account during the ideation phase, as they are all valid for the brief.

*I want to give the proper attention to my dog* VS. *I want to be flexible in my life*  
*I want to feed my dog natural food in a natural way* VS. *Feeding should be easy*  
*I like feeding to be a social moment* VS. *I should be vigilant while feeding*  
*I should set rules for my dog* VS. *I like my dog to love me unconditionally*  
*I want to feed my dog natural food in a natural way* VS. *I want my dog to love me unconditionally*

### Understanding dilemma

Through the research, clear patterns started emerging about the different characteristics of the owners in the way they relate with their dog during the feeding moment. Concerns often involve tangible references, such as time, location or physical features<sup>38/</sup>, which makes them easy to imagine and describe.

*But what does it mean “proper attention” for the owners?  
And what the owner mean with “Flexibility”?*

When the most worthy dilemma for the design phase was chosen, it was deeper analysed to better specify the main key points and to help people better understand the means behind it. *Figure 17* shows three main pain aspect related to the dilemma (“I want to give the proper attention to my dog, I want to be flexible in my life”) and where they come from.

## I WANT TO BE FLEXIBLE IN MY LIFE VS I WANT TO GIVE THE PROPER ATTENTION TO MY DOG

“I always try **different pet food**, vegetables and sometimes I feed her with **leftovers**.”

WIDER FOOD:  
**LACK OF UNDERSTANDING ABOUT SUITABLE MEAL**

**UNDERSTAND**

“When I am at home, I just feed her right before I eat. Otherwise she will be **begging for food**.”

**NO CONSISTENCY**

**HAVING STRUCTURE**

“A dog does influence your lifestyle, but it should fit to your basic **lifestyle**. I couldn’t change a lot because of the dog”

**TIME consuming**

**NEED SUPPORT**

Figure 17: key points of the chosen dilemma

Based on the pain points, lack of understanding and inconsistency in feeding time, the focus of this graduation project is to provide knowledge & assistance to the owner during the feeding moment. Although the dilemma has been analysed and converted into the final insights. A question remains to be answered:

*How can the owner deal in a flexible way with his dog's feeding moment without risking his wellbeing?*

*How can design support consistency regarding the feeding moment?*

*How might design can align human & pet time?*

Regarding dog's food & feeding moment

*How often owners should feed their dog?*

*What is the perfect diet for the dog?*

*How people evaluate the perfect amount/balance of food?*

According to the question arise, a parallel study regarding pet's food (proper amount, what is good and what not) has been carried out, (See page 68-69).

### Persona+concerns in a context=storyboard

Although most of the owners would agree that feeding their dogs is a way to express their attention and love, the main differences in how they do it is based on their different levels of experience, which are visible through the persona 1-3. More experienced owners (Persona 1) have more knowledge and they are more secure in the need and attention to give. A less experienced owner instead (Persona 3), tends to give extra attention=extra food, that the dog already received, or even completely forget about. This means that they need a structure to support

their caregiving/attention and that they are not yet capable to understand properly what the dog needs. By looking at the emerging patterns, it was clear that the one more in need for support was the less experienced owner. The insights collected in the various researches, were illustrated in a time-map, which depicts three main aspects of the feeding moment and both dog-owner emotion involved. A storyboard of the current context was made to describe what concerns owners experience, visible in Figure 18. The storyboard includes: *Experience level with dogs - Activities with the dog*

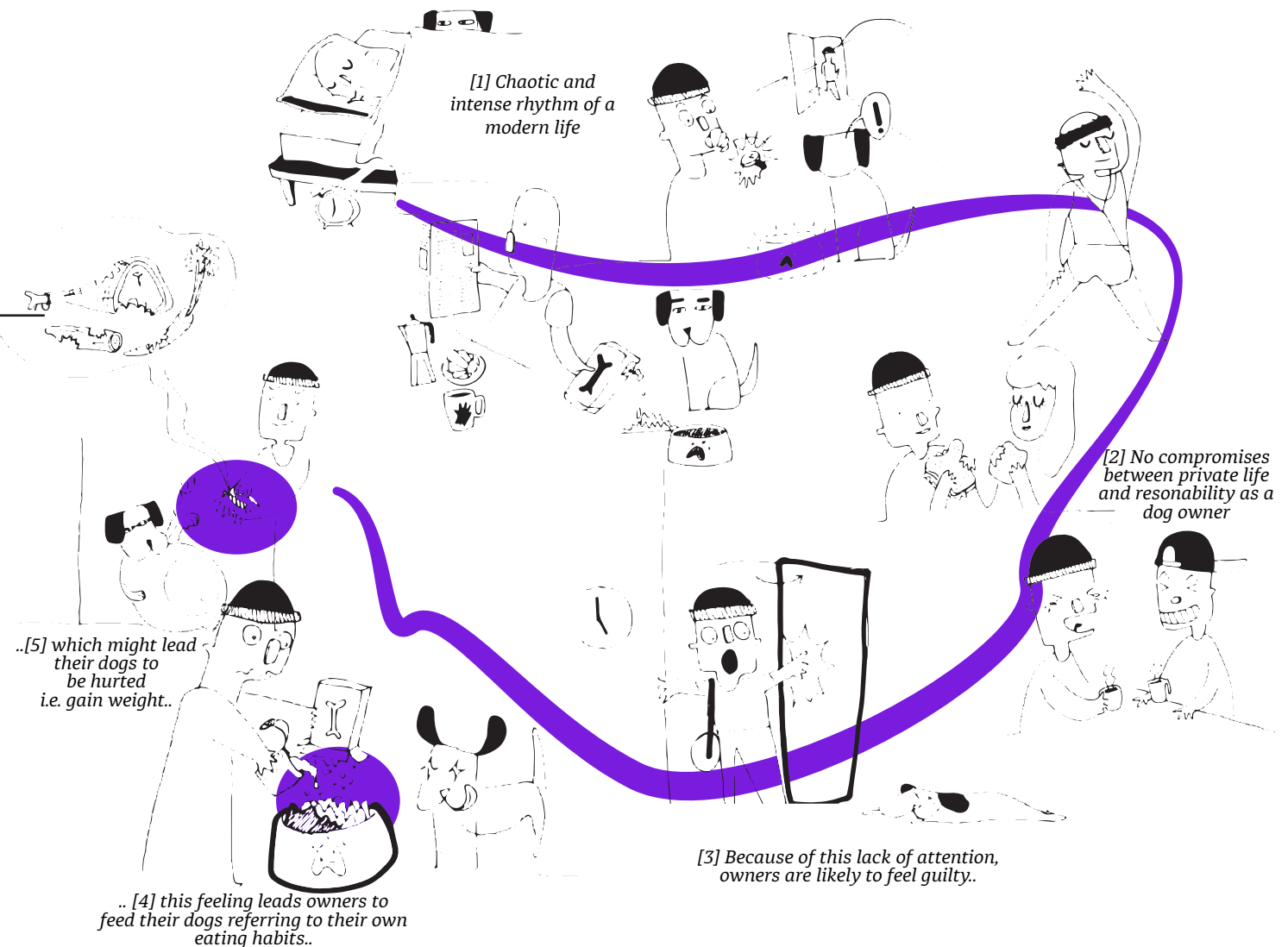


Figure 18: Storyboard of the current context

Pet's food "proper amount"

**"How people treat their dog is changed, 30 years ago having a dog was not easier! Now society is more open for dogs"** participants cit.

Different factors influence the healthy status of dogs. Feeding and exercising are the two main factors <sup>39/</sup>. Besides the daily meal, all owner is feeding his/her dog with additional food (treats and/or leftovers). But how often and how food have being portioned?

Basically, the feeding method is mainly involve the quantity, frequency and variety of the food that provided to the pets. The amount, frequency and variety of the food and/or additional food provided to the dog, can result with unhealthy dog's condition such as weight gain<sup>40/</sup>. Therefore, the goal of this project is to tackle all situations in which the owner could harm the dog, by providing the proper knowledge and support the owner in fulfil properly his/her dog's need. First, the amount of food for feeding dogs change based on their size/ breed, age and activities that they performed daily. Second, most of the owners use to feed their dog every day at the same time.

*But what if they forgot or either change the time schedule every now and then?*

Third, variety of food it might be good for dogs.

