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# Designing Brand Chatbots:

The Impact of Chatbot's Personality on the User's Brand Personality Perception

**Soyeon Park**

Master's Thesis for Master of Arts  
Master's Program in Collaborative and Industrial Design  
Department of Design  
School of Arts, Design, and Architecture  
Aalto University





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Master's Thesis for Master of Arts (30ECTS)

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### Abstract

Along with advancements in technologies, which include machine learning and artificial intelligence, chatbots are increasingly taking the place of employees that work as customer service agents and personal shoppers. Considering that the characteristics of employees can influence a consumer's perception of brand personality (Aaker, 1997), this perception may also be affected by the chatbot's personality. This paper aims to investigate the impact of a chatbot's personality on a user's perception of brand personality.

Two brands, and their chatbots, are used as case studies. The empirical study comprises of two stages, in which the qualitative and the quantitative data are both gathered and analyzed. Firstly, an online survey was conducted to investigate the personalities of two existing brands and their respective chatbots. As a result, a gap in personality between one of the brands and its chatbot was identified. Next, two prototypes were built and then tested in the interview. One was the emulator of the current brand chatbot, and the other was a new chatbot designed to have a personality closer to the brand personality.

The findings reveal that the chatbot's personality may affect brand personality, even though the impact was smaller than expected because participants perceived that the two prototypes' personalities were moderately close to the brand personality. Interestingly, interviewees revealed that the chatbot's personality may have a greater influence if it is totally different from the brand personality. Based on the study findings, design considerations are suggested to help practitioners in designing brand chatbots.

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**Keywords** Chatbot; Conversational Agent; Chatbot Personality; Brand Personality; User Experience; Brand Experience

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# 1

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## Introduction

## 1.1. Background

Along with advancements in machine learning and Artificial Intelligence (AI), chatbots, computer programs that can simulate a conversation with a human via a text-based interface, are receiving global attention. The advancement of the related technologies has enabled users to have a more natural conversations with chatbots, and now people are using them for different purposes in their daily lives. For example, people use chatbots to book flights (Finnair), receive product recommendations (Lego), or to order food (e.g., Pizza hut).

As brands increasingly implement chatbots, they are becoming emerging brand touchpoints: points of interaction that connect the brand with the consumers. Eighty percent of the brand representatives ( $N = 800$ ) surveyed by Oracle (2016) reported that they had already implemented chatbots or were planning to implement them by 2020. Moreover, 32% of respondents expected chatbots to be the technology that would most improve customer experience (CX) among all emerging technologies.

Accordingly, researchers have emphasized the need to study chatbots as brand touchpoints (see, e.g., Araujo, 2018). In particular, Shevat (2017) asserts that it is crucial to consider branding when designing a chatbot, as there is a close correlation between the design of chatbots (such as visual branding, naming, and personality) and the way in which the user perceives the brand experience. Moreover, Araujo (2018) found that chatbots have a positive influence on a consumer's emotional connection to the brand. Thus, he pinpointed the need to study the impact of brand chatbots have on consumers' brand perception.

In particular, understanding the impact that a chatbot's personality has on the brand personality is crucial during design and development. The consumer's brand personality perception can be influenced by the characteristics of brand representatives, such as brand endorsers, employees (Aaker, 1997). Moreover, several studies have found that people can perceive computer programs as social actors and communicate with them as they do with humans (e.g., Nass & Moon, 2000; Reeves & Nass, 1996). Just as brand representatives' characteristics influence consumers perceptions of brand personality, so, too, may a chatbot's personality do the same. Thus, this study aims to investigate the impact of a chatbot's personality on the perceived brand personality and, based on the findings, propose design considerations.

## 1.2. Research Aims, Objectives, and Questions

As the chatbots are emerging touchpoints that connect the brand and consumers, it is expected that they will have an impact on the consumer's brand perception (Araujo, 2018). Hence, this study **aims to investigate the impact of a chatbot's personality on the user's perception of brand personality.**

Following are the **research objectives** that will help achieve the aim:

1. To identify the underlying factors of chatbots that shape the personality
2. To assess the effects of chatbot's personality on the user's perception of the brand personality
3. To propose design considerations for the brand chatbot's personality

Based on the research objectives, **research questions** were formed as follows:

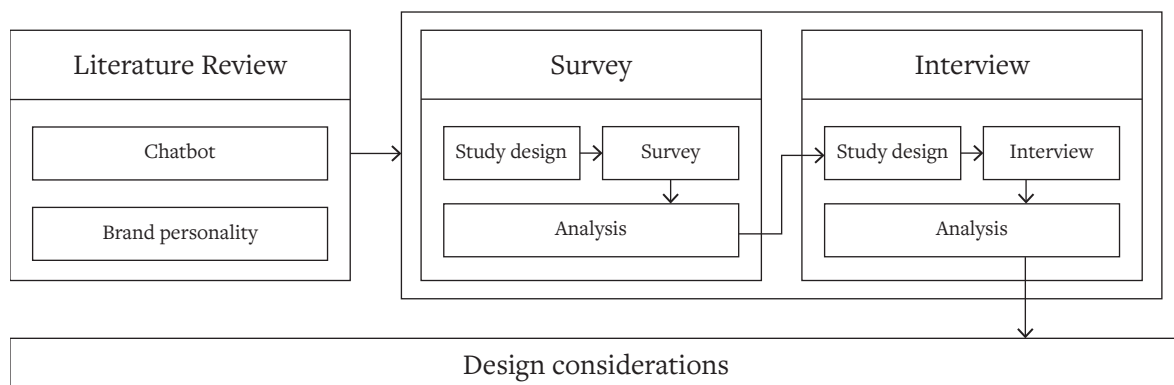
1. Can the personality of a chatbot have an impact on the user's perception of the brand personality?
2. What are the underlying elements of the chatbot that shape its personality?
3. What can a designer do to ensure that a chatbot's personality reflects the brand personality?

### 1.3. Research Structure

The study comprises three stages: a literature review, a survey, and an interview (Figure 1). The purpose of the literature review is to investigate the present knowledge on the social cues that shape the chatbot's personality and evaluate the concept of brand personality and measurement methods. Based on the literature review, the research framework is then formulated.

The second and third stage involve the collection of empirical data using an online survey and interviews involving prototype testing experiments. The purpose of the online survey is to investigate the personalities of two existing brands and chatbots using 15 scale items derived from brand personality framework by Aaker (1997) and an open-ended question. Based on the survey, two interactive chatbot prototypes are then built, after which interviewees are asked to interact with these chatbot prototypes and compare their personalities and their similarities to the personality of the brand. Here, a mixed-method approach is adopted throughout the research in line with Arora and Stoner's (2009) recommendations. According to the authors, quantitative methods enable researchers to examine brand personality in a scientific manner, whereas qualitative methods provide rich details of brand personalities (Arora & Stoner, 2009). Either a qualitative or a quantitative analysis is then performed depending on the type of data. Finally, the impact of the chatbot's personality on brand personality and the considerations for designing the chatbot's personality are discussed with regards to the findings. Each stage of the study can be found in chapter 2, 3, and 4, respectively.

Figure 1. Research structure and methods



# 2

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## Literature Review



## **2.1. Chatbot**

### **2.1.1. Conversational agent and chatbot**

Conversational agents are systems that allow for natural conversational interaction with a human through different modalities, such as text, voice, or gestures (Niculescu et al., 2014). According to Araujo (2018), conversational agents can be divided into two types: embodied agents and disembodied agents. Embodied agents have a physical representation; therefore, during the interaction, these agents may use not only verbal cues but also non-verbal cues, such as body language. On the other hand, disembodied agents interact with users mainly through a voice- or text-based interface.

Araujo (2018) suggests considering chatbots on social media and messaging apps as disembodied agents, as these social media platforms usually support text-based interfaces. Thus, social media chatbots usually have a low degree of freedom to design and integrate dynamic physical representation. Recently, many companies have implemented chatbots on social media, such as Facebook Messenger and Twitter, to reach a wider audience. Thus, in this study, “chatbot” refers to a disembodied agent that can naturally converse with users via a text-based interface, following Araujo’s (2018) suggestion.

### **2.1.2. Chatbots as social actors**

People naturally respond to computers as if they were communicating with humans (Nass & Moon, 2000; Reeves & Nass, 1996). This is the basis for the Computers Are Social Actors (CASA) paradigm, which focuses on people’s tendency to subconsciously anthropomorphize computers and apply social rules even though they know that they are interacting with computers (Fogg, 2003; Nass & Moon, 2000; Reeves & Nass, 1996). For instance, Reeves & Nass (1996) revealed that people react politely to computers just as they are to humans. The researchers conducted an experiment in which people performed given tasks with a computer and evaluated its performance. They found that people reacted more politely when the computer asked about itself. On the other hand, when different computers or other media asked the same question, people answered honestly. The CASA paradigm has attracted many researchers from different fields, as it has had a crucial impact on motivating and persuading people (Fogg, 2003).

Fogg (2003) introduced five primary types of social cues that cause people to perceive computer products as social actors: physical, psychological, language, social dynamics, and social roles. In particular, he explained that psychological cues such as empathetic text messages, emojis, or even more complex types of cues can imply that the computer has a “psychology,” making people subconsciously think that it has emotions and personality.

In the case of complex cues such as personality, Fogg stated that the users must interact with the product for a certain amount of time to recognize them. However, he also recommended minimizing the social cues when people expect the agent to perform a task more efficiently, as social interactions can slow the performance.

Because of its importance, researchers have investigated whether the CASA paradigm can be applied to different media (see e.g., Lee, Peng, Jin, & Yan, 2006 for robots; Reeves & Nass, 1996 for televisions and computers). For example, Araujo (2018) found that people perceive chatbots as social actors regardless of whether they are human-like or machine-like. Moreover, he stated that the social presence of chatbots has a crucial impact not only in a general context but also in the service context, affecting the user's emotional connection with the company. Therefore, he suggested investigating the impact of the chatbots on the consumers' conception of companies.

### **2.1.3. Personality of Chatbot**

A chatbot's "personality" refers to the consistent character that the chatbot performs during the conversation (Qian, Huang, Zhao, Xu, & Zhu, 2016). The personality settings of chatbots include age, gender, linguistic style, attitude, level of knowledge, and expertise (Shum, He, & Li, 2018). These settings can be delivered to users via different social cues (Isbister & Nass, 2000).

The agent's personality has been studied in a wide variety of fields such as machine learning, information technology (IT), and human-computer interaction (HCI), as there are several sound effects. The existence of a personality helps machines to generate consistent responses (Vinyals & Le, 2015) and creates an illusion of intelligence (Pereira, Coheur, Fialho, & Ribeiro, 2016). Moreover, the consistency in a chatbot's personality plays a significant role in determining the users' attitudes. People tend to prefer chatbots that have consistent personalities to those that have inconsistent personalities (Isbister & Nass, 2000). A consistent personality enables users to set the right level of expectations regarding the chatbot's intelligence and to trust them (Gnewuch, Morana, & Maedche, 2017; Shum et al., 2018). In addition, people are more likely to be engaged in the conversation a chatbot and more willing to confide in it (Li, Zhou, Yang, & Mark, 2017).

### **Social Cues of the Chatbot**

Many researchers have studied on social cues that can be applied to chatbots, and how these social cues can convey personality. For instance, Isbister and Nass (2000) found that people frequently rely on verbal and non-verbal cues to determine the characteristics of agents. Thus, they highlighted the importance of maintaining consistency in those cues. Moreover, Gnewuch et al. (2017) stressed the importance of providing agents with

appropriate social cues, considering the characteristics and capabilities of agents, as well as the context of the conversation.

