

Interaction effects between the anthropomorphic chatbot characteristics on the customer experience: appearance, language style, and emoji-use



Master Thesis
MSc. Communication Science

Liss Jenneboer

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First supervisor: Dr. Joyce Karreman

Second supervisor: Dr. A. Beldad

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Student: Liss Jenneboer
Student Number: s2631857
E-mail: l.jenneboer@student.utwente.nl

University: University of Twente
Faculty: Behavioral Management of Social Sciences (BMS)
Master: Communication Science (COM)

First supervisor: Dr. J. Karreman
Second supervisor: Dr. A. Beldad

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Abstract

Background. Technology constantly challenges companies by online competition to attract and retain customers. Nowadays, customers do not want to lose any time and want to reach a company anytime and anywhere, regardless of time, location, and channel. More and more companies have implemented chatbots on their websites to support their visitors all day. Previous studies showed that (chatbots with) the human-like characteristics (1) appearance, (2) language style, and (3) emoji-use individually influence the customer experience. Since many organizations support their customer service with chatbots, examining how the customer experience can be improved is essential.

Research goal. This study aimed to investigate to what extent the three characteristics interact in affecting the usability, information quality, social presence, and trust in the chatbot. In addition, this research answers to what extent these human-like characteristics influence the customer experience.

Method. A (2x2x2) experimental between-subject research design was conducted, in which each participant was randomly assigned to one of eight versions of the chatbot. During the experiment, the participants had to interact with the chatbot based on a pre-determined scenario. After the interaction with the chatbot, the participants filled in a questionnaire. The participants were recruited via snowball sampling (N=208).

Results. The study results showed a significant effect of human-like language style on customer experience. Moreover, both language style and emoji-use individually significantly affect perceived social presence. A congruency effect was found between a human-like appearance and a human-like language style on usability and information quality. Besides, this study found an interaction effect between human-like appearance and human-like language style on the perceived social presence.

Conclusion. The language style of the chatbot plays an essential role in customer experience. Besides, the combination of a human-like appearance and a human-like language style positively influences usability, information quality, and social presence. Previous studies showed that individuals prefer chatbots that look and behave like humans. However, not all anthropomorphic chatbots within this study had a positive effect on usability, information quality, social presence, trust, and the customer experience. Ultimately, it seems that users can positively use chatbots if they are efficient and problem-solving. Based on these findings, companies with chatbots should focus on efficiency and effectiveness and that the chatbot answers the question correctly.

Keywords. human-like chatbots, anthropomorphism, customer experience, usability, social presence, trust

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1. Introduction

While in the past, companies could only reach their local customers through face-to-face contact or newspapers, technology made it possible that companies are able to have online contact with their customers all day long. However, technology constantly challenges companies by online competition to attract and retain customers as well. Online competition continues to grow, and the growing offers have made consumers more critical and pickier (Suwono & Sihombing, 2016). Therefore, companies prioritize being online anytime and anywhere to respond to the online competition and keep in touch with their customers to provide them with a satisfying online service and experience (Maroengsit et al., 2019).

Online communication is an essential factor in improving the customer experience. A personal approach in digital customer contact is essential for customer retention (McLean & Wilson, 2016). Nowadays, customers do not want to lose any time and want to reach a company anytime and anywhere, regardless of time, location, and channel. An instrument to respond to digitization that could positively affect the customer experience is the use of chatbots (Brandtzaeg & Følstad, 2017).

A chatbot is a computer system that conducts a conversation via auditory or textual methods (Dahiya, 2017). Multiple studies argued that when customers can make use of a chatbot during their online visit, it results in a better customer experience (Følstad & Skjuve, 2019; Hoyer et al., 2020; Yen & Chiang, 2020). However, various types of chatbots exist – for instance, human-like or robotic – which could lead to different outcomes.

Anthropomorphism is the attribution of human traits, emotions, or intentions to a non-human being, such as a chatbot (Yen & Chiang, 2020). Gnewuch et al. (2018) concluded that chatbots including human-like characteristics (for instance, through the form of the chatbot and the conversation style) lead to a better customer experience than chatbots without human-like characteristics (non-anthropomorphic chatbots). The reason is that the conversation feels more natural and human-like for the user, which increases the trust in the chatbot and the perceived social presence of the chatbot.

There exist many studies about chatbots and the effects of human-like characteristics. Based on the found literature, the characteristics of chatbots: (1) human-like appearance, (2) human-like language style, and (3) the use of emojis are seen as essential characteristics for human-like chatbots, which leads to a better customer experience (Araujo, 2018).