*But how to be sure which kind of food fit better our doggy's characteristic?*

Figure 20 shows different factors between scheduled and free meal. So starting from the frequency in giving food it was possible to understand which are the benefits for both owner and dog. Moreover, Here the variety and frequency of additional food is expected to be related with the owners intrinsic emotions and personal lifestyle. In fact, if a person is always in a hurry he will choose mostly the dry food because it is more practical.

As the owner is the direct responsible for providing pet with a nutrition, his perception is one of the main difficulties for a big industry that have to trigger his attention.

As a matter of fact, variety in food acceptability, such as smell and appearance (for both dog and owner), and the owner perception were take into account from many companies on pet's food, (i.e. in the Figures 19 below, People eating dog food without knowing).

HOW TO READ IT?  
IN ORDER TO UNDERSTAND THE GRAPHICS,  
PLEASE READ FIRST THE LEGEND:



Moreover, x - axis = most or less positive respond on owner  
on the y- axis= most or less respond on Dog



**Figure 19:** screenshot from youtube  
<https://www.youtube.com/watch?v=QtHa8Cf4BOI>

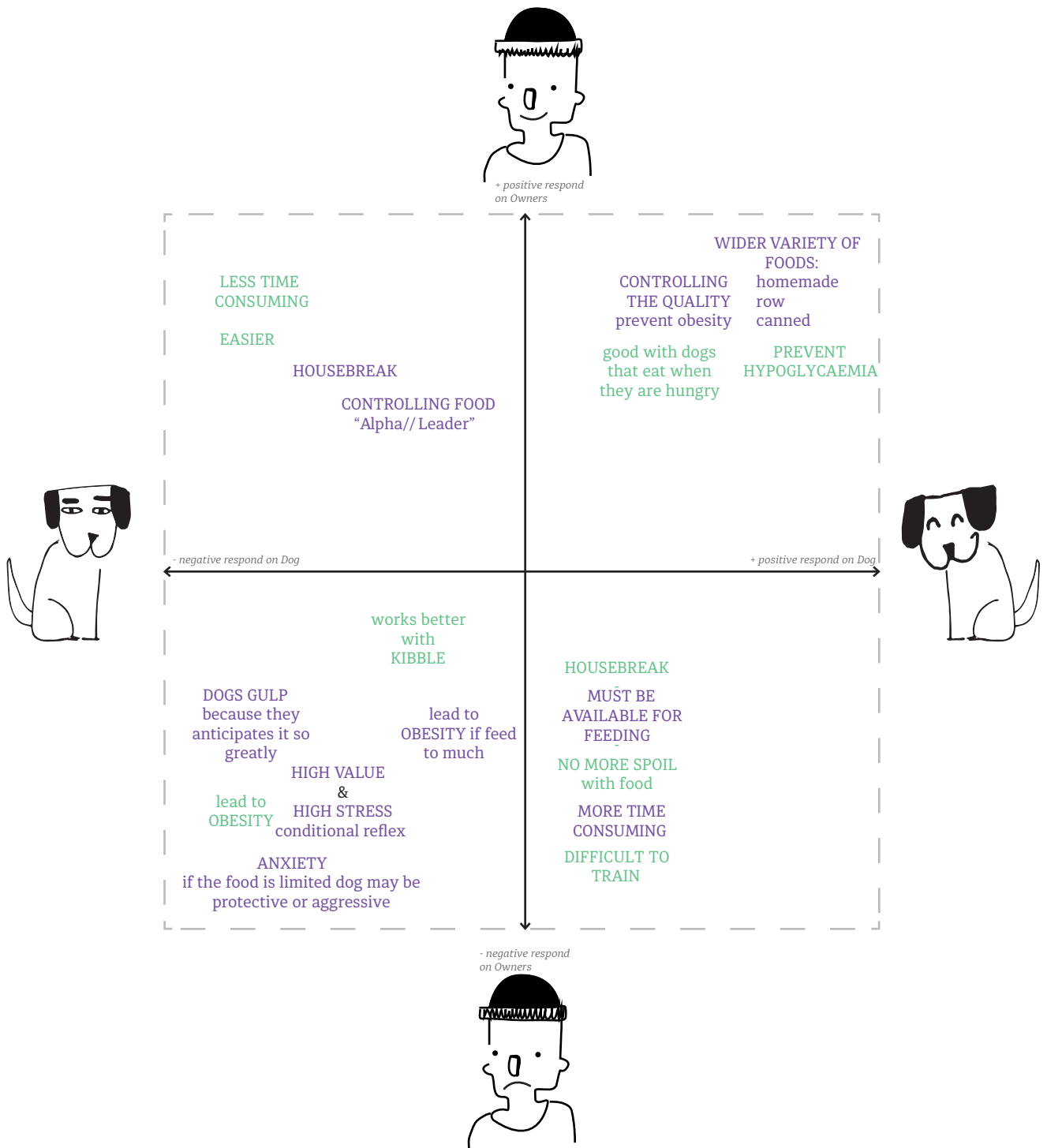


Figure 18: pros & cons of free//scheduled meal



## *Conclusion*

*The goal of the field research was to extract all the positive and negative experiences in human-dog relationship and how those affect both dogs and owners especially during the feeding moment. The diverging owner concerns among the feeding moment makes the interaction sometimes no consistency and negative for both. The research pointed out that some of the situations that have a negative impact on dogs are due to owners having a lack of proper knowledge in how to raise and taking care of a dog. On the other hand, owners feels frustrated and sometimes regrets owning a dog, as it requires too much attention, and he is not that independent.*

*Eventually, three archetypes of dog owners were created, in order to guide the reader through all the data collected. Having a dog involves changes, any persona need to change their behaviour somehow from the moment that they get a dog in their life, but not every owner knows how to deal properly with it. One persona out of three showed more trouble and contradiction in experiencing the ownership. Therefore, the persona that has been chosen as a case study is persona n.3. As a matter of fact, this type of owner is more willing to approach his dog with a condition of anthropomorphism. In specific situation such as feeding moment, he tends to humanizing his pets and do not treat it as a companion animal. In this case, the owner will evaluated and afford the situation based on his own assumption. The emotional status also influence the way to interact with a dog. From the data collected, the emotional status of persona 3 would have more negative impact on the dog's well being. According to the owner's journey created, it was identified that the main issues came down to three main goals that owners want to achieve regarding the relationship with their dogs, which are:*

### *NEED SUPPORT*

*Owners do not want to feel limited by their ownership*

### *UNDERSTANDING DOG'S HEALTH*

*Owners want to know what it good or not for their dogs*

### *HAVING A STRUCTURE*

*Owners need to be guided through the daily activities*

*It must be taken into account, that in making this assumption the researcher is aware that there is no scientifically recognized evidence. The supposition is based upon anecdotal evidence and personal and professional experience with dogs and with the research.*

# DESK RESEARCH KEY INSIGHTS

## 2.2.1 Context mapping (sensitizing booklets) STUDY1

*What are the human-dog interactions in a general day?*

Walking dog out  
Playing  
Cuddle  
Feeding  
Grooming  
Waking up

*Do these activities involve certain recurring rituals?*

Walking dog out - choose a path (outdoor)  
Playing - hide food to stimulate dog's basic instinct (olfact)  
Cuddle - let the dog come next to you  
Feeding - buying/preparing food  
Waking up - let the dog be the alarm o'clock

*Which aspect is more important for dog owners when it comes to their dog's well-being?*

Healthy (as medical care)  
Happiness  
Activities  
Socialization  
Food

## 2.2.2. Follow up interviews

*What kind of rituals do owners and dogs have?*

Rituals are strongly connected to the activities (inside/outside door) that owners share with their dogs and the way that this latter is fed

*What drives people to treat their dogs in a specific way?*

The way owners trust and what they know about their dogs are determinate the way owners interact with them

*How do people experience the relationship with their dog?*

Sometimes they regret the fact of having a dog

*What do they generally like and dislike?*

Like:

Get the right attention (when is more useful for us)  
Have control  
Taking care for his dog (cook something for them)  
Reunion (special moment, the dog is getting excited)

Dislike

Feel obligated/forced in doing something  
No control  
Overwhelming of attention  
When things are getting too expensive

## 2.2.4 Emotional capture cards

*What are the negative and positive emotions that affect owners' experience?*

Positive

Desire = to see the dog again, back home  
Joy = to fulfill dog's needs, food  
Pride = to be in control of my dog, always  
Attraction = desire to see my dog excited, while eating  
Enthusiasm = to have a dog around me

Negative

Guilty = forgot something among my dog  
Worry = the dog eats so quickly  
Anger = huge package, convenient but not fresh  
Bored = dog asks for attention while the owner is too tired  
Disappointed = can't bring the dog to the supermarket, making grocery faster

## 2.2.5 Puppy training observation

*What is the role of the dog?*

Companion/buddy - child, whatever role it is going to address it should follow owner's rules

*How do people prefer to impost the relationship?*

Overall dog owners want to be in control of their dogs. People do not like unpredictable behaviour!