Feine, Gnewuch, Morana, and Maedche (2019) suggested a taxonomy of conversational agents' social cues (Table 1) by conducting a systematic literature review. Among these cues, verbal cues, visual cues and invisible cues can be applicable to chatbots. In the next paragraph, the reviewed literature relevant to a chatbot's social cues is organized and introduced on the basis of the taxonomy that Feine et al. (2019) suggested. Cues that are usually irrelevant to chatbots are excluded. To be specific, auditory cues and haptic cues, which are invisible cues, are usually not applicable to chatbots with a text-based interface. Moreover, kinesics and proxemics, which are parts of visual cues were excluded because they are usually not applicable to disembodied agents.

Table 1

*Taxonomy of social cues for conversational agents suggested by Feine et al. (2019)*

Verbal	Visual	Auditory	Invisible
Content	Kinesics	Voice Qualities	Chronemics
Style	Proxemics	Vocalizations	Haptics
	Agent Appearance		
	Computer-Mediated		
	Communication		

## Verbal cues

Turning now to each cue, verbal cues consist of the content and style. The content refers to the literal meaning of a message, and the style is the way chatbots express those content (Feine et al., 2019). The style is also often referred as tone of voice. Tone of voice generally means the pitch of the spoken language and, thus, is considered a non-verbal cue in the traditional communication context. However, in the case of chatbots, it is often considered a verbal because the interaction is based mainly on the text. Therefore, tone of voice is hereby defined as the agent's style of written or spoken language and is regarded as a verbal cue for the chatbot.

Tone of voice is a central way of communicating personality, as stated by the Nielsen Norman Group (Moran, 2016). Ball and Breese (2018) explained that an agent's tone can be controlled by using various phrases that have the same lexical meaning depending on the emotion and personality. For instance, the agent can say 'yes' in different ways such as 'absolutely' or 'I guess so'.

## Visual cues

Visual cues are the cues that are visible, such as the agent's appearance and computer-mediated communication cues (Feine et al., 2019). The agent's appearance is the physical representation of the chatbot. In cases of brand chatbots, brands today often use their logo as a profile picture, so the appearance of the chatbot is usually made apparent at the beginning of the conversation. Several studies have found that, in a chatbot, highly anthropomorphic visual cues may boost the social presence of chatbots and raise the user's expectations and satisfaction level regarding the conversation quality (Go & Sundar, 2019).

Meanwhile, studies have found that computer-mediated communication (CMC) cues, such as emojis or typefaces, can strengthen and modify the tone of verbal cues and, thus, have an influence on a user's perception of and attitude towards the chatbot. Herring and Dainas (2017) analyzed different types of graphical elements (such as emojis, GIFs, images, and videos) found on the social media platform and discovered that those elements can modify the tone of voice. They asserted that when text accompanies the graphical elements, those elements can indicate how the text should be interpreted. Fadhil, Schiavo, Wang, and Yilma (2018) suggested that the use of emojis may have different effects depending on the context of the interaction. They conducted an experiment in which people discussed their mental and physical well-being issues with two different chatbots. One chatbot used plain texts while the other used emojis. The results showed that people were more confident about sharing their mental issues with the chatbot that used emojis. On the other hand, when discussing physical matters, they preferred chatbots that used plain texts. In addition, CMC cues such as typeface may also have an impact on the user's perception of a chatbot (Candello, Pinhanez, & Figueiredo, 2017). However, the degrees of freedom in designing such CMC cues for chatbots in social media are limited, as social media platforms often have their own guidelines for the overall interfaces.

## Invisible cues (Chronemics)

Lastly, chronemic cues, which are time-related cues, can also influence the perception of a chatbot's personality. Fogg (2003) mentioned that turn-taking between the computer products and the user could make people perceive the social presence of the products. Kalman, Scissors, Gill, and Gergle (2013) suggested that conversational rhythm, such as pauses between messages, can form the user's impression of the conversation partner and convey the chatbot's personality in the online communication context. Moreover, they asserted that online chronemics are deeply related to responsiveness and trust (Kalman et al., 2013).

## **2.2. Brand**

### **2.2.1. Brand personality**

“Brand personality” refers to “the set of human personality traits that are both applicable to and relevant for brands” (Azoulay & Kapferer, 2003. p.151). The theory is based on the fact that consumers can effortlessly anthropomorphize and relate to human characteristics when associating brands (Aaker, 1997). For instance, Nike can be described using adjectives that are used to depict humans, such as ‘active’ or ‘sporty’.

Because people not only focus on the functional aspects but also attach symbolic meanings to products and brands (Stomppff, 2003), the concept of brand personality is considered an important research topic, especially in the marketing field. Plummer (2000) regarded brand personality as a characteristic aspect of brand image and stated that it affects consumers’ decision-making process by allowing consumers to project these images to themselves. Moreover, researchers have found that brand personality helps a brand differentiate and distinguish itself from other, similar brands (see e.g., Crask & Laskey, 1990; Siguaw, Mattila, & Austin, 1999)

A brand personality can be formed and influenced by any brand touchpoints that the consumer encounters (Aaker, 1997; Brakus, Schmitt, & Zarantonello, 2009). For instance, brand personality can be formed by people related to the brand (e.g., CEO, employees, endorsers), category association and features of brand’s products, brand’s name, and communications (Aaker, 1997; Plummer, 2000). Keller (1993) also mentioned that the user and usage imagery, as well as the emotions or feelings that the brand evokes, may have an impact on brand personality.

### **Measuring the brand personality**

As the importance of the brand personality has come to the fore in the marketing field, researchers have used different methods to investigate brand personality and compare the personalities of different brands.

Prior studies have used various research methods to determine how a company wants its brand to be seen, or how the consumers actually perceive brands. Plummer (2000) suggested defining a brand personality statement to determine how the company wants its consumers to perceive it, and a brand personality profile to investigate how the consumers actually perceive the brand. In his paper, he introduced several methods of identifying brand personality profiles. For instance, his team asked participants to describe brands using different symbols, and then measured those with a list of personality attributes. Next, they made an average of these attributes to define the personality profile. He stated

that researchers and practitioners would be able to identify the strong points and weak points to be improved by forming brand personality statements and profiles, and then combining them.

Marketers have been seeking other quantitative research methods to measure and compare brands (Aaker, 1997; Aaker & Fournier, 1995). For example, researchers used human personality scale such as the big five personality traits or ad hoc scales to determine the brand personality, before Aaker (1997) pioneered a breakthrough in the measurement method. She highlighted the reliability and validity issue in applying those existing measurement methods in the brand context. Accordingly, she questioned the need for a systematic, credible, and generalizable scale measures brand personality and, hence, developed a brand personality framework consisting of five dimensions: sincerity, excitement, competence, sophistication, and ruggedness. These dimensions can be further classified according to their subordinate facets and traits. For example, sophistication can be characterized by the 'upper class' or 'charming.'

Since Aaker presented the framework, it has been widely adopted in many studies to investigate the brand personality of various brands and their products. For example, Siguaw et al. (1999) assessed several restaurants' personalities using 42 scale items derived from Aaker's framework and identified points of differentiation of each brand.

Lastly, Arora and Stoner (2009) adopted a mixed-methods approach to investigate the brand personality of the four brands. They found that the quantitative and qualitative assessments reveal different aspects of brand personality. Hence, they recommended combining qualitative and quantitative methods as it provides a broader and more comprehensive picture of brand personality.

### **2.2.2. Brand experience**

Brakus et al. (2009) described brand experience as consumer's subjective, internal, and behavioral reactions that can be evoked by brand touchpoints. They stated that brand experience may differ by person because the consumer may have interacted with different brand touchpoints, and also because the internal responses may vary by person.

Because brand touchpoints evoke emotions and form experiences, it is very important that they deliver a consistent message (Stompff, 2003). Several researchers have emphasized the notion that each touchpoint should be carefully considered and designed to deliver a consistent brand experience, as it helps shape the brand image (Hultén, 2011; Stompff, 2003).

With the fast advancement in the Internet and information and communications technologies (ICT), web interaction is now an important part of the brand experience.

Moreover, emerging technologies such as artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) are expanding the online brand experience even further. Morgan-Thomas and Veloutsou (2013) thus emphasized the need to study brand touchpoints in a more holistic way by considering the brand experience, especially in the context of the online brand experience.

# 3

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## Survey :

### Investigating Brands and Chatbots

An online survey was conducted to investigate consumers' current perceptions of brands' and chatbots' personalities.



## **3.1. Study Design**

### **3.1.1. Selection of case brands**

To investigate and compare the consumers' current perceptions of the personalities of brands and chatbots, two brands are selected based on the following criteria:

- 1) The brand must be widely known so that the research participants have likely formed a perception of the brand personality.
- 2) The brand must currently be implementing chatbots that show personality to a certain degree.
- 3) Specifically, both brands' chatbots must operate on the same social media platform so that research participants can focus on social cues within the same environment.

Based on the criteria, two brands were selected: Lego and Finnair.

### 3.1.2. Participants

A total of  $n = 100$  respondents were recruited for the survey (Table 2). The responses were collected for three weeks from the 6th to the 21st of July 2019. A link to the Google survey was distributed via multiple social media sites, mainly Facebook. In addition, a flyer containing a brief explanation of the study and a QR code to the survey were attached to the university buildings in Northern Europe. The survey was divided into two different types (A, B) and randomly distributed to avoid order bias. The respondents who got type A ( $n = 51$ ) first measured the brand personality and chatbot personality of Lego, and then measured those of Finnair. The other respondents, who got type B ( $n = 49$ ), measured them in reverse order.

The target audience was people who use smartphones and who are familiar with Finnair and Lego. One of the main goals of the survey was to measure and compare the personality of each brand and chatbot to determine whether the brand personality and chatbot personality were in line with each other. Thus, to compare the consumers' current perceptions of brand personality and chatbot personality, responses from respondents who already knew of the brands were the only responses that were considered valid. In the case of Lego, 100 responses were considered valid answers, as all the research participants knew of Lego. On the other hand, only 87 responses were regarded as valid answers for Finnair, as 13 respondents answered that they did not know about Finnair before this study.

Table 2

*Demographics of survey respondents*

Factor	N	%	Factor	N	%
Gender			Age group		
Male	39	39	18-24	21	21
Female	59	59	25-34	60	60
Others /Prefer not to say	2	2	35-44	14	14
			45-54	4	4
			55-64	0	0
			65 or above	1	1
Total	100	100	Total	100	100

### 3.1.3. Experimental design

#### Stimuli

- **Brand personality**

Each brand's logo and a brief explanation of the brand were provided as stimuli to which the respondents could refer and with which they could associate the brand.

- **Chatbot's personality**

The conversation between the chatbot and the author was recorded on the 5th of July 2019 to ensure that all the research participants encountered the same conversation (Figure 2). Both video clips lasted for approximately one minute.

In Lego's case, because the main task of the chatbot was to recommend Lego products, the researcher conversed with the chatbot to get product recommendations. In Finnair's case, the chatbot performed three main tasks: booking flights, checking flight status, and asking questions. Because the 'book flights' task required more rounds of turn-taking than did the other tasks, the researcher conversed with the chatbot to search for and book flights from Stockholm to Helsinki. For Finnair's chatbot, the part in which the researcher entered the search information took a considerable amount of time. Hence, the play speed of that part was adjusted to ensure that the total playtime did not exceed one minute.