An essential factor is (1) the appearance of the chatbot. Providing the chatbot with a human-like name and image enhances the human-like appearance and promotes the anthropomorphism of the chatbot and could make users feel like they are having a conversation with a human agent (Følstad et al., 2018; Gnewuch et al., 2018). In addition, Sheehan et al. (2020) described that chatbots with a human-like appearance (name and image) create trust and meet the social needs of the customer, which play an essential factor in increasing the customer experience.

By making (2) the language style of the chatbot more natural and personal, the chatbot is perceived as more human-like. Therefore, the language style of a chatbot needs to be adapted into a more natural conversation between ‘humans’, which positively influences the customer experience (Araujo, 2018; Elsholz et al., 2019; Rese et al., 2020).

Nowadays, (3) emojis are widely used in individuals' daily text messages. Emojis are digital images that express emotions and ideas (Beattie et al., 2020). Previous studies suggested that chatbots that use emojis are perceived as more human-like and enrich the conversation experience for the customers because the emojis create a more natural and cozier feeling during the conversation (Beattie et al., 2020; Liu et al., 2018).

Chatbots aim to serve, among others, as service agents to provide the customer with an excellent online experience, which is the focus of this study. However, while there is substantial prior knowledge of the effect of the human-like characteristics individually and that chatbots can improve the customer experience, there is not much literature about how these characteristics interact to increase the (online) customer experience.

Technological changes are accelerating, as are the chatbot market (Gartner, 2018) and customer expectations (Suwono & Sihombing, 2016). This study was designed to determine whether combining the human-like features improves the customer experience. It is possible that the congruence of the characteristics – the chatbot consist of all human-like characteristics or none of

them – foster each other and gives the chatbot users a more comfortable feeling than incongruence of the characteristics. In turn, this may be positively related to a higher customer experience (Egner, 2007). Studying the interaction effect between human characteristics was relevant, as it added new information to the current literature on the effect on customer experience when different human-like characteristics are added or combined to chatbots. It was relevant to investigate to what extent specific chatbot characteristics impact the evolving customer experience – whereby customers have higher expectations than ever – and whether it is beneficial to combine several human-like characteristics. The outcome of this study gives both science and companies more insight into the role of varied levels of chatbot anthropomorphism in improving the customer experience. As customer expectations continue to grow, this study sought to answer how human-like chatbots can meet these customer expectations. Based on the results of this study, companies have a better understanding of how anthropomorphic chatbots and how the human-like characteristics of these chatbots affect (their) customer experience. Companies can provide their customers with a better experience by implementing those human-like characteristics into their chatbots.

This study aimed to provide insight into the role of human characteristics in chatbots by improving customer experience (in the context of an online shop). This study attempted to answer the following research questions:

RQ 1: "To what extent do the human-like chatbot characteristics appearance, language style, and the use of emojis individually increase the customer experience?"

The second research question is about the interaction effect between the human-like characteristics. This study aimed to find out to what extent the human-like characteristics interact with each other in increasing the customer experience, which led to the following research question:

RQ 2: "To what extent do the human-like chatbot characteristics appearance, language style, and the use of emojis interact with each other in increasing the customer experience?"

2. Theoretical framework

2.1. Customer experience

Customer experience has been playing a vital role in customer service in the past decades and has evolved over time (McColl-Kennedy et al., 2015). Customer experience refers to a customer's experience with a specific organization during the customer journey. Those experiences consist of all contact moments a customer has had with that organization, both directly and indirectly (McColl-Kennedy et al., 2015). Direct contact generally occurs during the purchase, use, and service phases. Indirect contact is obtained mainly through an unplanned exposure of an organization, such as (word-of-mouth) advertising, reviews, news articles, and comparable representations (Meyer & Schwager, 2007).

While customer experience in earlier times mainly occurred in-store and face-to-face, the internet has become a fundamental channel and an essential source for both organizations and customers to communicate with each other (McLean & Wilson, 2016). The shift to the internet has made it possible for customers to contact an organization online, and at the same time, organizations can provide online support (Hagberg et al., 2017).