## 2.3 FROM RESEARCH TO DESIGN

### 2.3.1 Design Goal

Before to starting with this ideation process, the design goal that comprehend the different insights of the research was made. The design goal description is explained below:

***“I want to educate dog owners, with a flexible lifestyle, about the benefit(s) of day to day structured feeding, through the use of a feeding product for dry and wet dog food”***

### 2.3.2 Constraints

Each person has a different lifestyle, personal values and rhythm. The research comes down to three main goals the owner want to achieve regarding their being free in control within their ownership.

**1 Feel supported (conflict regarding 'flexibility') = time consuming**

Owners want to feel free without restriction or be limited. They need: motivation and a tangible support.

*"A dog does influence your lifestyle, but it should fit to your basic lifestyle. I would not change a lot because of the dog.."*

**Owners want:**

The ownership does not interface with their lifestyle

To feel free in control

To be sure that they fulfil their dog needs

To be efficient and practical

**2 Having a structure (in owner and dog's routine) = no consistency:**

Owners do not want to feel obliged to follow a strict schedule, but do they need a guide to follow when it comes to specific situation.

*"I know I should give her food after that we had dinner. But sometime I feed her right before I eat, especially if she starts to begging for food"*

**Owners need:**

Step by step guidance

To know the status of dogs health

Feel engaged while they are doing a simple tasks for their dog

*"If I am not at home I will leave some food in the bowl. I believed that sometimes I feed her even twice, because I keep forgetting if I left food or not"*

**3 Understand the dog health/needs = lack of understanding about suitable meal:**

Owner with a high anthropomorphic tendency will feed his/her dog with larger amount of additional food. Here owners wish to spontaneously feed the dog without hurting him

*"I always try different pet food, vegetables and sometimes I feed her with leftovers"*

**Owners wish:**

To be able to understand what is good for the dog or not

To be able to express love (through food) without hurt the dog

To recognize and anticipate what their dog's wishes are

*Therefore, the main objective of the design goal is to improve the feeding moment focusing on the constraints of this daily event, in order to add a positive daily experience. Within this experience, the aim is to engage the owner with a product that makes the feeding moment more pleasurable and understandable.*

*The next chapter of this project is going to converge the findings into the final concept. Moreover, how does the final design is going to affect the feeding moment between owners and dogs will be evaluated.*

# **3.DESIGN**

**3.1 IDEATION**

**3.2 CONCEPTUALIZATION**

**3.3 EVALUATION & VALIDATION**

**3.4 DESIGN ITERATIONS**

**3.5 TUP & MAZ**

## 3.1 IDEATION

After having identified the design goal and the constraints, this chapter starts by defining the interaction vision and requirements that the envisioned product should have. The conceptualization phase started with several ideation sessions specifically for this graduation project. In addition, a workshop called designathon of five days long, was organized together with Mandalah and some expertise of MARS Pet Care in Berlin. The aim of the designathon was to convert all the challenges identified and share these with Mandalah during the research phase (also regarding cat's owners) into ideas which were paneled with consumers and MARS associates. To reaching that idea we spent one day prototyping. All the prototype were showed to consumers in order to get valuable feedback in order to select idea to further develop. The final results and feedback from the workshop were taken into account when the chosen idea for this graduation project was further developed, (Appendix[H]). The chapter finishes by making an evaluation of the final concept selected for this project.

### 3.1.1 Interaction Vision

The goal and the list of requirements reflect the desired outcome that the envisioned product should have. However, to gain more understanding on how should this outcome be achieved and interaction vision was defined. This interaction vision drafts the intended interaction between the owner and the product in order to reach the desired effect. Therefore, the interaction envisioned should feel like:

***“To feel secure as when  
one uses the  
Buienalarm ”***





Based on this interaction vision, the interaction that the owner has with the product should contained the follow up qualities:



***FLEXIBLE - FRIENDLY - INTUITIVE -  
IMMEDIATE - DESCRIPTIVE - INFORMATIVE***

### *Emotional level*

The owners should feel guided during the preparation of the dog's food, so that they are reassured that everything that their dog needs is covered. This should be more relevant for a 'owner with less expertise' which, eventually, will be empowered in taking daily decision. This, already provides a setting for the "flexibility". It is important that they feel motivated to do so everyday, hence the interaction should be easy and both, owners and dogs, should feel confident in using the product.

### **3.1.2 Design Requirements**

To provide concrete guidelines for the conceptualization phase, a list of requirements and desires that the envisioned design should meet, were then define. All of them are based on the design goal and the learnings from the research.

#### REQUIREMENTS

The product design should:

**A *Warn owners***: help owners understand their dog's health status

**B *Support owners***: enabling owners to keep his lifestyle

**C *Empower owners***: involve owners to be more in control

**D *Trigger owners*** to feed their dogs with variety of food (especially wet)

**E Allow *personalization*** of the product (through service) according to owner's lifestyle

#### WISHES

The product

**F *Improve*** the feeding moment within new interaction

**G *Easy*** to use and be implemented into the current situation

**H Provide a *proper balance*** between owner and dog's needs

**I Provide *benefits*** beyond owners and dogs but also to MARS Pet Care

## 3.2 CONCEPTUALIZATION

During the conceptualization phase, a lot of data and feedback were collected. Based on the consumer needs regarding the three persona identified in the previously phase, several ideas were developed. Using the opportunities areas as inspiration, the ideas were combined into three design concepts. These design concepts will be further explained in the following paragraphs. The ideas related to changes the interaction during the feeding moment were considered part of the scope of this project therefore were taken into account for further development. However, using the design goal, the desired effects on dog's owner and the design requirements as idea selection criteria, the most promising idea was picked out. Therefore, different mock-up were made to bring this idea to life.

Moreover, a designathon(workshop of five days long), was organized in Berlin together with Mandalah to host expertise of MARS Pet Care and together brainstorm on the possible challenges solutions. The aim of the workshop, was to convert all the challenges identified during the research phase (also regarding cat's owners) into ideas which were paneled with consumers and MARS associates. To reach the final idea, an entire day was spent on prototyping. All the prototypes were shown to consumers in order to get valuable feedback to select an idea for further developmen. Eventually, the mock-up of this graduation project was taken to Berlin as well to collect the feedback of MARS associated Appendix[I].

### 3.2.1 Concept directions

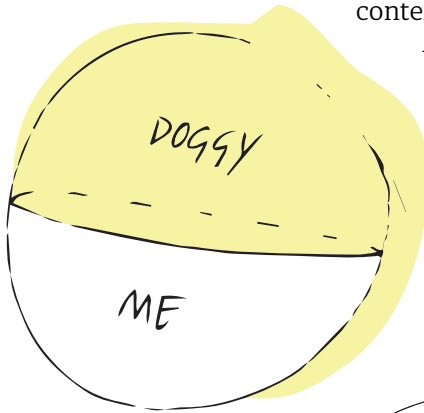
The concepts act on different levels of the design framework with more or less strong effects on the overall goal.

#### CONCEPT 1

##### Container-sharing

This idea direction is exploring a new ways for the owner to feed his dog, by modifying the preparation and way of giving food. The vision is to turn the current feeding moment, which is boring and involved distance and repetitive, into a more varied and intimate interaction. Moreover, the current lack of engaging elements that are used to involve the owners during the dog's eating moment is one of the reasons this interaction context is selected to design for.

Almost all owners are repeating the same action everyday, take a portion of dog food put it into the bowl, place the bowl on the floor and let the dog eat. In the hypothesis where, aligning owner's rhythm and dog's need, will improve the interaction between both and therefore the feeding moment, the need for support and guidance are essential. This concept aims to engage owners during the three phases of the



feeding moment (prepare, give, eat) by allowing them to share these moments with their dogs in a intimate way, eventually they will be stimulated to change more often the type of food.