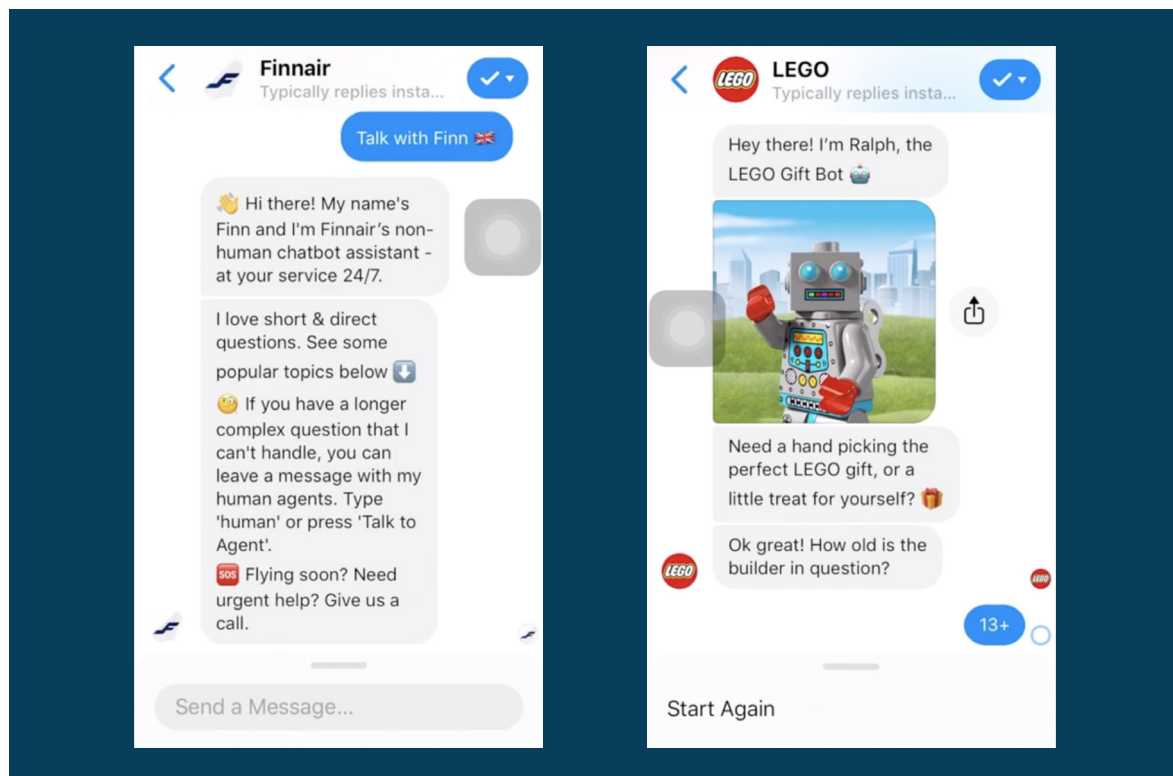


Figure 2. Images of the selected brands' chatbots on Facebook Messenger

(Left): [Finnair's chatbot on Facebook Messenger]. Retrieved from <https://www.facebook.com/messages/t/finnairsuomi>

(Right) : [Lego's chatbot on Facebook Messenger]. Retrieved from <https://www.facebook.com/messages/t/LEGO> on 5th of July 2019

## Measures

- **Familiarity scale**

Familiarity with each brand's products and services Participants' perceived level of familiarity with each brand's products and services was measured using a five-point Likert scale. The mean scores were calculated for each brand (Table 3). It was discovered that the participants were moderately familiar with these brands.

Table 3

*The respondents' perceived level of familiarity with brands' products and services*

	N	M	SD
Lego_ Familiarity	100	4.21	.81
Finnair_ Faimiliarity	87	3.89	.98

- **Brand personality scale**

The brand personality and chatbot personality of each brand were measured and compared on the basis of the brand personality scale suggested by Aaker (1997). The survey items consisted of 15 personality facets, which were the sub-traits corresponding to the five dimensions of the brand personality. The items were measured using the bipolar Likert scale (five-point). In addition, open-ended questions asking to describe brands' and chatbots' personalities were added to gather qualitative data.

- **Perceived level of correspondence between the brand personality and chatbot personality**

Apart from the brand personality measurements, the five-point Likert scale was also used to measure participants' perceptions of how similar the chatbot's personality and brand personality were.

- **Changes in brand image after watching the video clip**

Moreover, participants were asked if their image of the brand changed either in a positive or negative way after they watched each video clip.

### 3.1.4. Survey structure

Table 4 shows the structure of the survey.

Table 4

*Structure of the survey*

No.	Section	Number of questions	Types of questions	Content
1	Introduction	-	-	A brief explanation of the research and the usage of acquired data was given.
2	Demographics	4	Demographic questions	Basic demographic information including age, gender, nationality, and place of residence was collected.
3-8	Investigating the perception of the brand personality and chatbot personality of Lego and Finnair	20	Multiple choice questions, Multiple answer questions, Five-point Likert Scales, Open-ended questions	The brand personality and chatbot personality were investigated. First, participants answered basic questions about their brand experience, such as how they had heard about the brand, and how familiar they were with the brand's products or services. Then, the participants measured the personality of the brand. Next, the participants were asked to watch a video clip of a conversation between the brand's chatbot and the author. After watching the video clips, the participants measured the personality of the chatbot, using the same questions and the level of correspondence between the brand and chatbot's personality.
9	Investigating elements that did a good job of reflecting the brand personality and chatbot personality	2	Multiple choice/answers questions	Participants were asked which elements/parts of the chatbot conversation did a good job of reflecting the personality of the chatbot and the personality of the brand.
10	Self-confidence level towards the survey answer and asking about participation intention for future research	3	A five-point Likert Scale, Multiple choice questions, Open-ended questions(e-mail)	Finally, participants were asked how confident they were with their answers, and if they were willing to participate in the future research.

## 3.2. Data Analysis and Results

The data analysis proceeded in two ways, as both the quantitative and qualitative research methods were mixed in the survey. Quantitative data were processed using SPSS, which is a software program for statistical analysis. A paired-samples t-test was conducted to compare the brand personality and chatbot personality, and a correlation test was performed to investigate the relationship between the level of correspondence of brand personality and chatbot personality and changes in brand image. Qualitative data were analyzed by affinity diagramming and the use of Atlas.ti, a software program for qualitative analysis. As a result, Lego and Finnair's brands and chatbots' personality profiles were defined and compared.

### 3.2.1. Quantitative data analysis

#### Reliability test

A reliability test was carried out to test the measurement reliability for the brand personality scale (Aaker, 1997). The Cronbach's alpha for the overall construct was calculated with the 15 traits used in the survey. The resulting value was found to be highly reliable (Cronbach's  $\alpha = .892$ ). The Cronbach's alphas for each of the five dimensions were calculated as well, using the sub-items for each of the dimensions based on Aaker's brand personality scale. It can be concluded that all dimensions were sufficiently reliable, as the alpha values ranged from .724 to .851, which satisfies  $>.70$  (see Table 5 below for the Cronbach's alphas for each construct).

Table 5

*Cronbach's alphas for the five dimensions of the brand personality scale*

Dimensions (Facets)	Cronbach's alpha	N of facets
Sincerity (Down to Earth, Honest, Wholesome, Cheerful)	.769	4
Excitement (Daring, Spirited, Imaginative, Up-to-date)	.851	4
Competence (Reliable, Intelligent, Successful)	.817	3
Sophistication (Upper Class, Charming)	.724	2
Ruggedness (Outdoorsy, Tough)	.783	2

## Paired samples t-test

To compare the research participants' perception of the personality of each brand and chatbot, a paired samples t-test was conducted for each brand.

### • Lego

Table 6 shows that there is a significant difference in the sincerity dimension of Lego's brand personality ( $M = 3.89$ ,  $SD = 0.73$ ) and the chatbot's personality ( $M = 3.66$ ,  $SD = 0.97$ ),  $t(99) = 2.75$ ,  $p = 0.007$ ,  $d = 0.28$ ; the excitement dimension of Lego's brand personality ( $M = 3.82$ ,  $SD = 0.83$ ) and the chatbot's personality ( $M = 3.59$ ,  $SD = 1.05$ ),  $t(99) = 2.37$ ,  $p = 0.020$ ,  $d = 0.24$ ; the competence dimension of Lego's brand personality ( $M = 3.88$ ,  $SD = 0.80$ ) and the chatbot's personality ( $M = 3.57$ ,  $SD = 0.96$ ),  $t(99) = 3.03$ ,  $p = 0.003$ ,  $d = 0.30$ ; and the ruggedness dimension of Lego's brand personality ( $M = 2.70$ ,  $SD = 1.20$ ) and the chatbot's personality ( $M = 2.40$ ,  $SD = 1.18$ ),  $t(99) = 2.93$ ,  $p = 0.004$ ,  $d = 0.29$ .

Table 6

*t-test results comparing Lego's brand personality and the chatbot's personality*

Dimensions	Brand		Chatbot		<i>n</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Sincerity	3.89	.73	3.66	.97	100	2.75	99	.007*	0.275
Excitement	3.82	.83	3.59	1.05	100	2.37	99	.020*	0.237
Competence	3.88	.80	3.57	.96	100	3.03	99	.003*	0.303
Sophistication	2.83	.99	2.76	1.19	100	.76	99	.452	0.076
Ruggedness	2.70	1.20	2.40	1.18	100	2.93	99	.004*	0.294

\* $p < .05$ .

However, though the result of the t-test shows that there are statistically significant differences between the four dimensions of Lego's brand personality and the chatbot's personality, the effect sizes indicate that those differences are trivial. Thus, it can be concluded that only minor differences exist between Lego's brand personality and its chatbot's personality.

### • Finnair

In Finnair's case, a paired-samples t-test (Table 7) indicated that the competence dimension of its brand personality ( $M = 3.90$ ,  $SD = 0.88$ ) was higher than its chatbot's personality ( $M = 3.71$ ,  $SD = 0.93$ ),  $t(86) = 2.18$ ,  $p = .032$ ,  $d = 0.23$ . Moreover, scores were significantly higher for the sophistication dimension of Finnair's brand personality ( $M = 3.41$ ,  $SD = 1.01$ ) than for its chatbot's personality ( $M = 2.90$ ,  $SD = 1.01$ ),  $t(86) = 4.57$ ,  $p < .001$ ,  $d = 0.49$ .

Table 7

*t*-test results comparing Finnair's brand personality and the chatbot's personality

Dimensions	Brand		Chatbot		<i>n</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Sincerity	3.20	.76	3.27	.87	87	-.90	86	.371	0.096
Excitement	2.94	.88	2.93	.99	87	.11	86	.915	0.011
Competence	3.90	.88	3.71	.93	87	2.18	86	.032*	0.233
Sophistication	3.41	1.01	2.90	1.01	87	4.57	86	<.001*	0.490
Ruggedness	2.18	1.02	2.13	1.01	87	.71	86	.481	0.076

\**p* < .05.

When it comes to the effect size, the sophistication dimension showed a medium size, while the competence dimension showed a small size (*d* = 0.49 and 0.23, respectively). Therefore, it can be concluded that Finnair had a considerable gap between its brand personality and its chatbot's personality, especially in the sophistication dimension.