Due to digital developments and growing competition, companies are constantly being challenged to attract and retain customers (McLean & Wilson, 2016). The 'new customer in 2022' wants to spend less and less time and therefore expects to reach a company anytime and anywhere, regardless of time, location, and channel (Suwono & Sihombing, 2016). Moreover, due to these technological developments and the increasing competition, today's customers have higher service expectations (McLean & Wilson, 2016). According to Siswi and Wahyono (2020), meeting customer expectations leads to customer satisfaction. Therefore, companies should optimize the customer experience. Companies can optimize the customer experience by implementing a chatbot. By optimizing the customer experience, customer expectations can be exceeded, leading to customer loyalty (Siswi & Wahyono, 2020). Sequentially, loyal customers generate more profit (Innis & La Londe, 1994).

2.2. Chatbots in customer service

According to a study by Trivedi (2019), a well-implemented Information Technology system – for instance, a chatbot – complies with three dimensions: system quality, information quality, and service quality. (1) System quality measures the technical success of the chatbot. (2) Information quality is about supporting a customer with accurate, relevant, and valuable information at the right moment. Lastly, (3) service quality is about customer's comparison of service expectations in comparison to the delivered service (Trivedi, 2019). Besides, the perceived social presence and trust of a chatbot are essential.

2.2.1. System quality

Trivedi (2019) claimed that individuals use Information Technology systems, such as chatbots to perform tasks effectively and efficiently. System quality is about the technical functioning of a chatbot and consists of five dimensions: response time, reliability, adaptability, usability, and availability to measure the technical success of the chatbot (Trivedi, 2019). Response time is about the time the chatbot takes to respond to the input and process the output. As system quality measures the technical success of the chatbot, availability and reliable information at the right place and time are essential to comply with the customer expectations. Individuals need to have the feeling that the chatbot could provide the expected service. Without that perception, individuals may not adopt the chatbot. Besides, consumers prefer to talk to someone perceived as genuine because they are experienced as reliable and available to help with any questions and/or problems.

The adaptability of a chatbot means that the developers of the chatbots need to keep their systems up-to-date and need to adapt to necessary developments in the environment. Usability is about the ease of use of the chatbot and describes how easily users can use a product and the degree to which the chatbot can be used without much effort. Ba and Johansson (2008) and Van Der Goot and Pilgrim (2020) declared that a website's ease of use increases customer experience. At the same time, when individuals perceive the use of a chatbot as complex, the consumer experience is affected more negatively. Lastly, Ashfaq and colleagues (2020) declared that chatbots make it easier to have contact

for both the customers and organizations because of their availability. In general, a high perceived system quality is related to a high customer experience (Trivedi, 2019).

2.2.2. Information quality

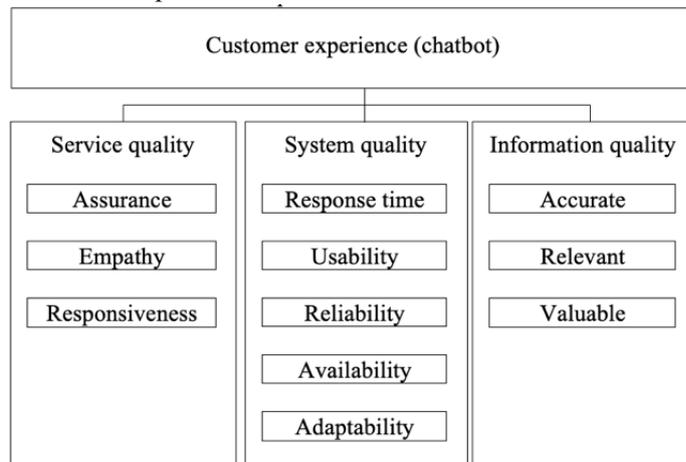
Information quality measures the semantic success of the chatbot. The quality of the information sent by the chatbot during the conversation is critical: the information needs to be relevant, of value, and accurate. If the given information is not as expected, it is not of relevance or value for the recipient (Trivedi, 2019). Moreover, if a chatbot does not understand the customers' needs and provides the wrong information, the accuracy fails, giving a bad customer experience (Xu et al., 2017). Contrastingly, other studies found out that a response that is not accurate enough – in terms of not directly the answer that was expected – is not directly linked to a bad experience if the customer is helped at the end of the conversation (Akhtar et al., 2019; Følstad and Skjuve. 2019). However, companies want to deliver a good experience. Therefore, it is essential to provide the user with relevant information that is accurate and of value, as a high perceived information quality relates to a high customer experience (Trivedi, 2019).

2.2.3. Service quality

Service quality is the customer's comparison of service expectations related to the service provided. Its dimensions include assurance, responsiveness, and empathy (Trivedi, 2019). Assurance refers to professional problem-solving and communication skills when helping customers with their issues. Responsiveness is related to the quick provision of services to the customer, and lastly, empathy is all about understanding the customer's needs. Service quality impacts an organization's performance, as a high perceived service quality relates to a high customer experience (Trivedi, 2019).