How is it envisioned:

The introduced product idea is a dog-human feeding container that owners would fill up as soon as their day starts, i.e.

early in the morning, with the proper amount of food. While preparing his own food, the owner will be motivated to think in advance and prepare the food also for his dog, as half of the container is intended for him and the other half for the dog. As soon as both parts are filled with the respective food amount, the owner will feel ensured that he covered his rights and duties for his loved pet. The two parts are hermetically separate, the idea here is aiming to connect even more dog and human through the feeding moment by create a new ritual. Moreover, within this idea owners should be stimulated in joined the eating moment together with their dogs.

The downside of this idea is that it might conflict with the fact that owner want to be 'flexible', as this product should push the owner to prepare the food for himself and his dog every day.

## CONCEPT 2

### Weekly Day

The second concept encourage owners to feed their dogs with different foods every day. Using different kind of food every day, it helps to improve dog's digestion system.

By letting the dog eat different kind of food consistencies, energy and klc contained in food (wet/dry) owners would be

ensured that his dog would have the most complete diet. Because of the frenetic rhythm of modern life, people are looking for “practicality”. When the time to eat is coming, the time spent to cook specific meals plays an essential part to decide which type of food should be bought or either prepared.

How is it envisioned:

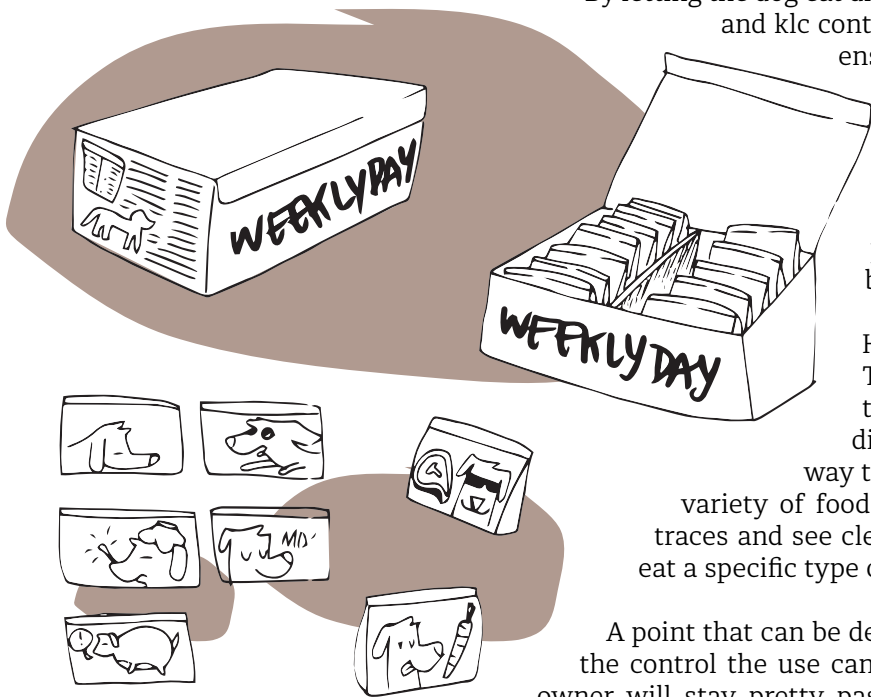
The ‘box’ contains 7 daily meals in order to cover the entire week, each one with different consistencies and flavours, this

way the owner will be stimulated to give more

variety of food to his dog. Moreover, owners can take traces and see clearly how much time did the dog take to eat a specific type of food.

A point that can be debated regarding this idea is that it limits the control the use can have, in terms of decision making, the owner will stay pretty passive because he will take his decision

based on the options given.



### CONCEPT 3

#### Doggy Charts

“Feeding wrong is animal abuse, which causes anger!” cit. participants

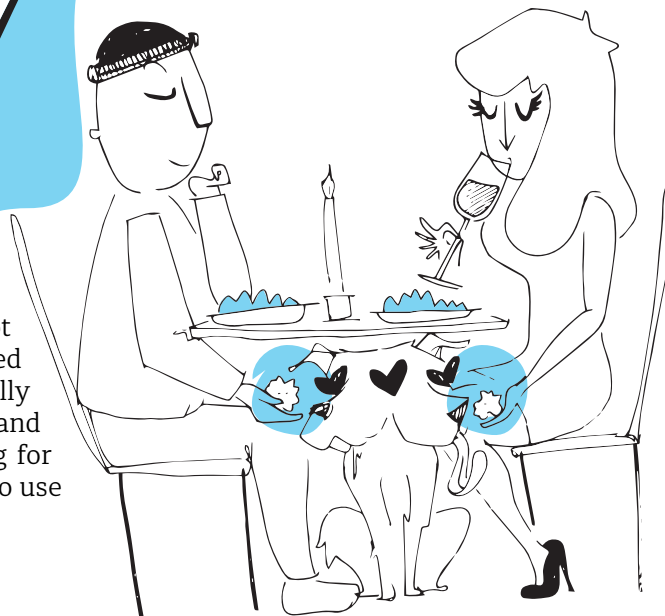
The doggy charts shows owners with less knowledge about their pet, what kind of food is good or not for a dog. This idea direction is focused on reassuring the owner while he is feeding his dog. The doggy Chart enables the owner in doing it in a proper way by making everything more understandable. The chart will explain which type of food and how it can influence dogs.

How is it envisioned:

Owners can check through the main list which food is good or not for the dog. Moreover, in the digital version owners can either check if there is any human food that can be dangerous for the dog. Additionally, owners can take traces of their dog’s diet and see how the dog health is doing. Eventually, they can either take some notes and comments regarding the reaction of the dog. However, it works also for human food; so the owners can select the ingredients that are used that day, for example during the dinner, and see “understand” if there is anything that can be dangerous for the dog. Moreover, by inserting what kind of activity the dog will have that day, the right amount of food will be generated.



Owners should feel in control and they are reassured that the dog will not be hurt. However, it can be debated how this idea is innovative and really reflect the MARS Pet Care criteria, and long this activity will be interesting for the owner or how often he is going to use it.



# 3.3 EVALUATION AND VALIDATION

The first goal of this evaluation was to estimate the owner’s desirability regarding the proposal. Secondly, this evaluation was intended to select the most promising concept in terms of feasibility and the adding value for MARS Pet Care, to further development in this graduation project. As lastly the evaluation aim to collect suggestion and recommendation from the experts of MARS during the designathon, to better improve the chosen design concept. The idea directions were evaluated and validated based on:

*The Design goal & Design requirements (3.3.1)*  
*-see page 79-*  
*Feedback from MARS Pet Care expertise (3.3.2)*

## 3.3.1 First evaluation through Design goal and requirements

The resulted evaluations are shown for each concept.

### CONCEPT 1

#### Design goal

*This concept focused on owner-dog and owner - product interactions and the experience of both users towards the introduced activity of “eating together”.*

#### Requirements:

**Aware owner** ● ● ●  
**Support owners** ● ● ● ●  
**Empower** ● ● ● ●  
**Trigger owners** ● ● ● ●  
**Personalization** ● ● ● ●  
**Be busy** ● ● ● ●  
**Improve** ● ● ● ●  
**Proper balance** ● ● ● ●  
**Provide benefits** ● ● ● ●

**Vet :** “I like the care in that way”

**Owners :** “I like because here human will puts himself at the same level as the dog!”

### CONCEPT 2

#### Design goal

*This concept focused on owner-dog and owner - product interactions and the experience of both users towards the introduced activity of “eating together”.*

#### Requirements:

**Awarn owner**  
**Support owners** ● ● ● ●  
**Empower** ●  
**Trigger owners** ●  
**Personalization**  
**Be busy** ●  
**Improve** ● ●  
**Proper balance** ● ● ●  
**Provide benefits** ● ● ● ●

**Vet:** “I feel pleasant with the idea behind it. but I don’t see it adding much value ”

**Owners:** “It sounds like a kind of medicine or food with modified characteristics”

### CONCEPT 3

#### Design goal

*This concept focused on owner-dog and owner - product interactions and the experience of both users towards the introduced activity of “eating together”.*

#### Requirements:

**Awarn owner** ● ● ● ●  
**Support owners** ● ● ● ●  
**Empower** ● ● ● ●  
**Trigger owners** ●  
**Personalization**  
**Be busy**  
**Improve** ● ●  
**Proper balance** ●  
**Provide benefits** ● ●

**Vet :** “I think all owners must have something like that, the problem they will never check ”

**Owners :** “really? Garlic it’s not good for the dog? I didn’t know that”

### 3.3.2 Feedback from MARS

The concepts were further discussed with three dog owners and one vet in order to get more feedback and input for evaluation. Moreover, dogs were a great mix of different types, characteristics, sizes and ages. The goal of this evaluation was to understand the desirability of the owners and the level of novelty of each ideas. Therefore, these argumentations were very relevant to estimate which aspects of each concept eventually owners would perceive as a limitation or opportunities. Moreover, as all the concepts focused specifically on the feeding moment, overlaps and conflicts between the proposals were identified. Therefore, the feedback given throughout the discussions were essential to classifying the novelty of the project and assume add value for MARS.