### Correlation analysis

Correlations between the level of correspondence of brand and chatbot personality and change in the brand image (Table 8) were analyzed to investigate whether they are related. The level of correspondence of brand and chatbot personality and change in brand image were positively correlated, Pearson's *r* (187) = .268, *p* < .001. In other words, there was a weak, positive correlation between the level of correspondence of brand personality and chatbot personality.

Table 8

*Pearson Correlations between the level of correspondence of brand/chatbot personality and change in brand image*

Variable		Level of correspondence	Change in brand image
Level of correspondence	Pearson Correlation	1	.268**
	<i>p</i>	-	<.001
	<i>n</i>	187	187
Change in brand image	Pearson Correlation	.268**	1
	<i>p</i>	<.001	-
	<i>n</i>	187	187

\*\* . Correlation is significant at the 0.01 level (2-tailed).



### **3.2.2. Qualitative data analysis**

The purpose of open-ended questions was to learn more about the research participants' perception of brand personality and the chatbot's personality and to compare them with the scale to examine differences and similarities. The survey data was analyzed using Atlas.ti, which is a qualitative data analysis and research software program, and affinity diagramming.

#### **Procedure**

Following was the process used for analyzing qualitative data:

1. Using Atlas.ti, responses were coded based on the words that the survey participants used and on the context of their responses. Gender and age were also sorted and counted.
2. Affinity diagramming was used to group keywords that had similar meanings considering their contexts.
3. Words that were not repetitive or that did not have any other similar keywords were eliminated.
4. The same process was followed for the chatbot's personality. Based on the affinity diagram formed for brand personality, keywords from brand personality descriptions that were not mentioned were eliminated, while newly mentioned words were added. Keywords were and then grouped according to their meanings and the contexts of the responses.

## Lego's brand personality

When it comes to Lego's brand personality, people described Lego as a young, cheerful, active, friendly and smart brand (Figure 3). The perceived age (Table 9) of Lego varied, but most of the participants agreed that Lego had the innocence of childhood regardless of age.

*"Boy, 6 years old, playful, joyful, adventurous." (Respondent 39)*

*"He would be a playful boy around 13 years old. He likes building things and is a colourful personality. A true artist." (Respondent 07)*

*"Constructive and cheerful, outgoing and [has] a child-like attitude towards new / unexplored things." (Respondent 88)*

*"A mature grown-up who keeps a young and playful mind." (Respondent 90)*

## Lego chatbot's personality

In the case of Lego's chatbot, the core personality traits were identical to those of the brand (Figure 4). However, there were some differences as well. For instance, more people mentioned that the chatbot was efficient and helpful, while fewer people described the chatbot as imaginative or creative. In the case of gender (Table 9), fewer people distinguished the gender of the chatbot, as people perceived Lego's chatbot to be a robot rather than a human.

*"A young boy, funny, active, smart and reliable." (Respondent 27)*

*"Mid 30s, male, talkative, excited, likes children. He kind of sounds like a merchant working at a Disney Store in Time[']s Square." (Respondent 76)*

*"Fun, innovative, informative, trendy early to mid 30s." (Respondent 61)"*

Table 9

*Perceived gender and age of Lego and its chatbot*

	Brand		Chatbot	
	N	%	N	%
Gender	100	100	100	100
Male	35	35	33	33
Female	3	3	1	1
Neutral	6	6	4	4
Unspecified	56	56	62	62
Age Group	88*	100	86*	100
Below 10	11	12.50	3	3.49
10s	16	18.18	7	8.14
20s	9	10.23	11	12.79
30s	6	6.82	9	10.47
40s	7	7.95	5	5.81
50s	3	3.41	1	1.16
Over 60	1	1.14	0	0
Age-neutral	2	2.27	0	0
Unspecified	33	37.5	50	58.14

\*respondents who answered using adjectives (e.g., 'young' or 'old') were excluded.

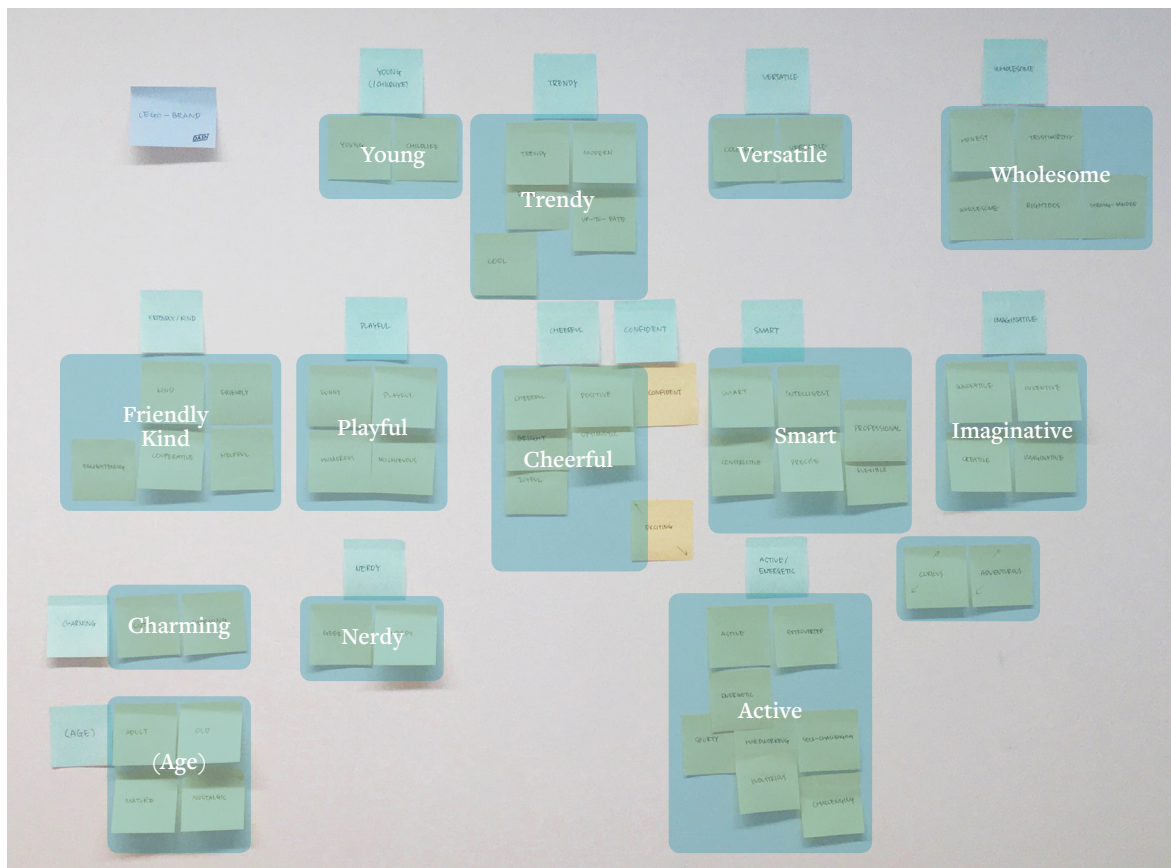


Figure 3. Affinity diagram for brand personality of Lego

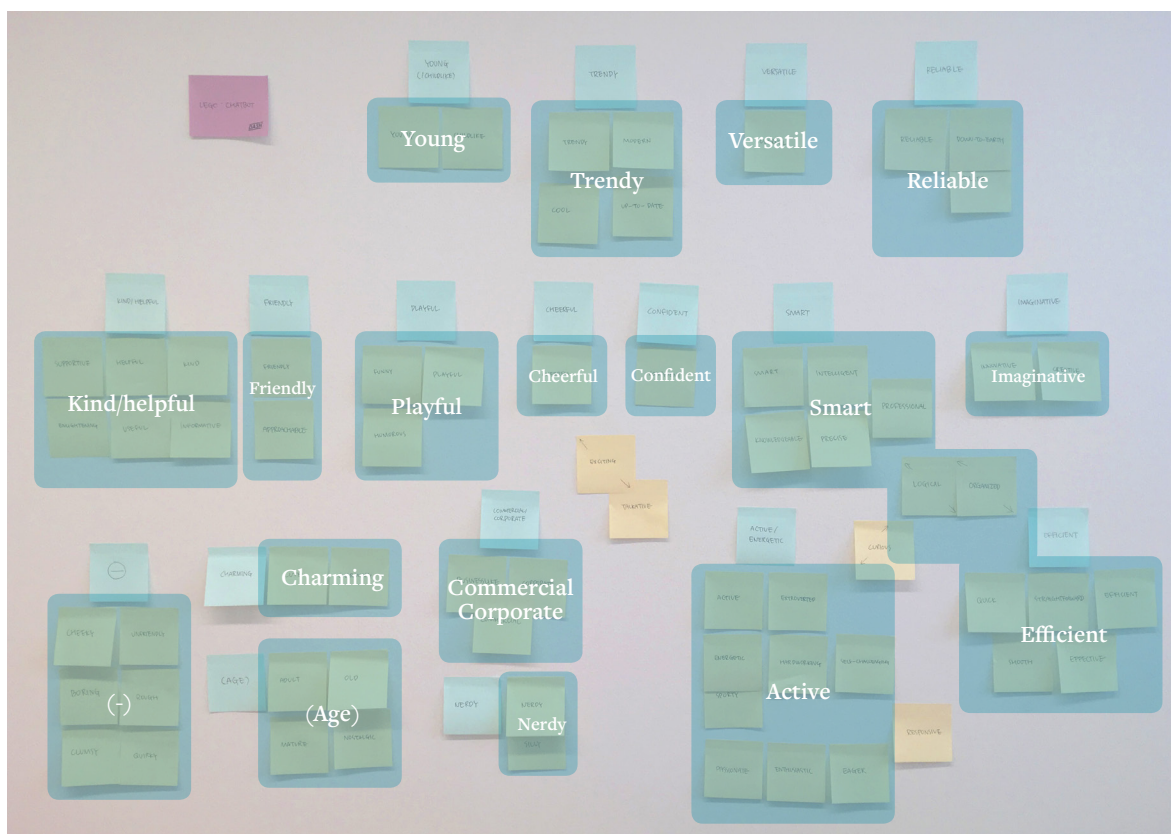


Figure 4. Affinity diagram for Lego's chatbot personality

## Finnair

### Finnair's brand personality

Respondents described Finnair as a reliable, friendly, and sophisticated professional brand (Figure 5). In addition, some respondents perceived Finnair as being active, reasoning that the brand is hardworking. The perceived age (Table 10) of Finnair was relatively higher than that of Lego, ranging from 30s to 50s. Several people described Finnair as a professional, and some referenced a flight attendant when describing the brand.

*"Female, 42, Honest, Nordic and simple." (Respondent 87)*

*"Female, a Suomen (Finnish) in her 30ies, with a stewardess uniform and a friendly smile." (Respondent 46)*

*"Senior, dignified..." (Respondent 12)*

### Finnair chatbot's personality

As for Finnair's chatbot, Finn, respondents described its personality using adjectives such as active, friendly, passionate and smart (Figure 6). However, several respondents said that Finn was sterile and robotic, and that they did not perceive a distinct personality. In terms of age (Table 10), the chatbot was considered to be relatively younger than the brand.