Figure 1

Customer experience and its dimensions



Service quality, system quality, and information quality together form the total quality, which determines the success of the Information System. Van Vuuren et al. (2012) stated a significant relationship between the total perceived quality and the – increasing – customer experience. Overall, if a chatbot works and is easy to work with (system quality), is accurate and provides correct information (information quality), and finally offers good service (service quality), it contributes to improving the customer experience. Figure 1 visualizes the qualities.

2.2.4. Social presence

Social presence is defined as the degree of salience of the other person in the interaction and related to the level to which a person or system is perceived as real and present in the conversation (Araujo, 2018). The perceived social presence is essential for users to experience a chatbot as human-like. For instance, the social presence attributed to chatbots is positively related to trusting the website's information. Besides, the perceived social presence positively affects consumers' satisfaction about the delivered service and the intent to use a chatbot. Anthropomorphic chatbots can behave like human agents, positively affecting the perceived social presence (Araujo, 2018). According to Liebrecht et al. (2021), an anthropomorphic chatbot is positively related to a higher perceived social presence which influences the customer experience.

2.2.5. *Trust*

Trust is essential since users set social expectations on information systems but, at the same time, do not want to share too much personal information. Trust can be defined in multiple ways. This study explicitly focused on the trust in the chatbot itself, whereby trust in a brand or company was not included. Within this study, trust is defined as the credibility and confidence users have in chatbots.

Kuberkar and Singhal (2020) examined that trust influences the adoption intent to use chatbots, meaning that consumers only want to use information systems if they perceive them as reliable. The same study found that anthropomorphism is essential for chatbot intent, as a higher perceived level of anthropomorphism is related to trust, and trust to the intent to use. Moreover, Laban and Araujo (2020) found that customers value personal interaction and a human approach. By anthropomorphizing the chatbot, the conversation feels more natural and human-to-human to the user, increasing trust in the chatbot itself (Liebrecht et al., 2021). This is in line with a study by Følstad and colleagues (2018). They concluded that the human-like visualization and communication style, which are part of anthropomorphism, influence the level of trust. However, the service context in which the chatbot is situated is essential because a different type of chatbot can be experienced as pleasant in every context. Stating this, the type of chatbot must be congruent with the type of organization or context, otherwise the chatbot user may feel uncomfortable. Overall, consumers prefer to talk to someone considered genuine because they are then perceived as reliable and trustworthy, affecting the customer experience (Araujo, 2018; Morana et al., 2020; Sheehan et al., 2020).

2.3. Anthropomorphic chatbots

A chatbot that feels human-like and natural is key to giving the customer a good experience (Van Der Goot et al., 2021). That is in line with a study by Araujo (2018) that showed that human-like factors such as the appearance of the chatbot and its language style are essential in increasing the customer experience. Furthermore, Beattie and colleagues (2020) showed that emojis increase human likeness because individuals perceive chatbots with emojis as more natural and socially appealing. To understand why and how human-like chatbots can play a valuable role in increasing the customer experience, above mentioned three human-like characteristics are further elaborated.

2.3.1. Appearance

Appearance is seen as an essential characteristic of a human-like chatbot. Therefore, a chatbot with a human-like appearance is expected to impact the level of anthropomorphism, which affects the perceived qualities, social presence, trust, and customer experience positively. A human-like chatbot conveys human behavior and appearance (Følstad et al., 2018; Yen & Chiang, 2020). For example, providing the chatbot with a human-like name and image enhances the human-like appearance (Følstad et al., 2018; Sheehan et al., 2020), which may strengthen the technical success of the chatbot as well (system quality). It promotes the human likeness of the chatbot, making users feel like they are having a conversation from a human-to-human perspective. Therefore, it is expected that chatbot users experience the information of a human-like chatbot as more accurate and relevant than a non-anthropomorphic chatbot (information quality). Chatbots with a human-like appearance create a higher level of anthropomorphism, creating a higher level of trust and perceived social presence. To enhance the customer experience, it is essential to meet customers' needs. Since empathy is all about understanding the customers' needs, it is expected that when consumers feel assisted and more understood by a human-like agent because of the chatbot's human-like appearance, it positively affects the perceived service quality. Developing a human-like chatbot includes enhancing attractiveness and credibility in appearance, which instills trust and increases social presence (Sheehan et al., 2020).