However, from the insights collected on how users perceived different aspects of each of the concept and why they preferred certain features of the concepts over others, were kept in order to included (where was possible) in the final design.

The main goal of this project was to contribute with a new wet feeding experience, the first concept was selected as the concept considered to be the most appropriate and relevant for the purpose of this thesis. Therefore a mockup was created and brought at the desighaton in order to get the feedback from MARS.



*"I like the fact that we can do it together by having different test!" [+]*

*"you don't get your hands dirty. I don't like touch doggy food, especially the wet one [+]. But it's depend on how wet is the food"[-]*

*"I like when the material is stable"[+]*

*"I would use it just for my dog"[-]*



*"The join part is where the two worlds come together"[++]*

*"clear separation although the shape suggested unity" [+]*

*"However I will never put my food in contact with dog food"[-]*

*"you can give it directly! without an extra-plate"[+]*

*"what about the portion?"[-]*



*"easy // fast"[+]*

*"using the spoon or a cup is more processing"[+]*

*"Holding a ball would be a mess if accidentally will opening"[-]*

*"I like the gesture, but I would wait that it'll finish. Or I eating first and then he or on the other way around"[+]*



*Based on these insights, it can be stated that the envisioned future interaction that the 'sharing container', did create a new feeding experience where eventually, owners and dogs will be even more connected.*

#### *Conclusion Evaluation//validation*

*With the design goal, requirements and interaction vision as guidelines, and ideation phases were initiated. Different solutions to better improve the current feeding moment, by creating the proper balance between dog and owner's needs, were presented. For this evaluation, the concept 'container sharing' was considered the most promising for further development. The chosen concept aims to actively engage owners into the process of feeding moment while using the product, by guide them in achieve their goals, and solve the dilemmas identified during the field research. In addition, some aspects of the individual concept ideas were clustered all in the final design.*

*In the next paragraph, this concept is deeper explored and defined further into a complete product.*

## 3.4 DESIGN ITERATIONS

In this phase, several user tests with the prototypes were made to optimize the final design, and therefore, answer these questions:

*How can the owner deal in a flexible way with his dog's feeding moment without risking his well-being?*

*How can design support consistency regarding the feeding moment?*

*How might design align human & pet time?*

Each iteration concludes with an evaluation of the concept.

### 3.4.1 First iteration

#### Task

During the first iteration, the prototype was delivered to the owners already with the food packed inside. Because of the limitations of the basic prototype, it was not possible to test the full experience of the feeding process. However, only the preparation part has been skipped. Therefore, the first prototype aimed to evaluate the first impression/reaction of owner, regarding the new food container and the interaction between owner-product and owner-dog. In order to do so, owners were asked to include their dogs and interact with them through the prototype, without informed them how does it works.

An example of the iteration is shown below with different pictures (see page 91).



1 Participants



**Simplicity -**

*"I like the shape and the size, it is perfect to hold even in one hand! In fact, I do like the gesture that it suggested"*

*"see my dog eating from my hand was particular!"*

*"It is like put yourself at the dog level"*

*"share the food with a natural interaction such as share an apple"*

**Materials characteristic -**

*"I do like the fact that his hard material, I feel more secure in hold it then. I would not change it with a flexible one!"*

*"I think that the entire sphere it is quite to big to carry"*

### *Test insights*

The way the owner interact with the prototype is exactly the way envisioned. The owner was holding the prototype in his hand while his dog was eating eventually he also knelt down to better reach the dog. Here the owner was experienced a new perspective and stimuli of the feeding. Moreover, eyes contact between dog-owner was created. Therefore, the concept joined owners and dogs into a novel daily activity.

### *Feedback*

Owner indicate that feed his dog directly from his hand was definitely an interesting experience, since he never watch/observed his dog so close. Therefore, there was a different interaction regarding the owner and his dog, but not a real behaviour change was detected from the latter one. It would be interesting to test the concept impact over a longer period, in order to test the change behaviour towards owners and feeding changes over the time. In addition, different prototype improvements were expressed.

### *Design recommendations*

Three main qualities were ask to be addressed with the new prototype:

**Transparency** - *“I have to admit that, seeing the food through the container bothers me! I don't really like the texture though!”* based on the feedback regarding the material characteristics, the second prototype was 3D printed! Therefore, the material is still rigid but at the same time it is sealing and protecting.

**Lid** - *(to keep it fresh) “especially if I have to store it... or bring it with me somewhere, I would rather prefer to have a cup-kind of lid that allowed me to seal it hermetically!”*

*a lid was incorporated for each half sphere to allow people to use the two parts separately and take advantage of storing different food or either uses it in a different time!*

**Open system** - *simplify the opening, a simple unscrewing system has been added to the design.*

### *Interactions*

Owners need guidance to understand the use and versatility of the product and complete the feeding experience.

**Trust** - *“what I miss is the measurement indicator. In a hypothetical situation where I have to use it as measurement, i would like to know the amount of food”*

*“I am also afraid to open it! there is too much pressure, I would rather another way to open it, but still, it have to be secure 100% that it will not leak”*

To be sure to **support and guide** owners in measuring the right amount of food. A measurement system has been implemented directly in the size of the sphere itself.

### 3.4.2 Second Iteration

RE-Design

#### Task

Based on the previously iteration, a second prototype that fit all the recommendation and the different elements suggested with all the improvements was created. The new design was tested among two different dog owners with a young-adult medium size dog breed. The initiate interaction with the new design was observed in the same way as was done in the previous iteration, observing through video and pictures taken from participants.

This second prototype intention is understand if the owner is using the prototype as intended, also during the 'preparation' part of the feeding moment. In addition, the owner is asked to document on camera, every time that he or his dog have been interacting with the prototype.

#### Test insights

After that all new elements were added to the design, it was interesting to note that the interaction with the product slightly change. Perhaps, with the new unscrewing system, people were more confident in opening the product, without being afraid that the food would splash everywhere. On the other hand, it was still not clear for the owner the versatility of the product. Even though, more information regarding the characteristic of the product were explained to the user compared with the previous iteration, such as the purpose of the product size (which is contain the daily amount of dog's food), again it was expressed the needed for guidance in order to understand how to use the prototype. During this second iteration the *preparing* phase was tested. Eventually, user scooped up the food directly with the prototype, again in the way envisioned, while for the wet food need the support of extra element like fork and knife. Other remarks is that owner would like to have the sphere less wobbling while fill it.

#### Feedback

During this second iteration with the owner, some limitations of the product were discussed together. Perhaps, the fact that the current product it can be used from the dog alone. Some owners want that their dogs to be independent as possible. The situation, where the scenario involved a dog who is alone at home, is not covered yet from the current



2 Participants





product. The Owner expressed the wish to be supported also in that moment; therefore, leave some food to the dog while he/she is not at home! Enable owners to keep their flexibility was the main focus of the design. Therefore, a second product was created.

#### *Design recommendations*

The main qualities from the previous prototype, such as shape and dimensions are kept with the second one. However, according to the feedback obtained during the second iteration, two main aspects will be optimized for the last session:

**Guidance** - (*in preparation*) - the design is not clear enough to understand the product intention during the preparation phase as well as the purpose for giving food.

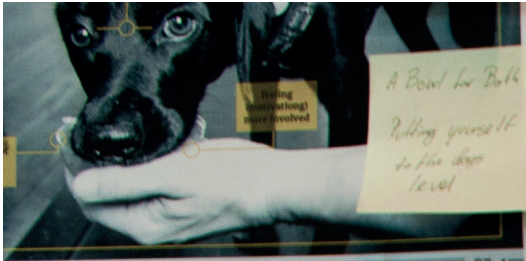
**Extra element** - based support, the product is not stable enough, to fill it with the food and/or placed directly on the floor.