*"Male, early 30s, informative and smart." (Respondent 87)*

*"Young, enthusiastic, fun." (Respondent 12)*

*"Confident and friendly (but not emotional) customer service officer providing reliable service." (Respondent 89)*

Table 10

*Perceived gender and age of Finnair and its chatbot*

	Brand		Chatbot	
	N	%	N	%
Gender	87	100	87	100
Male	9	10.34	11	12.64
Female	28	32.18	20	22.99
Neutral	6	6.90	9	10.34
Unspecified	44	50.57	47	54.02
Age Group	84*	100	80*	100
Below 10	0	0	0	0
10s	0	0	2	2.50
20s	5	5.95	12	15.00
30s	21	25.00	12	15.00
40s	13	15.48	9	11.25
50s	10	11.90	4	5
Over 60	2	2.38	0	0
Age-neutral	1	1.19	0	0
Unspecified	32	38.10	41	51.25

\*respondents who answered using adjectives (e.g., 'young' or 'old') were excluded.



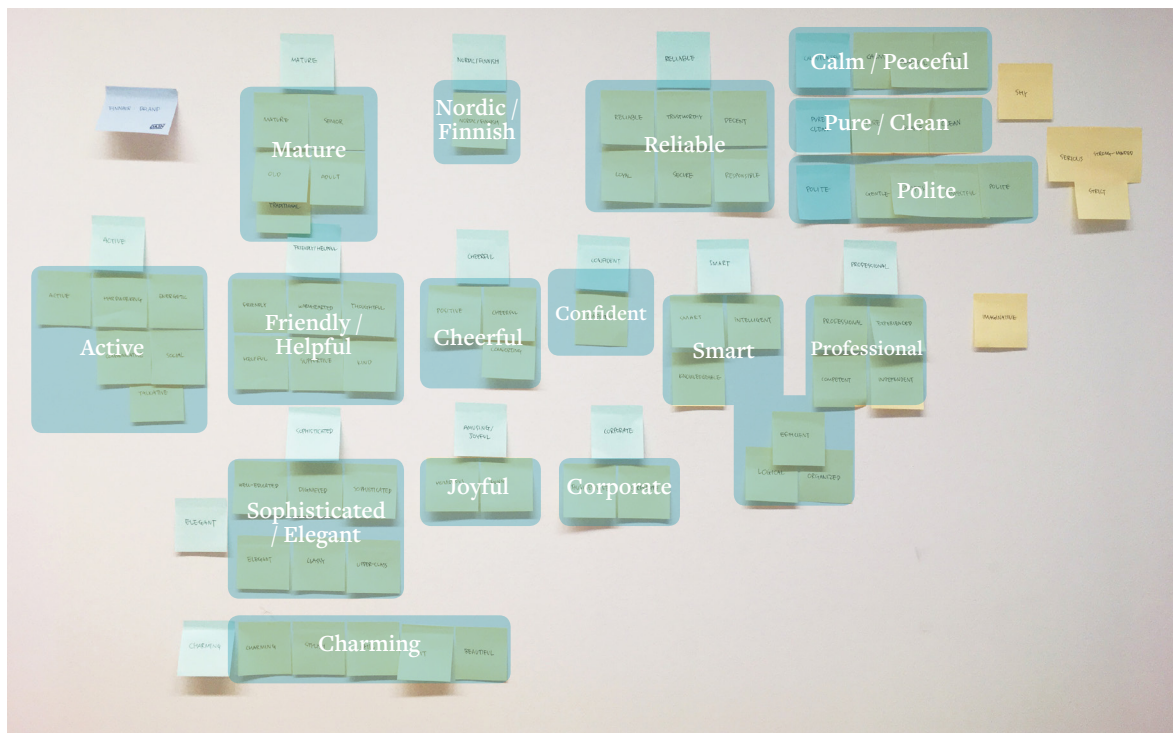


Figure 5. Affinity diagram for brand personality of Finnair

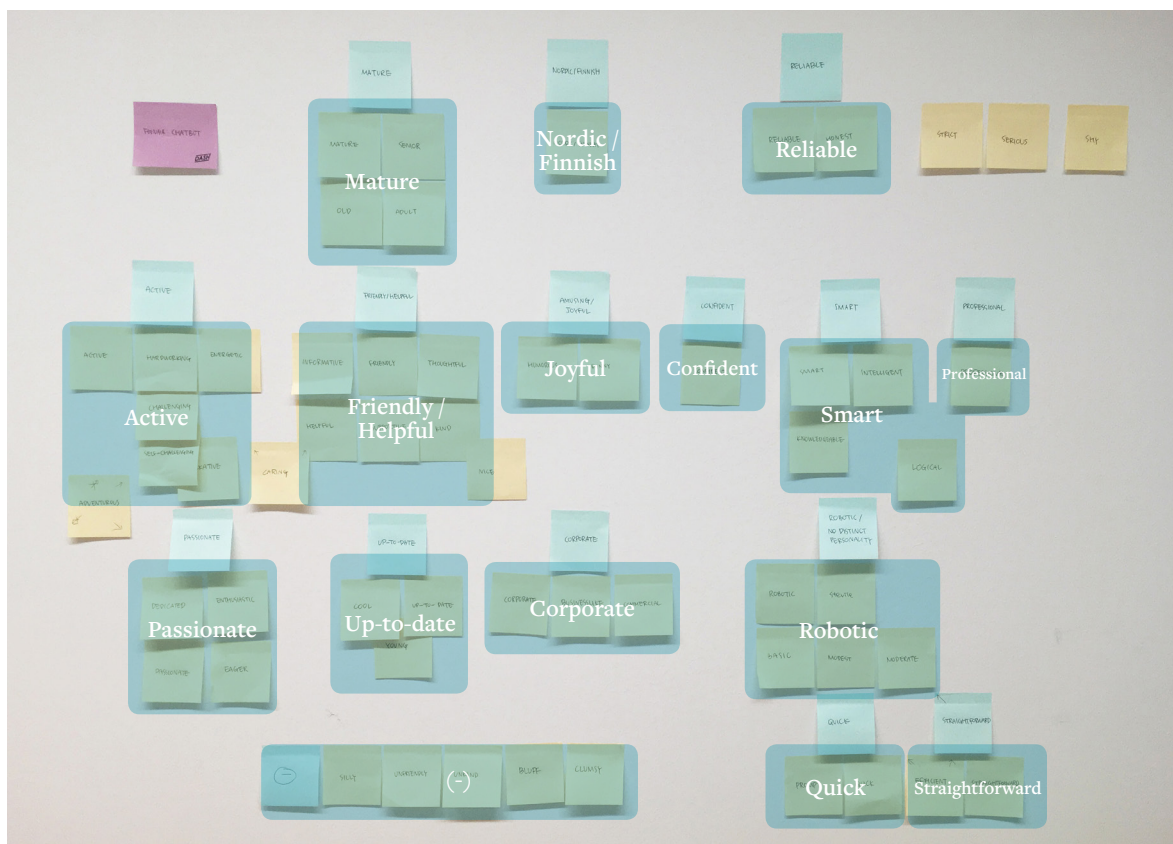


Figure 6. Affinity diagram for Finnair's chatbot personality

### 3.3. Findings

#### **Comparison between the brands' and chatbot's personality profiles**

The results of the survey revealed that Lego's chatbot and brand personality are consistent with each other, whereas Finnair showed a gap between its brand personality and chatbot personality in the sophistication dimension.

- **Lego**

Both the quantitative and qualitative data conveyed Lego's brand personality as a cheerful, imaginative, and smart person with a child-like mind, while the chatbot's personality was described as cheerful, young, friendly, and intellectual. Though there were some minor differences, the core personality traits remained similar.

- **Finnair**

On the other hand, the results of the t-test between Finnair's brand personality and the chatbot's personality showed a clear gap between the two of them, especially in the sophistication dimension. The qualitative data also supported this finding. Finnair was described as a reliable, friendly, and mature professional whereas the chatbot was perceived as being relatively younger. Moreover, the qualitative data supported the gap identified by the quantitative data, with respondents describing Finnair as a sophisticated brand, using words such as 'dignified', 'elegant', and 'classy'. On the other hand, those words were rarely appeared in the descriptions of chatbot's personality.

#### **Correlation between consistency in the brands' and chatbot's personality and change in brand image**

The statistical analysis showed that there may be a weak, positive correlation between the consistency in the brand personality/chatbot personality and a change in people's perceptions of the brand image. This subject was further investigated in the next study, as, by its nature, it was difficult to investigate further through surveys.

### 3.4. Summary

Through the survey, the brand personality and chatbot personality profiles were created and compared. The Lego's brand personality profile was identified as being that of a cheerful, playful, creative, and smart friend with a child-like mind. The chatbot also had a similar profile, except for the fact that participants perceived the chatbot as being more efficient but less creative. In the case of Finnair, both the chatbot and the brand could be described as reliable and professional. However, a distinct gap existed in the sophistication dimension. In addition, the research showed the possible correlation between the consistency in brand personality/chatbot personality and change in brand image, though this correlation was weak.

# 4

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## Interview :

### Comparing Chatbots' Personalities

In the previous chapter, the survey results revealed the personality traits of each brand and chatbot. In addition, the gap between Finnair's brand personality and its current chatbot's personality was identified. Yet, how those profiles are formed is not yet identified. Moreover, the impact of chatbot's personality on the brand personality had to be further investigated. Therefore, an interview was conducted as next step to examine those matters in detail.



## 4.1. Study Design

In the interview, the research participants conversed with two chatbot prototypes to complete the assignment given by the researcher. After each conversation, the personality of the chatbot was assessed in the same manner as it had been in the survey. Moreover, several questions about the chatbot's personality and brand personality were asked to obtain deeper insight.

### 4.1.1. Participants

A total of  $n = 12$  participants were recruited and interviewed over the span of 23 days, from the 13th of August to the 4th of September 2019. The participants were recruited mainly from the previous research ( $n = 11$ ). In return for their participation, research participants received a movie voucher (9.95 EUR) that could be used in the local theater. All interviews were recorded with the consent of the participants. The demographic distribution of the interview participants was as follows (Table 11).

Table 11

*Demographics of interview participants*

Factor	N	%	Factor	N	%
Gender			Age group		
Male	3	25	18-24	3	25
Female	9	75	25-34	6	50
			35-44	3	25
Total	12	100	Total	12	100

### 4.1.2. Experimental Design

In the interview, the research participants took part in a simple experiment in which they interacted with two different chatbot prototypes to search for a flight. The flight schedule was proposed by the author to guide and control the conversation flow. To avoid the order bias, the order in which the participants interacted with each chatbot was adjusted in turn.

#### Prototypes

The author built two chatbot prototypes for the interview, using Botsociety.io, which is an online tool for designing and prototyping chatbots (see Figure 7 for the part of conversations with prototypes). One prototype was identical to the Finnair's current chatbot (Finn) operated in Facebook Messenger, while the other prototype had a personality similar to the brand personality identified in the survey (Table 12).

Table 12

*Personality settings of the new chatbot prototype*

Variable	Explanation
Name	Fiia
Gender	Female
Age group	3-40, more mature than Finn
Job	Bot crew (flight attendant)
Personality	Professional: bot crew, guiding people well Friendly & helpful: helpful, intimate, and responsive Charming: Feminine, more formal than casual

The major change in the new chatbot's personality involved the way in which the chatbot spoke—namely, tone of voice. Moreover, the name 'Fiia' was given to the chatbot, to allude to femininity. Words and emojis were changed to modify the tone of voice. For instance, Fiia used more auxiliary verbs to strengthen the formal and sophisticated tone and used more smiling faces than Finn did. The major conversational flow and guidance remained the same, except for a part in which Fiia reacted to the destination that the user entered to show the responsiveness.