H1: Chatbots with a human-like appearance implemented have a more positive effect on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience than chatbots without.

2.3.2. Language style

To what extent is the chatbot's language style (more human-like or robotic) essential for the customer experience? Akthar et al. (2018) stated that human likeness and language do not matter as long as the chatbot provides real-time support to users. While Akthar and colleagues concluded that language has no significant effect on customer experience, several other studies show that language style influences the level of anthropomorphism and is essential in improving customer experience (Elsholz et al., 2018;

Laban & Araujo, 2020; Liebrecht et al., 2021). By making the chatbot's language style more natural and personal, the chatbot is perceived as more human-like (Araujo, 2018). Liebrecht and Van Hooijdonk (2020) found that chatbots with a human-like language style have a more positive effect on the company's customer experience than chatbots without a human-like language style.

As mentioned earlier, consumers prefer to have a genuine conversation with someone because they are then experienced as reliable. A chatbot that uses a more natural and personal language style impacts the level of anthropomorphism. It is expected that a human-like language style positively influences the quality of the conversation and that, because of this, the users experience a higher level of technological success (system quality). Even if the received information contains the same content (information quality), it can be perceived of different quality due to the language style of the chatbot. The human-like language style consists of empathy and communication skills. By helping the customers out and by meeting the customers' expectations, it is expected that a human-like language style has a positive effect on the perceived service quality. Overall, it is assumed that altering the language style of the chatbot to reach a higher level of anthropomorphism positively affects the customer experience.

H2: Chatbots that use a human-like language style have a greater positive effect on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience than chatbots without.

2.3.3. Emojis

Duncan (1969) claimed that non-verbal messages are essential for interpersonal processes such as conveying and interpreting feelings and attitudes. Emojis are non-verbal communication in a digital conversation or message (Beattie et al., 2020) and can be used to express varying degrees of emotions (Cameron et al., 2017). Coyle and colleagues (2019) argued that emoji-use during digital conversations positively affects an individual's responsiveness and mood during a conversation (in the context of customer service of an online shop). This finding is in line with Ganster and colleagues' (2012) study, who concluded that individuals who received emojis in the messages significantly

improved emotional states compared to those who received messages without emojis. Because research suggests emojis facilitate higher degrees of non-verbal effect and immediacy and can improve receivers' moods, emoji-use should positively impact people's perceptions of the chatbot (Beattie et al., 2020). The conversation then feels more natural, which impacts the level of anthropomorphism. Previous studies stated that chatbots that use emojis impact the level of anthropomorphism and enrich the conversation experience for the customer (Beattie et al., 2020; Liu et al., 2018).

Beattie and colleagues have shown that emojis enable higher levels of non-verbal emotional effect, and individuals perceive chatbots with emoji as more socially appealing. The same study found that emoji-sending chatbots are perceived as more competent and credible than those without emojis. When individuals feel that emoji-sending chatbots are trying to contextualize, clarify and orient their messages towards the recipient, the chatbot appears more competent and humane (Beattie et al., 2020).

As mentioned, reliable information at the right place and time is essential to comply with the customers' expectations. Since it is expected that emojis positively influence the quality of the conversation, it is expected that the users experience a higher level of technological success (system quality). Even though the given information stays the same, emoji-use might give the information a higher perceived quality since studies showed that the emoji-sending chatbot was perceived as more natural and human-like than chatbots without emoji-use. Service quality is about helping the customer in the best possible way. Responsiveness is related to the quick provision of services to the customer, and empathy is all about understanding the customers' needs. Emoji-use leads to a higher level of anthropomorphism, affecting the perceived service quality. Because emoji-sending chatbots positively affect the human likeness of the chatbot (Beattie et al., 2020; Liu et al., 2018), these chatbots positively affect the higher perceived social presence and trusting beliefs (Araujo, 2018; Liebrecht et al., 2021; Morana et al., 2020).

Based on the found literature, this study expected that chatbots that apply emojis have a positive relationship with the mentioned qualities, social presence, trust, and customer experience.

H3: Chatbots that include emojis in their text messages have a greater positive effect on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience than chatbots without.

2.3.4. The interaction between human-like appearance, language style & the use of emojis

This study aimed to find out how human-like chatbots could increase the customer experience. As mentioned before, anthropomorphism is key in increasing the perceived social presence due to the attribution of human elements to the – chatting – robots (Araujo, 2018; Liebrecht et al., 2021). When the level of anthropomorphism is high, customers can feel connected with the chatbot, leading to a more extraordinary customer experience (Liebrecht et al., 2021). Research has shown that human-like appearance, language style, and the use of emojis individually give the chatbots a human touch, which positively affect the customer experience.