- (dog alone) Optimize the product in order to fit different situations and therefore increase the possibilities of explorative use.

**Lid** - it might be comfortable to have any kind of remark to remember which one is the lid for the wet and dry part.

#### *Interactions*

The users want to feel supported in different situations, an extended element while they are not at home alone is required. It must be clear for the parents how the product can be used at different phases of the feeding moment.



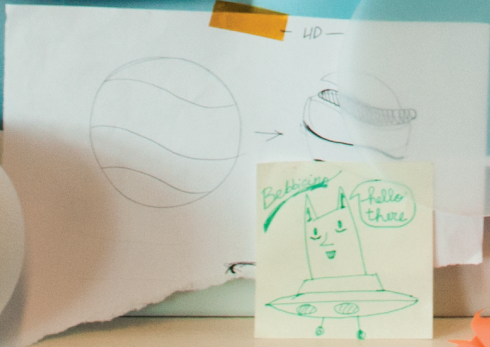
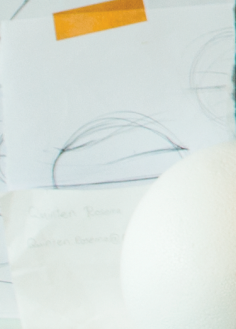
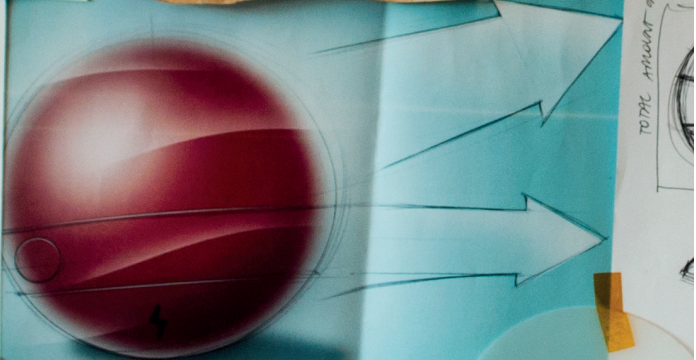
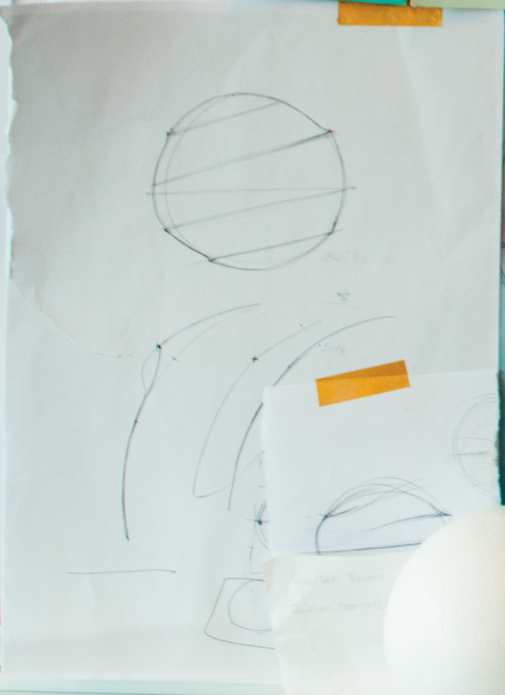
A Bowl for Boko  
Putting yourself to the dog level



alone



① dinner  
- human food  
- dog food is not  
- different!  
- male for  
- big for  
- small  
- both water!  
② main meal:  
- different position  
- inside home → tap water? - eventually  
- outside



Bolivia  
Hello there

## 3.5 TUP&MAZ

In this phase, two user tests with the prototypes were made to optimize the final design, and therefore, answer these questions:

*How can the owner deal in a flexible way with his dog's feeding moment without risking his well-being?*

*How can design support consistency regarding the feeding moment?*

*How might design align human & pet time?*

Each iteration concludes with an evaluation of the concept.





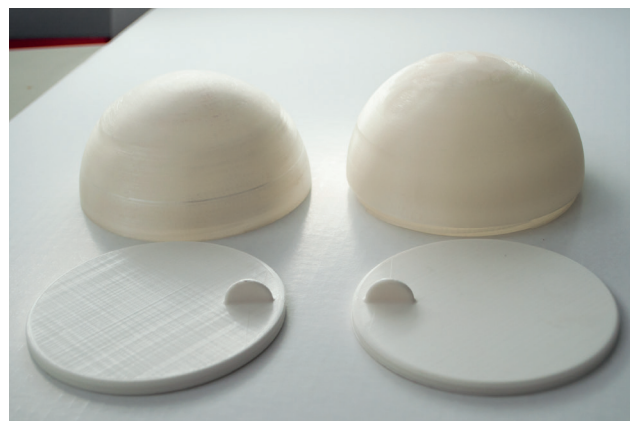
### 3.5.1 What are TUP&MAZ?

#### *TUP*

TUP stand for 'tupperware' inspired by the main function of containing food. TUP is a sphere divided into two parts, which can be screwed and unscrewed. The aim of this product is to inspire and motivate the dog owners to store the two different types of pet food, dry&wet with the right daily amount. In addition, each part will have it's own lid to allows owner to either use just one half sphere and store i.e. in the fridge, or use both part and screw them together to bring them outside in a compact shape.

The sphere will have three different sizes for small medium and large dog since the three types of dogs need their own nutrition. Internally, a measuring scale will be integrated, inside each side, in order to help the owner to take the right dose.

For this graduation project both product are focused on medium size dog.



*TUP's elements*

## MAZ

The second explorative iteration, suggested to extend elements of the prototype to better support the owner in accomplish all different situations, also when the dog is alone at home. Therefore, a second product was made. This extra element aims to improve the concept in supporting the owner by entertaining the dog while. This playful version, can be filled with dry food or treats, (according with the right daily amount). It is composed in three parts:

The top half sphere

Down half sphere (which can be screwed together) inside will be placed a maze' which will rotate internally on the vertical axis. While the dog is interacting with the sphere, it will be rotating at 360. The ultimate result is that the double rotation will make more hard the food to get out. Eventually, MAZ can also be useful for all that dogs that are eating super fast, as some owners highlighted during the interview.

A photo explain the elements



*MAZ's elements*

### *RE-Design*

Both TUP&MAZ are growing with the dog.

TUP can be recognized as a Tupperware, which can contain the daily doggy food. In order to understand the right amount of food, there are a lot of aspects that owners should consider, such as the age of the dog (is the dog puppy-adult or senior?), its size (small-medium or large) and last but not least the daily activity. For this reasons, TUP is made in a way that it can grown with the dog. First of all, each size dog (small-medium-large) will have its own 'ball' size. Second of all, inside of each half sphere, the right food amount for for puppy-adult and a senior dog will be shown.

MAZ it can be filled with dry food or treat, first measured the right amount with TUP. Moreover, it's important to give the dog some time to understand how the games works. Most dogs quickly understand that they have to work to get to the treats out of it and that it pays to listen to directions from the owner. This communication between the dog and its owner is very rewarding, it leads to a deeper understanding while having fun.

### *How do they work*

#### *TUP*

While the TUP is being used, the dog and the owner will get a chance to have more contact with each other and strengthen their relationship. At the same time, there is a learning process of common everyday behaviour during an intimate, fun and positive moments.

In addition, lot of envisions were addressed within outside environment. Perhaps, suggested from the users; it can be used on the beach or in a park!

#### *MAZ*

MAZ was made to answer the owners needs' to leave the dog alone at home without feeling guilty. Wild animals get natural mental stimulation when hunting for food, this has inspired me when developing MAZ, which match the dog's natural movements and instincts. The purpose of this extra element is that the owner can activate the dog in an easy and fun way at home. The dog has to work to get food or treats, not just have it served from TUP. Therefore, MAZ can be used as interactive food bowls - great for dogs that eat too fast.

### 3.5.2 User Test

#### Task-s

This user test focused on dog-product interactions towards the new introduced product MAZ. Moreover, this final evaluation is focused on optimizing the user's experience and guidance towards the preparation of dog food. During the two iterations it appeared that the usage of the product, during the preparation phase, was not clear enough for the owners at first approach. Therefore, a mini guide that introduce the product properly was made (see the Figure 21, and Appendix [K]).