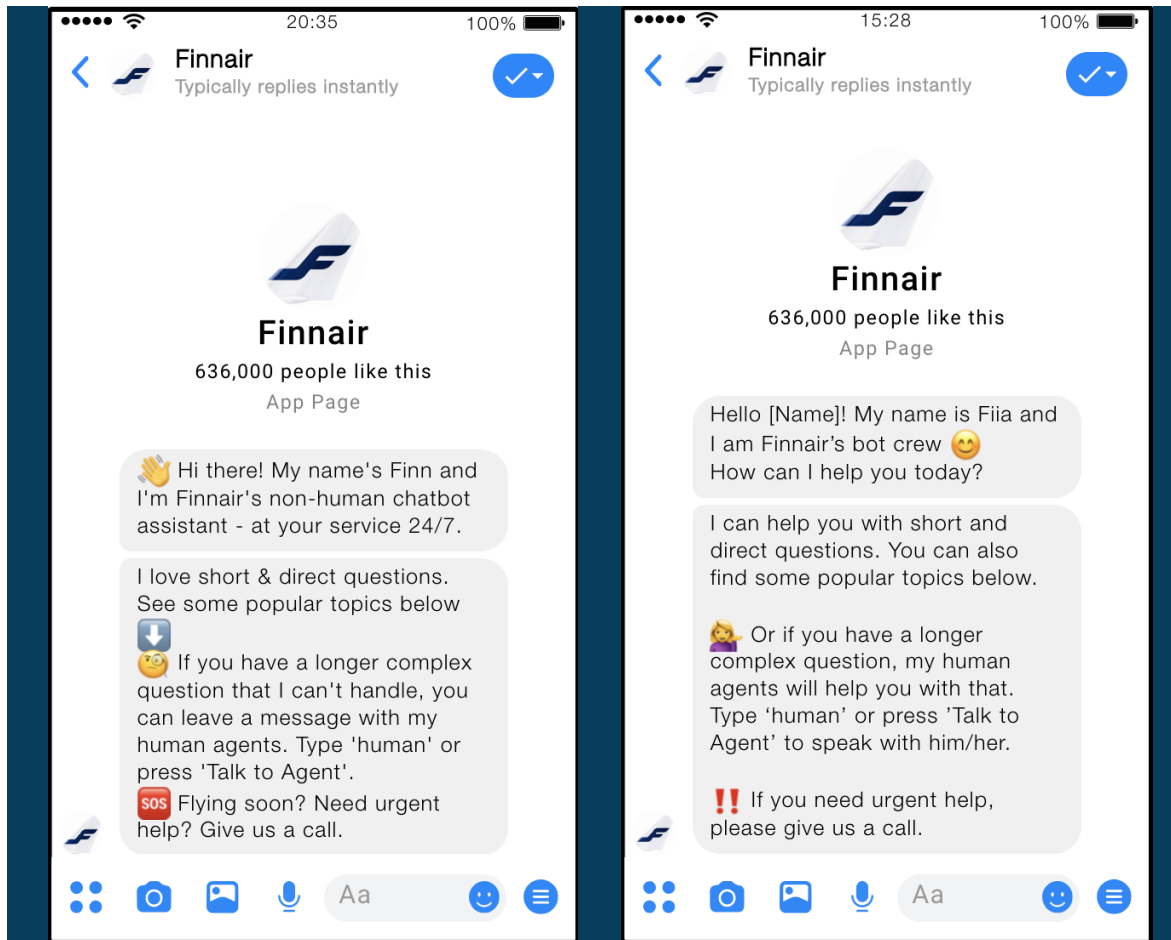


Figure 7. Parts of conversations with the prototypes (Left: Finn, Right: Fiia), Retrieved from the prototypes built by the author using botsociety.io.

## Measures

Just as with the survey, 15 personality facets from the brand personality scale (Aaker, 1997) were used to measure and compare the chatbots' personalities. Additionally, two questions with a seven-point Likert scale were used to measure consumers' perceived level of correspondence between each chatbot and the brand personality, and the difference between the two chatbots. In addition, participants were asked to describe the personality of the chatbot and the part of the encounter during which the participant got those impressions.

## 4.2. Interview

### 4.2.1. Interview environment



*Figure 8. The Interview Environment*

As shown in the Figure 8, the experiment was conducted primarily in the university meeting rooms. Papers with QR codes to the chatbot prototypes, guidance in completing the task, and worksheets with the scale items were provided in due course. The participants obtained access to the chatbot prototypes by using their phones to read the QR. If the participants were unable to access the prototypes with their phones, the author's device was used as an alternative.

#### **4.2.2. Interview procedure**

The structure of the interview was as follows.

##### **1. Introductory session**

The introductory session began with a brief introduction to the research topic and an explanation of the experimental task. Consents regarding participation and documentation of the research were obtained.

The remaining part made use of the results of the survey in the first study, in which the respondents answered basic demographic-related questions about age, gender, and nationality. If the participant did not take part in the first survey, he/she was asked to fill out the form asking for his/her basic demographic information and investigating his/her perception of Finnair's brand personality.

##### **2. About Finnair & Previous survey results**

This section included two questions, that asked about the interviewees' experiences with, and overall feeling regarding, Finnair. Moreover, the participants were asked why they had described Finnair in the manner in which they had described the company in the previous survey, to investigate how the perceptions of Finnair's brand personality are formed.

##### **3. Interacting with chatbots**

In this section, the interview participants were asked to interact with two chatbots that had different personalities in this section. After interacting with each chatbot, participants were asked to fill in the five-point brand personality scale and describe the chatbot's personality based on the conversation that they'd just had with the chatbot. Participants also evaluated how similar/different the brand personality and chatbot personality were, based on the conversation. After they interacted with the two chatbots, participants also measured the differences between them. During the interview, participants were asked to elaborate on which parts or elements of the interaction helped them understand the personality of each chatbot and the differences between them.

##### **4. About brand image and brand personality**

Lastly, the interview participants were asked whether, if one of those chatbots was the official brand chatbot of Finnair, their perception of the brand personality and image would change.

### 4.3. Data Analysis

### 4.3.1. Qualitative analysis

The aim of the qualitative analysis was to obtain deeper insights regarding the participants' brand personality perceptions and the personalities of chatbots. The transcripts of the interviews were analyzed by affinity diagramming and Atlas.ti, using the worksheets that the participants filled out during the interview.

## Procedure

The analysis process was as follows.

1. The transcripts were divided based on the questions asked
2. Personality traits for the brand and Finn and Fiia's personalities were extracted.
3. Different elements or parts that participants identified as showing the personalities of, and establishing the differences between, Finn and Fiia, were extracted.
4. The author connected the personality traits of the relevant brand, Finn, and Fiia to the cues that participants mentioned. (Figure 9)
5. The cues were sorted out to see how each cue influenced each personality. (Figure 10, 11)

Additionally, the possibility of a change in people’s personality perception depending on the chatbots’ personalities was analyzed using Atlas.ti.