Since literature showed that implementing one of the human-like characteristics influences the customer experience, it might be that the congruence of the characteristics could bring the user of the chatbot even more satisfaction, and incongruence brings less satisfaction (Egner, 2007). For instance, when the human-like appearance, human-like language style and the emoji-use are all implemented in the chatbot, the chatbot user might experience a feeling of congruence because these characteristics are all human-like and therefore interrelated. In addition, a feeling of incongruity can cause an unpleasant feeling because the chatbot partly wants to appear anthropomorphic and partly not. This feeling of inconsistency might result in a less pleasant customer experience (Tsai et al., 2015). However, there is not much literature about whether combining these factors could affect each other in enlarging the customer experience. It is expected that combining the human-like characteristics interact in enhancing the customer experience. Therefore, the interaction effect between the characteristics will be measured.

H4: Human-like appearance and human-like language style interact with each other on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience.

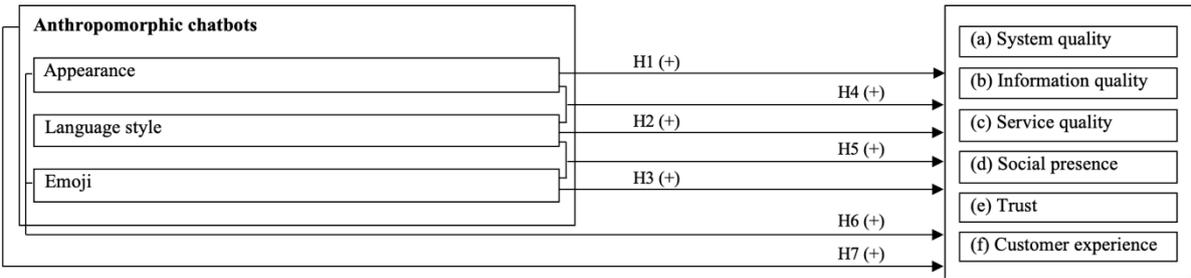
H5: Human-like language style and the use of emoji interact with each other on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience.

H6: Human-like appearance and the use of emoji interact with each other on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience.

Previous studies mentioned the positive effects of anthropomorphism on the customer experience. Therefore, based on the found literature, it is assumed that human-like appearance, language style, and the use of emoji interact with each other on the mentioned qualities, social presence, trust, and customer experience. On the next page, the conceptual model is shown (Figure 2).

H7: Human-like appearance, human-like language, and emoji-use interact with each other on (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) the customer experience.

Figure 2
Conceptual model



3. Research method and Design

3.1. Research Design

This study aimed to investigate to what extent human-like characteristics affect each other in increasing the customer experience. The three human-like characteristics, appearance, language style, and the use of emojis, are seen as crucial factors for conducting a human-like chatbot with a high perceived social presence and trust. To find out to what extent the human-like features interact to enhance the customer experience, a (2x2x2) experimental research design was conducted with eight different versions of a chatbot. This study used a between-subjects design, wherein each participant who took part in the survey was randomly provided with one of the eight different experimental conditions and conversed with it (Allen, 2017). After the interaction with the chatbot, the participants were asked to complete a survey about their perceptions of the chatbot and its interaction.

The eight versions of the chatbot were designed to interact with the participants using a (1) human-like appearance (named Emma and a picture) versus a non-human-like appearance (no name and no picture), (2) a human-like language style versus a non-human-like language style, and (3) using emojis versus not using emojis (Figure 3). The different chatbot versions are shown in Table 1.

Table 1

Different versions of the chatbot

Chatbots	<i>Appearance</i>	<i>Language style</i>	<i>Emoji</i>
Chatbot 1	Yes	No	No
Chatbot 2	Yes	No	Yes
Chatbot 3	Yes	Yes	No
Chatbot 4	Yes	Yes	Yes
Chatbot 5	No	Yes	No
Chatbot 6	No	Yes	Yes
Chatbot 7	No	No	Yes
Chatbot 8	No	No	No

3.2. Research Materials

Before collecting the data, a pre-test was done by six participants. During the pre-test, the participants had a conversation with two versions of the chatbot, namely Chatbot 4 and Chatbot 8. Chatbot 4 contained all human-like characteristics, and Chatbot 8 none. Three of the participants spoke first with Chatbot 4, and the other participants started with Chatbot 8. The pre-test was intended to gain insight into whether the human-like properties implemented in the chatbot are perceived as intended (Fonteyn et al., 1993). The participants were not informed about the three human-like characteristics, which means that they were not told where to focus on during the conversation. This also means that the level of anthropomorphism was measured in general. During the thinking-aloud, participants were asked to speak aloud about what they were thinking about the conversation with the chatbot. All six participants indicated that Chatbot 4 was much more human than Chatbot 8, which was experienced as more pleasant by all participants as well.