A couple owners were asked to use the final prototype with their dog during the working days. Users kept the prototypes for two days. When the prototypes were delivered to their own place, owners were asked to open the package with the prototype inside and read the instruction beforehand. Once all the questions around the use of the prototypes and how they could (hypothetically) be harmful for the dog were answered, the owners were left alone to test the two prototypes with their dog. To conclude a questionnaire, part of the guide, was used to collect the overall experience with the product which served as guidance for the final interview.

#### Test insights

The guidance was not sufficient to understand the product intention. However, the information regarding the right amount of food based also on the daily activity was appreciated as most of the owners are always feeding their dog(s) with the same amount of food.

Regarding the extra element, owners were enthusiastic about the playful part of the labyrinth. A positive reaction is observed among the dog and owners while interact with the two balls.

#### Feedback

Moreover, the extra element was used from the owner to make the eating moment of his dog more playful. Eventually, he found out that he can also slow down the dog while eating. Overall, the improved functionality leads to actual interaction between owners and dogs.



*user test  
- couple -*



**Figure 21: Introduction guide**

**MAZ'S material** - the sound while it's rolling it is too loud "seems that something got broken [...] I didn't trust it to let it play alone at home"

**Shape of the labyrinth** - "I filled MAZ with the dry portion. I believe that the labyrinth is too complex and takes too much time to release the entire meal."- "Before the dog was eating too fast, around 1 minute and now after 5 min. he didn't even finish half portion"  
Owner showed irritation or impatience.  
"Therefore, I will rather use it with the treats."

Design Recommendations

Design qualities

*Interactions*

Many dogs are willing to learn and play something new if they get a tasty treat. MAZ is the perfect combination between dog and owner's needs. The design recommendations based on the final user test are presented in the reflection chapter.

### 3.5.3 Concept evaluation

All user tests have been carried out in the real context, at user place. That makes possible to evaluate and get the owners feedback based on real-life observations. Positive interactions were observed during all two iteration sessions and the final user test. Moreover, recommended also from ACI (Animal-Corporation-Interaction), observing animal, in a context in which they are more likely to freely express themselves and manifest what they want, it will help designer to make better sense of what they observe. However, due to the prototype was 3D printed and a PLA plastic was used which is not FDA ( Food & Drugs Administrations) approved, an evaluation of the long-term use couldn't be done. In order to do so, an important requirement is to evaluate the behaviour change over the time, is to use a safety materials such as BPA free (BPA stands for Bisphenol-A). On the other hand, to indicate if the product will have any positive long-term effect, it should be tested over a longer period of time and within different owners and dogs.

#### *Preparing*

Having the cup integrated into the 'sphere' is an essential step for the dog owners who do not know the right food portion for their dogs. Therefore, 'TUP' aims to guide owners to be more confident and trustworthy, that they will taking care of their dogs in a proper way. On the other hand, is hard to say that this aim has been successfully obtained from TUP or not. The owners behaviour during testing the prototype was influences from many factors, i.e. the prototype was not made with the final material that allows owners to hermetically close the two side of the sphere.

#### *Giving TUP*

In order to be free on using TUP from their hand (as envisioned) and also left on the floor as the normal bowl an extra support is needed.

#### *Giving MAZ*

From the observation it was noticed that dogs had pleasure in exploring and play with MAZ. Two dogs out of three were completely engaged, once that they understood that MAZ would relieve food. On the other hand, one owner out of three wouldn't use MAZ with the dry food but just with treats.

From owners feedback and observation it can be conclude that MAZ engage dogs, and turns them more active and explorative.

#### *Eating*

While decide to give the food directly from his hand, a moment that connect both owner-dog is initiated.

*"It was nice to watch him while eating"*

most of them described the gesture as kind, and the activity together cozy and particular.

*"It is nice to see how much it does enjoy the food"*

From the quotes collected and the observation done during the tests, it can be concluded that, if owners have enough time to spend with their dogs, they would like to use TUP to feed their dogs direct-

ly from their hands. Therefore, they would appreciate the intimacy and sharing moment obtained through the product.

### **3.5.4 Positive Impact**

TUP & MAZ had a positive effect on the feeding moment for both owners and dogs, from different points of view. MAZ makes the dog more active since the dog starts to interact with, while TUP stimulate more the owner in having an intimate interaction with his dog. Together they are going to create a balance between them.

However, the positive impact that both products have on the users (owner-dog) is reflecting the positive design characteristics.

#### *Possibility Driven*

The purpose of a positive design project is to turn the negative aspect of an interaction into a positive one. Within this graduation project it can be said that the purpose was achieved in two different levels:

L1- (TUP) the owner was able to feed his dog with the right amount and variety of food. Therefore, he/she will feel less guilty, and therefore relieved.

L2- (MAZ) the owner can now spend more time on himself without feeling guilty for that.

*Both together create a balance of the needs of the owner&dog.*

#### *Balance*

Even though TUP has been designed to support owner in a daily action, owners indicate to rather consider to use TUP, in order to feed the dog directly from his hands in a 'special activity', also based on the daily program and when it is offers enough time. It was curious to hear that because, it does not require for the dog more than 2min to finish his meal. However, people perceive the interaction as a moment of devotion to their dogs and they do not want to banalize it by doing so in a hurry.

Therefore, regarding the actions of collecting and store the doggy food trough TUP will become part of the daily routine, which would, however, bring a positive impact to both. While eating directly from the TUP is turning to a special moment.

#### *Personal Fit*

The analysis phase pointed out that owners give high importance to the activities carried out their dogs even more if they feel engaged. Owners are likely to feel engaged in a different way, i.e. by feeling challenged, be surprised or involved. According to the user test, this happening also during the feeding moment, as it is perceived as a bonding moment.

### *Active user involvement*

Eating can be considered the primary driving force regarding our loved dog, since it is important for survival. That is also why it is more easier to domesticate dogs through some treats. The activity of feeding 'together' requires the active involvement of both. While the dog is willing for this moment, the owner needs to put a bit more effort which is paid back with loyalty. It is recommended to start using TUP&MAZ since the dog is a puppy. It will be easier to define roles and get used to each other.

### *Long term impact*

The daily moment introduced by TUP between owners and dogs provides the opportunity for owners to observe and either control their dogs while eating. Why it is important:

- Owners will feed his dog with the right diet by improving its well-being.
- Eye contact contribute to endure the relationship
- Positive effect on dog that will spend more quality time with his owner and become more active with MAZ
- Stimulate dog basic and wild instincts

## **3.5.5 Product Details**

*This paragraph elaborates the decisions made and discuss the design details.*

### *Shape preferences & materials*

When I start to drawing and design the shape, the characteristics of the users involved, owners-dogs, were taken into account. In addition, a new product was generated thinking about the company (MARS Pet Care) involved.

### *Colour preferences*

Regarding the colours, a persona suggestion while choosing the palette colour for TUP&MAZ, it would be nice to taken into account the colour spectrum of dogs rather than the human one. For decades, scientists believed dogs could only see in monochrome.

Human eyes have three 'cones' that detect colour and can identify red, blue, green and yellow wavelengths created by light entering the eye. Neitz discovered that dogs only had two cones - this means they can distinguish between blue and yellow, but not red and green. This is can be compared with the same spectrum seen by humans when they have colour blindness.

### *Measurements*

Proper feeding and the proper dosage and the vitality of the dog. Usually, there is always a general dietary advice on packages of dog food. However, this advice may differ from the amount of food that your dog really needs. There is therefore always indicated on the packaging that the recommended amount should be adjusted to the



level of activity and development of the dog.

Not only the body weight plays a role. There is much more to it to create a customized advice for your dog. A good nutrition depends on many factors. The four most important factors for good nutrition are: race, body weight, age and activity level.

However, pet food labelling is regulated by the federal regulations, enforced by the United States Food and Drug Administration (FDA), established standards applicable for all animal feeds: proper identification of product, net quantity statement, manufacturer's name and address, and proper listing of ingredients. Or regulations are established by the Association of American Feed Control Officials (AAFCO). These regulations are more specific in nature, covering aspects of labeling such as the product name, the guaranteed analysis, the nutritional adequacy statement, feeding directions, and calorie statements.

The table below see *Figure 22*, shows the nutritional levels established by the AAFCO. Therefore, TUP&MAZ are created focused on medium race size dog, which have to eat specific kg per day.