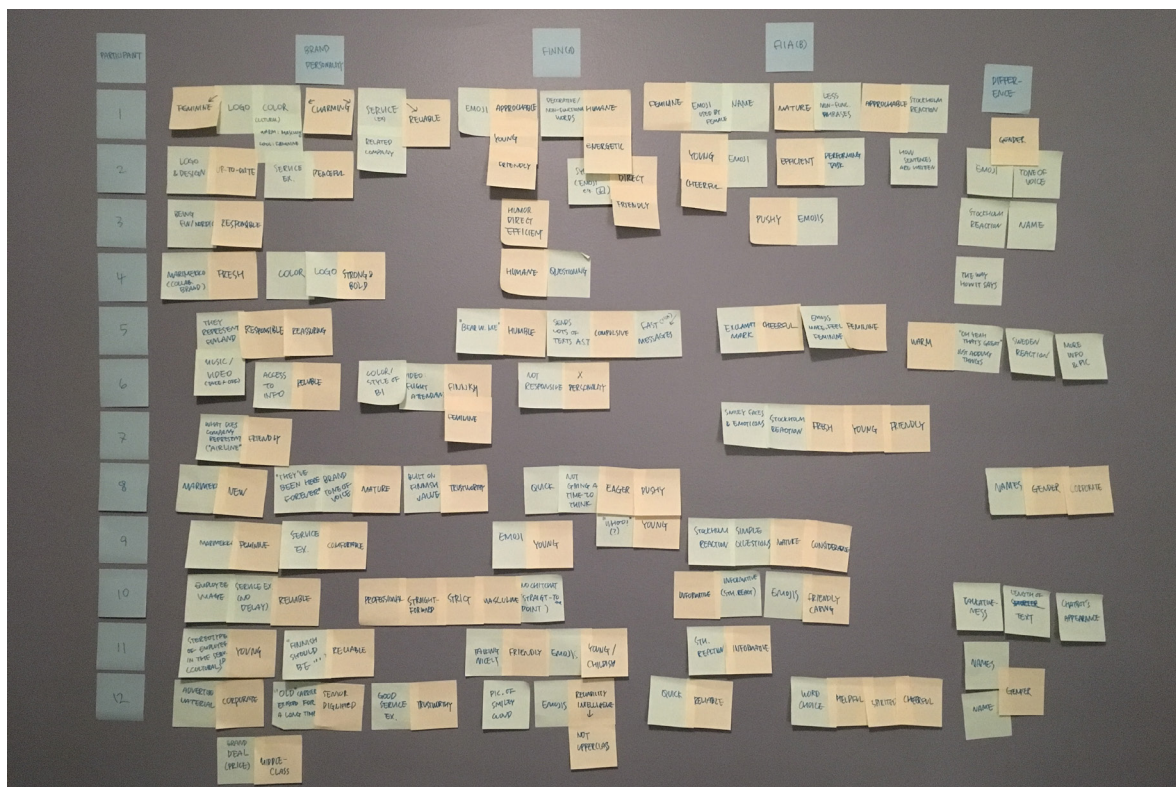


Figure 9. Affinity diagram to match the personality traits with their source



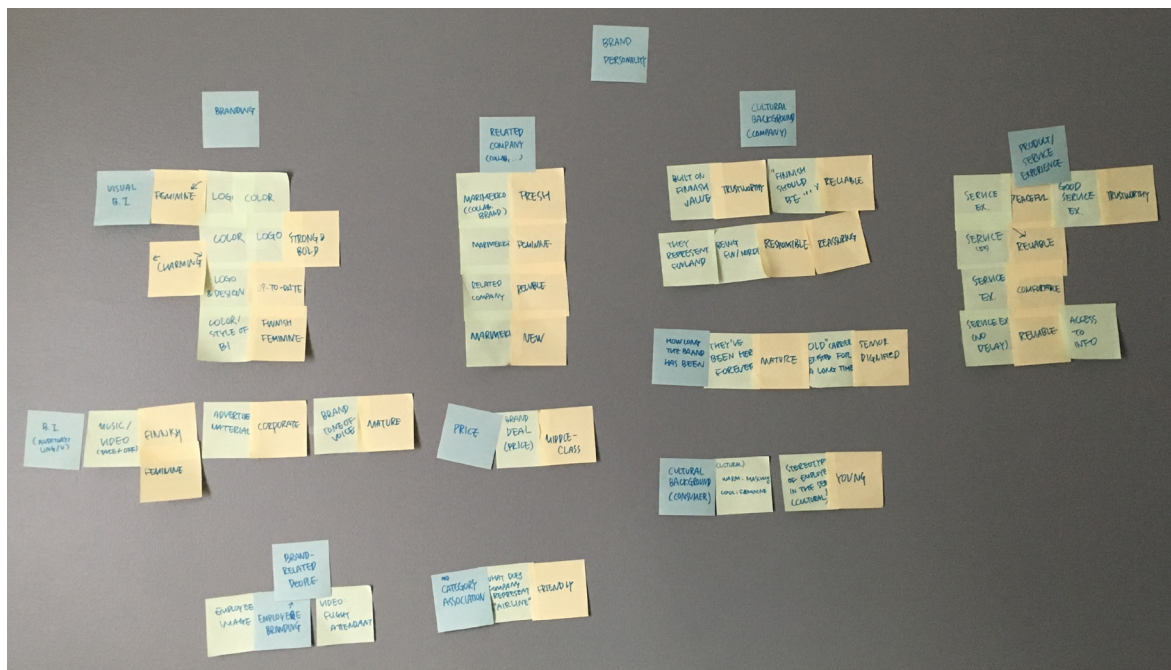


Figure 10. Affinity diagram to sort sources of brand personality perception

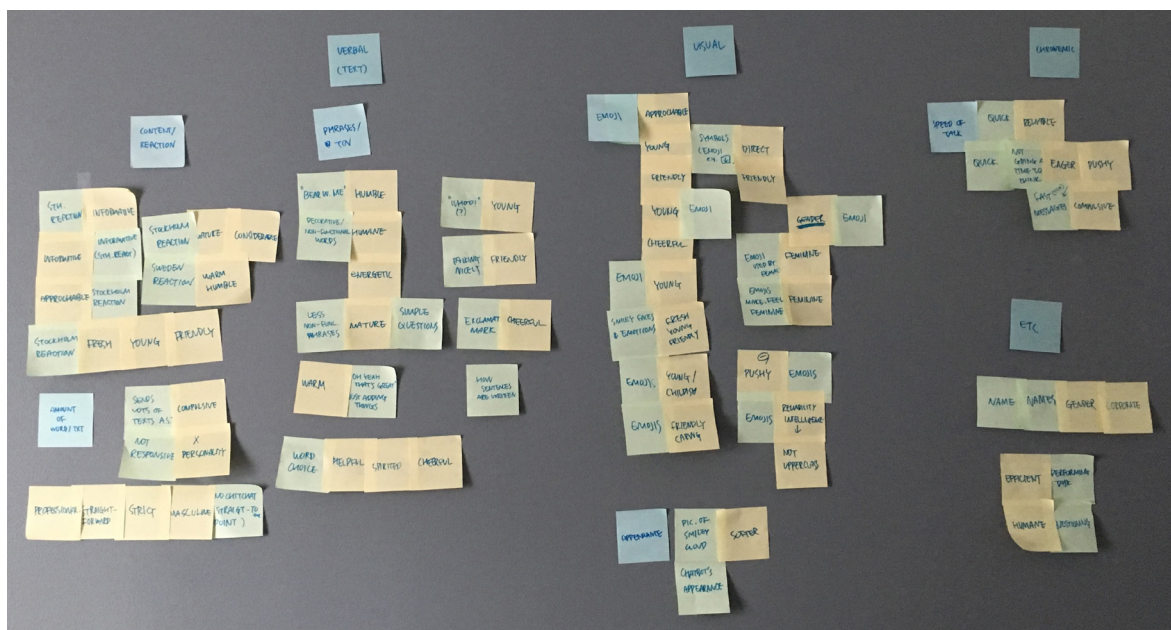


Figure 11. Affinity diagram to sort cues that shape chatbots personality

### 4.3.2. Quantitative analysis

The quantitative research data were statistically analyzed using SPSS. As there was an item-nonresponse on one of Finn's personality traits, daring, the missing value was replaced with the median value ( $Mdn = 2$ ).

Due to the small sample size, a Wilcoxon Signed-ranks test was conducted instead of the paired samples t-test to compare the personalities of Finn and Fiia. Table 13 shows that Fiia scored higher on the dimensions of sincerity, excitement, and sophistication ( $Mdn = 4, 3.63$ , and  $3.75$  each) than did Finn ( $Mdn = 3.5, 2.88$ , and  $3$  each),  $Z = -2.43, p = .015, r = -.50$ ;  $Z = -2.33, p = .02, r = -.48$ ;  $Z = -2.84, p = .005, r = -.58$ , respectively. On the other hand, Finn ( $Mdn = 2$ ) scored higher on the ruggedness dimension than did Fiia ( $Mdn = 1.25$ ),  $Z = -2.5, p = .011, r = -.52$ . In other words, Fiia was more sincere, excited and sophisticated than Finn was, whereas Finn had more ruggedness in its personality.

Table 13

*Wilcoxon Signed-ranks test results comparing personalities of Finn and Fiia*

Dimensions	Finn		Fiia		n	Z	p	r
	M	SD	M	SD				
Sincerity	3.54	.88	3.98	.75	12	-2.430 <sup>a</sup>	.015	-0.496
Excitement	3.10	1.01	3.69	.68	12	-2.331 <sup>a</sup>	.020	-0.476
Competence	3.94	.78	4.06	.53	12	-.551 <sup>a</sup>	.582	-0.112
Sophistication	2.88	.61	3.67	.81	12	-2.836 <sup>a</sup>	.005	-0.579
Ruggedness	2.29	1.05	1.46	.62	12	-2.533 <sup>b</sup>	.011	-0.517
Level of correspondence to the brand personality	4.58	1.68	5.17	1.27	12	-1.269 <sup>a</sup>	.205	-0.259

Based on positive ranks.<sup>a</sup>

Based on negative ranks.<sup>b</sup>

Table 14

*Means and standard deviations on the measure of perceived level of difference between Finn and Fiia*

	N	M	SD
Level of difference between Finn and Fiia	12	4.50	1.446

In addition, the average score of participants' perceived level of difference between Finn and Fiia was 4.5 out of 7 (Table 14). This means that Finn and Fiia had moderately different personalities compared to each other. However, regardless of the significant level of differences that appeared in the statistical analysis, people felt that both Finn's and Fiia's personalities ( $Mdn = 5$  and  $4.5$ , respectively) were similarly in line with Finnair's brand personality,  $Z = -1.260, p = .205, r = -.26$  (Table 13).



## 4.4. Findings

### Sources of brand personality

The sources that contributed to the interviewees' perceptions of brand personality included branding elements such as logo and color, brand communication materials such as advertisements, related companies or brands, foundation background of the brand, consumer's cultural backgrounds, and hands-on experience with the brand's products or services.

- **Brand identity and brand communication**

Several interviewees cited the visual brand identity including the logo and color, as one of the factors affecting their perception of brand personality. They mentioned that the logo and colours hinted at Finnair's gender, age, and personality traits.

*"Still, like the brand logo and designs and everything looks in a way make me feel like they are very up to date so that was why I was choosing those ages." (Participant 02)*

*"Charming would have to do with both, color, logo and their service." (Participant 01)*

In addition, interviewees also mentioned brand communication materials, such as advertisements, as evidence that formed their perceptions.

*"Corporate because a lot of their advertisement material, for example, the ones that you see on flights, it's very polished, and not very, for example, humorous. They go for a very sleek and trustworthy image, and not necessarily a playful one" (Participant 12)*

*"I guess probably because of the video showing in the take-off and landing video, there is a flight attendant. It's a figure of a Finnish woman. I feel like the color and style is really bright with dark text, so these gave me the impression of a woman" (Participant 06)*

- **Related companies or brands**

The companies related to the brand also affected the brand personality. Several participants mentioned Marimekko as a reason for their perception. To be specific, one participant perceived Finnair as a female and mentioned the collaboration with Marimekko. Two other participants also mentioned Marimekko as the reason why they lowered the age of the brand.

*"(Why did you think Finnair as a woman?) Maybe from Marimekko." (Participant 11)*

*"They are not that modern because they've been here forever. That's why I was thinking, maybe even middle age... They are using Marimekko and stuff like that, so they are kind of trying. So, I would say 30-40." (Participant 08)*

- **Background of the brand**

Interestingly, the brand's cultural background played a crucial role in forming brand personality perceptions. Specifically, the Finnish or Nordic identity of Finnair had a considerable influence on people's perceptions of Finnair as a reliable and responsible company. Several interviewees described Finnair as Finnish or Nordic, and thus, stated that the brand is reliable, trustworthy, and responsible, as it is built on Finnish values and beliefs.

*"It's something that has to do with them being Finnish or Nordic. Usually, if it's a Nordic brand, I typically see it as very responsible. If they say this is how it is, then this is how it is."*  
(Participant 03)

- **Background of consumers**

The interviewees' perceptions of brand personality were also affected by the cultural background of interviewees themselves. To be specific, one participant perceived Finnair as a female because Finnair's logo has a cool color. He said that cool colors are perceived as feminine in his country. Another participant described Finnair as a young person because the employees in the service industry are usually young in her country.

*"I think it's a cultural thing because in my culture I would tend to relate the warm color to masculine and [the] cold color to feminine ... I think this is why my first impression of Finnair, if I ha[d] to tell about its gender, it would be a female."* (Participant 01)

*"... most employees in the service industry in my country [are] quite young, so some kind of stereotype"* (Participant 11)

- **Service experience**

Lastly, as expected, participants reported that the service experience formed their perception of Finnair's brand personality. Many participants described Finnair as a reliable, good company, as they had been satisfied with their overall service experience. Meanwhile, one participant described Finnair as a strict person because she had experienced a meticulous in-flight baggage weight check.

*"I think Finnair is a reliable company, because I have used their service for several times, and their service is pretty good."* (Interviewee 01)

*"I had some opportunities like flying with Finnair, and I think it's a super nice environment. And they were nice, gentle and they're in a good mood and it seems like everything is very peaceful."* (Interviewee 02)

## Sources of chatbot's personality

- **Verbal cues**

Participants reported that the way in which the chatbot used words and phrases contributed to their impression of the chatbots' personality. The interviewees regarded phrases such as 'Please bear with me for a moment', and 'Okay!' as non-functional phrases because the chatbot's task performance would not have made any difference to them. However, they reported that they felt the chatbot was warm-hearted, energetic, or cheerful because of those phrases.

*"For example, I don't remember [if Fiia was] saying like okay exclamation mark but instead, she would proceed [with] the instruction you just gave her and okay next step this, next step that, so I would say this one, if we have to talk about age, the previous one(Finn) was more younger and energetic." (Participant 01)*

*"A (Finn) has more personality, [considering] the way how it says something. [For example,] just a second, ... Gave more opportunities. More considerable as a person. Especially sentence. Please bear with me a moment... Okay!" (Participant 04)*

Another part that participants pinpointed was the reaction Fiia made when they entered the destination, Stockholm. Participants reported that the reaction formed an impression that Fiia is more feminine, helpful, and responsive. However, few participants concerned that these reactions may delay the task to be performed.

*"The most impressive thing is when I chose Sweden then there was some kind of information showing in B(Fiia), but not A(Finn)." (Participant 06)*

Meanwhile, a few participants mentioned that the number of words per message and the number of messages that the chatbots sent at a time led to perceptions that the chatbots pushy and compulsive.

- **Visual cues**

Another important cue upon which the research participants when judging the chatbot's personality was the visual cues. In particular, emojis played a crucial role in affecting participants' judgment of the chatbot's gender and characteristics. Several interviewees mentioned that the emojis made them feel that the chatbot was cheerful, friendly, and approachable. Meanwhile, the emojis also affected interviewees' perceptions of the chatbot's gender. Three participants mentioned that the emojis that Fiia used had a more feminine tone than did Finn's.