Figure 3

Human-like Chatbot 4 (left) versus robotic Chatbot 8 (right)

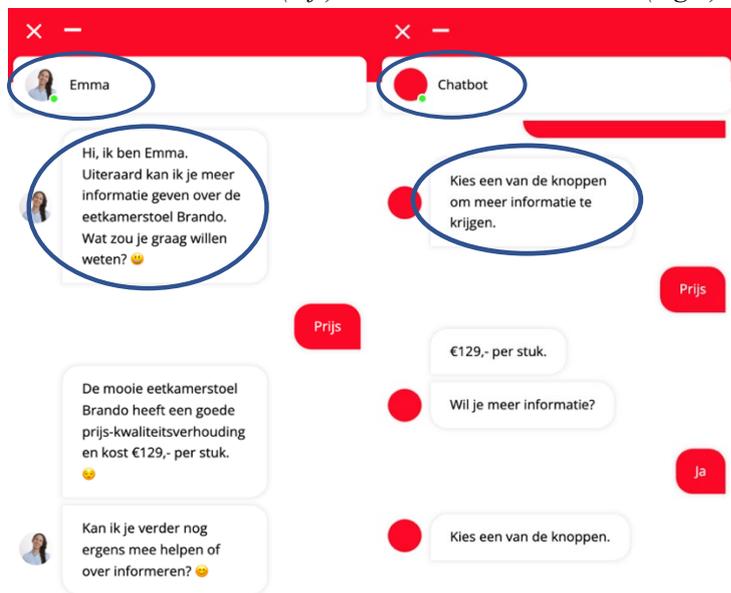


Figure 3 shows the differences between Chatbot 4 and Chatbot 8. Whereas the chatbot on the left (Chatbot 4) is named Emma and shows an image (appearance), the chatbot on the right shows no image and name. Besides, Chatbot 4 uses a more natural and human-like language style, while Chatbot 8 uses a more robotic language. Lastly, Chatbot 4 uses emojis during the conversation, while Chatbot

8 does not use emojis. The participants were instructed to start the conversation with: “Hi, I would like to get more information about the dining chairs Brando”. Chatbot 4 answers as follows: “Hi, my name is Emma. Of course, I can give you more information about dining room chair Brando. What would you like to know? 😊”, whereas Chatbot 8 responds: “Choose one of the buttons to get more information”. During the conversation shown in Figure 3, the respondent wants to know more about the Price. Chatbot 4 answers with: “The beautiful dining room chair Brando does have a good the beautiful Brando dining room chair has a good price-quality ratio and costs €129 each. 😊 Is there anything else I can help or inform you about? 😊”. Chatbot 8 replies with: “€129,- each. Choose one of the buttons to get more information.”

3.3. Procedure

After the pre-test, an online survey via Qualtrics was conducted to measure the influence of human-like characteristics. To ensure that research provides benefits and minimizes the risk of harm, it must be conducted ethically. Therefore, an ethics review proposal consistent with the ethical standards is sent to the BMS Ethics Committee for approval. After the pre-test was conducted and the survey was ethically approved, invitations to participate were sent. The aim was to use the non-probability sampling method, namely convenience sampling. (Sedgwick, 2013). Additionally, the snowball sampling method was used to spread the survey (Goodmann, 1951). Dutch respondents mainly completed the questionnaire, and therefore, the English statements were translated to the Dutch language. To ensure that the Dutch-translated statements meant exactly the same as the original English statements, back-translation was used. Back translation, also called reverse translation, is the process of re-translating content from the target language back to its source language in literal terms.

Before starting the interaction with the chatbots, the participants read a set of instructions indicating the task they needed to complete, including reading a scenario. The participants first had a conversation with one of the eight different versions of the chatbot. Each of the chatbot versions had the same scenario attached: 'You search the internet for new dining room chairs, and your eye falls on

dining chair Brando. You would like more information about this dining room chair. You are curious about the price, the available colors, the delivery time, and availability’.