Aanbevolen hoeveelheid (gram/dag)			
Lichaamsgewicht (kg)	Lage activiteit	Gemiddelde activiteit	Hoge activiteit
2.5	50	65	80
5	85	105	140
10	145	180	230
15	195	240	315
20	240	300	390
25	285	355	460
30	325	405	530
35	365	460	595
40	405	505	655
45	440	550	715
50	475	595	775
60	545	685	890
70	615	770	1000
80	680	850	1105

Figure 22: nutritional level

## 4 RECOMMENDATION

Owners who provided feedback on the user guidance have indicated to prefer clear instructions regarding the parameter for the use of both products to process food.

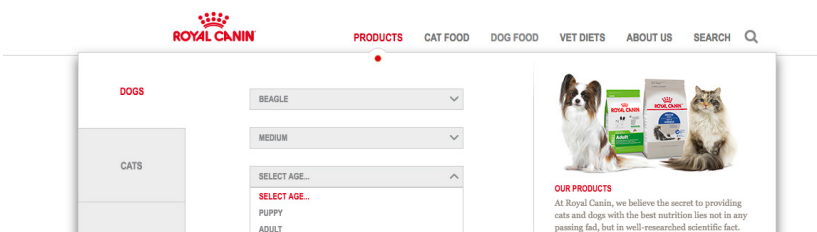
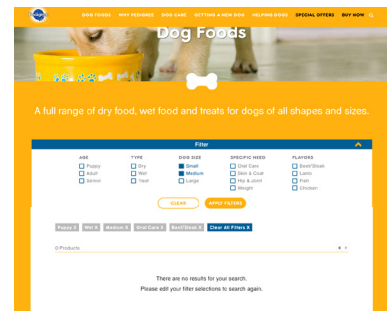
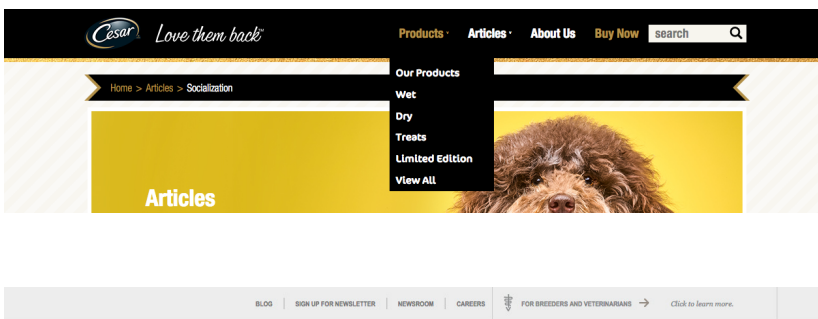
The design idea intended a more explorative approach in which both owners and dogs discovered the products while using it.

Moreover, because the explorative discovery of TUP&MAZ can keep the user's interest over time, stimulate relationship and activities together. However, a further idea rather than implemented more information and more example to guide owners, is to create only one product out of both TUP&MAZ.

Recommendations made during the iterations sessions are focused more on the aesthetic and functional level. Supplementary to the user guide and aesthetic details, a digital support could be introduced.

The concept presented here shows the proposed project, TUP&MAZ extended to 'online' service. This service was inspired from the website of the three main dog's brands of MARS Pet Care (Cesar, Pedigree, Royal Canine). From the website owners are guided through all the brand's products, some based on the basic details regarding the dog such as size and age, other based on more details referred to specific breed. The idea is that on the same web sites, owners can customize their own TUP&MAZ based on the characteristics of the dog. This idea has a double win, MARS P.C. will sponsored his products while the user (dog owners) will get the right nutrition for their dogs, learning how to deal with specific situation and or breeds, by obtaining the right balance

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### SUGGESTION:

*"If owners want to change dog's food, it is recommended to spread gradually to about four days. In this period, mixing the old food with the new food. Every day fourth part of the additional chunk old replaced by new. After 4 days the feed change is achieved only gradually established. The dog has a chance to get used to the new food"*

## 5 REFLECTIONS

### *General reflection*

*When I heard about this graduation assignment regarding pets, I thought it would have been nice to work for and with animals. A funny fact is, while I was looking for a graduation assignment in Italy my parents were choosing a new puppy to welcome it in our family. This for me was a clear signal to follow. Moreover, the idea of starting with another student was reassuring me. I began this project with the other student Nina, I really enjoyed to work in a group for the first months. On the other hand, I appreciated to work alone during the conceptualization phase, because at that point I was pulled out from my comfort zone, I had to recognize my own limits and alone find a solution to solve them. And never before I felt that I have learn so much in such as short time. Though ugly and scary, I'm convinced that everyone should experience themselves and their own limits.*

*In particular way, I enjoyed work with the my supervisory team, which offered to be available in discussing the project or just talking in a human level, at every time. Their support obviously influenced not only the end result but also helped me in to make the process more smooth. Their input often help me to know what I was looking for and connect all the informations collected with each other. :) grazie!*

### *Marsalah reflection*

*During this project, I was pleased by having the opportunity to travel with different people with different backgrounds. From Mars Pet Care experts, to the design consultancy Mandalah. Travelling, getting in touch with different contexts, it gave me more stimuli and inspirations to develop the research and the final design.*

*On the other hand, being part of a project with three different stakeholders (Mandalah, Mars and Tu Delft) made me aware of the relevance of internal communication. Indeed, I must say that the different roles from each stakeholder in the project were not defined, therefore, the parties were not able to clearly communicate to each other. For the future collaboration I recommend to define these key roles to structure beforehand the communication and the goals of the project.*

### *Project reflection*

*Often, students overwhelm the thesis as the 'project' of their lives, reflecting on it the ultimate opportunity to show the rest of the world what they are capable of. This approach provides, the challenge within yourself, which is fine if it well balanced. Unfortunately, not everybody can keep this balance also moreover in the last phase. Personally, I have always tried to approach this thesis as the last project with TU Delft as a student, but above all as a great opportunity to learn something new, how the design can be expanded to the animal world. At the very beginning, I found super interesting to translate all the Human Design Method, on the animal fields. Although, studies on dog behaviors had started over years, it remains difficult to say when a dog wants or need one thing rather than another. Moreover, since these knowledges does not belong to DFI master of TU Delft, it was impossible to solicit such a study. Therefore, the regular DFI approach was used.*

### *Methods reflection*

*In this project I applied mainly Contextmapping and Positive Design methods. Context-*

mapping was more familiar as I used it most of the time during different course and during the entire master. On the other hand, Positive Design approach was not completely new to me since I followed the elective in the past.

However, it was quite hard and challenge applying the theory on human - animal field. Applying HCD methods to interaction with dogs was completely different than the other project I worked for. I believe that, beyond different cultures and contexts, remains more empathic for a designer, to study and analysed the human-human interaction rather than human-dog which remains for many aspect unclear. I remember a wonderful discussion on this subject, with Marieke, while we were in Berlin. When we talk about emotions, it is not just the material or the object itself that evokes them, but the interaction and the context. With the design for emotions you are going to zoom in so deep, for each micro-interaction and activities that users will have with the object, until you can discover and almost touch the most hidden dreams of a person. At that point the design will obtain a meaningful value. Translate this to the canine world was almost impossible, due to the lack of knowledge on dog's behaviour and feeling.

Moreover, I had the impression that the emotional outcome is just partially explained. On the other hand, owners feedback and company's interest in the final concept, give me the confidence to proceed with the idea.

#### *Personal reflection*

Regarding the emotion, the process was not always good. Since I started this graduate project, it has been a rollercoaster of emotions, which, of course, has been intensified in the last period. Sometimes the project was hard and frustrating because it was difficult to get a step back from the project and objectively judge it. In this regard, I found that involving other people, experites and ask for a suggestion or just sharing thoughts helps to clarify ideas and opt for the right answer.

Other time the process was really exciting and engaging, since all the owners involved were willing to participate.

The end of my studies as designer has come and I consider my final project a successful result. I am really proud of myself for materials I developed, since the beginning with the brochure, (which I hope will provide some input and inspiration for future projects) until the end with this report, I have never been so productive in an individual project. I manage to achieve a feasible solution, which I think that somehow represents some of my personal characteristics. Of course many aspects of the design could be further developed and improved, such as the two products can be implemented just in one.

I finished my project with so many hours of sleep to recover, but with the smile. I have learned so many things in this process, but one of the most important is: no matter how many hours of sleep, effort and frustration life or a graduation project will bring to you.. because as soon as you will do it with passion, desire, modesty, and happiness, you will never have side effects, indeed, only positive results because in the end, you enjoyed it.

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