*"Well, the use of emojis, the girl emoji as well, which makes you feel like it's kind of feminine. [Also, the] use of exclamation marks and being cheerful. " (Participant 05)*

- **Chronemic cues**

Interestingly, several participants mentioned the speed of talk also affected their impressions of the chatbot's personality, though this was not an intended variable. One interviewee reported that she felt the chatbots were reliable, because they quickly responded to her questions. On the other hand, two interviewees felt the chatbots were pushy, compulsive, or eager because of their quick responses. To be specific, one of them said that the speed of talk and the number of messages that the chatbot sent made her feel that the chatbot was eager and pushy because it did not give her the time to think.

*"I didn't really like that it sends lots of messages together at the same time, I would have preferred [for it] to allow me time to read the message before sending other ones. That makes the personality maybe a bit compulsive?" (Participant 05)*

*"Very fast, eager. Quick also. Smart. Maybe because of the eagerness, it seemed to be young. (Eagerness?) Because it's so quick and, yeah, here are the options and whoo! " (Participant 08)*

- **Other personality settings**

Some participants mentioned that the name Fiia made a more feminine impression than did Finn, because of the -a ending. Meanwhile, one participant mentioned that the name Finn sounded more corporate and it reminded her that was interacting with Finnair's chatbot.

*"At the very first the name is different, the previous one is Finn and this one is Fiia, and with that a, it's more... Like a female, yeah at least to me to picture that it is a female." (Participant 01)*

*"But I think the first one should be male since the name is Finn." (Participant 07)*

## **Comparison between Finn and Fiia**

The results of the Wilcoxon Signed-ranks test and mean value which indicated the perceived level of difference between Finn and Fiia, showed that Fiia's personality was different from Finn's. In general, participants reported Fiia was more feminine, friendly, and mature than Finn, and had the personality that was closer to the brand personality. However, there were also few interviewees with dissent. People felt that both Fiia's and Finn's personalities were moderately close to the brand personality, regardless of the differences between them.

*"These were neither too different." (Participant 08)*

*"I would say there isn't a huge difference between these two." (Participant 06)*

## Impact of chatbot's personality on brand personality and image

In the cases of Finn and Fiia, interviewees reported that their brand personality and brand image would not dramatically change by interacting with them, as both were similar to the brand personality, to a degree. However, many of them mentioned that if the chatbot's personality was significantly different from their brand personality perceptions, it might influence their brand personality and brand image. In particular, if the chatbot had used words that were far removed from the brand personality (for instance, impolite words) or struggled to perform its duty, it might have had a negative impact on participants' perception of the brand.

*“A(Finn) will change the image of Finnair, because A has a younger image. B(Fiia) is the personality I imagined.” (Participant 09)*

*“These were neither too different. If it would be very somehow struggling to find an answer or something, maybe then there would be a bad influence on the image. Maybe if there would have been some kind of very off... Because they were quite formal in the text. The first one (Finn) might have more informal text... But if there would be something super young and slang kind of text, that would affect the brand negatively because I consider them more mature.” (Participant 08)*

*“I don't necessarily know because I think the bulk of the brand image comes from other things, but if the Finn robot became the official robot, I don't know. I might, it's more noticeably different so it's more likely to have an effect.” (Participant 12)*

## 4.5. Summary

The author built two chatbot prototypes with distinct personalities and tested them in the interview. The research results revealed that the interviewees could identify and distinguish the personalities of both chatbots using different social cues. However, the participants perceived that both chatbots' personalities were similar to that of the brand. Thus, they reported that those chatbot's personalities would have a weak impact on their brand personality perceptions. Yet, the participants expected that the effect would be significant if the chatbot's personality was completely different from that of the brand.

# 5

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## Discussion

In this chapter, the contributions of this study are discussed by addressing the key findings and design considerations, which answered the following research questions:

1. What are the underlying elements of the chatbot that shape its personality?
2. Can the personality of a chatbot have an impact on the user's perception of brand personality?
3. What can a designer do to have a chatbot personality reflect the brand personality?

The answers to the first two questions are addressed in 5.1. Key Findings, and the answers to the final question are addressed in section 5.2. Design Considerations. Lastly, the limitations of the study and future study recommendations are discussed in section 5.3.

## 5.1. Key Findings

### **Chatbot's personality and social cues**

The interview findings confirmed the results and conclusion previously described (Isbister & Nass, 2000), that people read various social cues to judge the chatbot's personality. The research revealed that the chatbots' various social cues can deliver different aspects of personality parameters, such as gender, age, and key characteristics. Moreover, the participants could easily distinguish differences in personalities of the chatbots and determine whether there is incongruity between the different cues. These findings support Isbister and Nass's (2000) statement that the consistent cues are the keys to building a stable personality.

Turning now to each cue, the interview findings confirmed and build on several findings that have been previously described. In particular, the research revealed that the chatbot's tone of voice, conveyed through verbal style and visual cues (especially emojis, stated by Herring & Dainas, 2017), plays a crucial role in the formation of its personality impression (Moran, 2016).

Additionally, the interview findings also confirmed findings from previous studies in that chronemic cues significantly contribute to personality, even though it was not an intended variable. One of interviewees mentioned that she felt the chatbot to be reliable because of its responsiveness. This was in line with findings from Kalman et al., (2013). In addition, several interview participants mentioned that the rate at which chatbot sent messages gave the impression that the chatbot is pushy and compulsive.

### **Sources of brand personality perception**

As expected, the research confirmed previous work that suggests the brand personality perception is formed on the basis of any brand experience the consumers had and thus, it can vary across persons (Aaker, 1997; Brakus et al., 2009). The sources of brand personality perception that interviewees elaborated included branding elements that include logo and color, brand communication materials such as advertisements, related companies or brands, the background of the brand and consumers, and the product or service experiences. The fact that brand personality can be influenced by various brand touchpoints also implies that chatbots can influence brand personality.

### **Impact of chatbot's personality on brand personality**

The findings hinted that the personality of chatbots may have an influence on brand image and brand personality, especially if the user identifies a significant gap between the



brand and the chatbot's personality. Only a minor impact was found with regards to the comparison between two prototypes built for the interviews, as interview participants thought they had personalities that were close to the brand personality (up to a certain point), regardless of differences between them. However, some interviewees reported that a larger discrepancy between personalities of the chatbot and the brand would have impacted brand personality. Thus, it can be concluded that the study revealed that chatbot's personality may affect brand personality even though the size of the effect was not large. Future data collection is required to determine the relevance of this topic further and in a different context, for example, by comparing chatbots with a larger discrepancy in their personalities.

## **5.2. Design Considerations**

### **Considering brand personality when defining chatbot's personality profile**

Depending on the task a chatbot performs, the personality of a chatbot may be slightly different from the brand personality. For example, in this study, while Lego was considered to be creative, respondents seldom described their chatbot as creative. This might be due to the chatbot's task, which is to recommend LEGO products. Nevertheless, designers should consider brand personality when designing a chatbot. As revealed in this study, a significant difference between users' perception of a brand personality and a chatbot's personality may affect the brand personality. Just as Plummer (2000) recommended to define the brand personality statement and brand personality profile and combined them to determine their strengths and complementary abilities, defining and comparing brand personality and chatbot personality settings will help designers to design and improve the chatbot's personality and social cues accordingly.

Additionally, it is worth noting that the cultural context in which the chatbot is operated should also be considered as well, as it also was found to play a crucial role in the formation of the brands' personality. This study investigated diverse consumers because the case brands are well-known brands with a wide range of customers, and their chatbots serve multiple customers who can speak English without other divisions. Nonetheless, the study findings revealed that consumers may interpret things differently, and often these differences are based on their backgrounds.

### **Maintaining consistency in chatbot's social cues and personality settings**

Fogg (2003) asserted that the complex social cues, such as personality, can only be identified if the user spends sufficient time with the media. In other words, in order to

form a solid personality of the chatbot, social cues must incorporate a consistent message throughout the conversation. As the study findings indicate, verbal style and emojis contribute significantly to the tone of agents, and thus, form the personality impression. Additionally, chronemic cues and personality settings such as its name can also affect the impression. If one of these cues is in contrast to the overall impression, the user may perceive the contradiction causing a negative influence on the impression (Isbister & Nass, 2000). Future designs should consider consistency in these personality settings and social cues to form a solid personality of the chatbot.

One possible way of ensuring the consistency in these factors is to define the chatbot's personality profile in detail by mapping out personality settings and plan the use of social cues accordingly. In this study, the researcher defined the personality profile of the new chatbot prototype, Fiia, based on the brand personality profile identified from the survey. Defining personality settings, such as gender, age, and key characteristics guided the researcher to modify Fiia's tone of voice by intuition.

### **5.3. Limitations and Future Study Recommendations**

In this last section, the limitations of the study and future study recommendations are addressed.

First and foremost, it is worthwhile noting that the results of the empirical research should be treated with the utmost caution. The participants had limited exposure to the chatbots in an artificial setting, which could influence the obtained results. Therefore, future studies should be conducted in more realistic settings.

Next, this study examined if the personality of chatbots influences the consumer's perception of the existing brands' personalities and used two case brands. Because the selected case brands have diverse brand touchpoints, the impact of a single touchpoint on the brand personality may be relatively weak. Moreover, there are constraints on the generalizability of these results as the number of case brands and samples were limited. Thus, future research should further examine these initial findings in different contexts. For instance, it would be interesting to investigate the same issue with the brand that is utilizing a chatbot as its primary brand touchpoint.

Additionally, because chatbots are based on the conversational interface, the study focused on core personality factors that are influential in a conversational context. The recent trend is that brands introduce their chatbots to social media, which place some constraints on the use of various social cues. Accordingly, the impact of style cues such as fonts and

visual appearance of the chatbot have become weak when compared to other elements of social cues. However, further study should investigate the impact of these social cues, because there is still room for these cues to affect personality. For instance, by examining the impact of the visual appearance that occurs at the beginning of the conversation on the personality impression of a chatbot will help us to understand the topic comprehensively.

Lastly, another limitation exists in the quantitative measurement methods. In the empirical study, fifteen personality facets derived from Aaker's brand personality scale were adopted as quantitative measurement items to compare the brand's and chatbot's personality. While the measurement scales were derived from earlier research, and were found to be statistically reliable, the validity and reliability of the measurement regarding the chatbot should be further verified. Moreover, a continued effort should be made to explore and develop methods for this topic.

# 6

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## Conclusion

## 6. Conclusion

This thesis examined whether the chatbot's personality affect brand personality by investigating existing brands' and chatbots' personalities in a two-stage study design: First, an online survey was conducted to evaluate and compare the personality of two case brands and their chatbots. Next, interviews involving experiments were performed to compare chatbots' personality. The study revealed that the chatbot's personality, expressed through various social cues, may influence the user's perception of brand personality. Based on these study findings, a set of design considerations are suggested.

This study contributes to the body of knowledge in several ways. First, the findings of this study confirmed and build on previous findings with empirical pieces of evidence. In addition, the study made a meaningful contribution by suggesting design considerations that the practitioners can refer to when designing brand chatbots. Future research should further develop and confirm these initial findings, as the study was based on only a few cases.

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## Figure(Image) references

Figure 2.

(Left): [Finnair's chatbot on Facebook Messenger]. Retrieved from <https://www.facebook.com/messages/t/finnairsuomi> on 5th of July 2019

(Right) : [Lego's chatbot on Facebook Messenger]. Retrieved from <https://www.facebook.com/messages/t/LEGO> on 5th of July 2019