Based on the scenario, the participants asked the chatbot for information about the price, different colors, delivery time, and availability of the chair. Because participants were randomly assigned to one of eight different versions of the chatbot, one version may provide a different customer experience than the other. After the conversation with the chatbot, the participants were asked to fill in a questionnaire about their customer experience with the chatbot they had spoken to (Table 3). The conversations with the eight different versions of the chatbot are included in Appendix A.

3.4. Respondents

The data was collected in two weeks, from the 30th of November 2021 until the 12th of December 2021. In total, 328 individuals initially started with the experiment, and 208 finished it. During the experiment, participants have had a conversation with one of the eight different versions of the chatbot (Table 1), whereby the participants' experience with the chatbot is measured. The participants were between 16 and 87 years old ($M_{age} = 26.75$, $SD = 12.14$). The ANOVA-test indicated no significant difference between the groups ($F = (2, 200) = 1.44$, $p = .193$). Additionally, 35.1% of the participants were men, and 64.9% were women. A Chi-square test was conducted ($Pearson\ Chi-Square = 13.227^a$, $df = 14$, $p = .311$ (one-tailed)), where no significant difference between the groups was found.

Table 2

<i>Sample characteristics</i>	<i>N</i>	<i>Age</i>			<i>Gender</i>	
		<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>Man</i>	<i>Woman</i>
Demographics						
Chatbot 1: appearance	25	16	60	29.96	40.0% (10)	60.0% (15)
Chatbot 2: appearance, emoji-use	30	16	64	27.03	50.0% (15)	50.0% (15)
Chatbot 3: appearance, language style	27	17	56	25.59	29.6% (8)	70.4% (19)
Chatbot 4: appearance, language style, emoji-use	25	16	56	25.28	32.0% (8)	68.0% (17)
Chatbot 5: language style	26	18	63	29.64	30.8% (8)	69.2% (18)
Chatbot 6: language style, emoji-use	25	16	87	30.72	36.0% (9)	64.0% (16)
Chatbot 7: emoji-use	25	16	28	21.56	32.0% (8)	68.0% (17)
Chatbot 8: no human-like characteristics	25	16	63	24.24	28.0% (7)	72.0% (18)
Total	208	16	87	26.75	35.1% (73)	64.9% (135)

3.5. Measurements

3.5.1. Survey statements

The survey contained statements that could be answered on a five-point-Likert scale (Arnold et al., 1967). The scale varied from: (1) Strongly disagree, (2) Disagree, (3) Neither agree nor disagree, (4) Agree, and (5) Strongly Agree. The survey consisted of five elements to measure the customer experience while using the chatbot: (1) system quality, (2) information quality, (3) service quality, (4) trust, (5) social presence, and (6) customer experience. The first three constructs were measured with an instrument previously used and developed by Trivedi (2019) and the construct 'customer experience.' The constructs 'trust' and 'social presence' were developed by Toader and colleagues (2019). Two demographical questions about the participant's age and gender were added. The survey consisted of 28 statements in total. Table 2 shows the statements.

Table 3

Overview survey statements

<i>Constructs</i>	<i>N of items</i>	<i>Items</i>
System quality	5	<ul style="list-style-type: none"> ○ I find it easy to become skillful at using the chatbot. ○ I believe that chatbot was easy to use. ○ Using the chatbot requires minimal mental effort ○ The chatbot was quite quick in response. ○ The chatbot was reliable.
Information quality	5	<ul style="list-style-type: none"> ○ The chatbot provided me with the necessary information. ○ The chatbot provided responses to queries as I expected. ○ The chatbot provided sufficient information. ○ I am satisfied with the accuracy of the information provided by the chatbot. ○ The information provided by the chatbot is helpful regarding my questions or problems.
Service quality	3	<ul style="list-style-type: none"> ○ I am satisfied with the customer support provided by offering this chatbot service. ○ The chatbot understood my questions or problems. ○ The chatbot responded to my requests fast enough.
Trust	4	<ul style="list-style-type: none"> ○ The chatbot seemed sincere during our interaction. ○ I felt that the chatbot was honest in our interaction. ○ I believe the chatbot was truthful when conversing with me. ○ I believe that the chatbot was credible during our conversation.
Social presence	4	<ul style="list-style-type: none"> ○ I felt a sense of human contact when interacting with the chatbot. ○ Even though I could not see the agent in real life, there was a sense of human warmth. ○ When interacting with the chatbot, there was a sense of sociability. ○ I felt there was a person who was a help to me.
Customer experience	4	<ul style="list-style-type: none"> ○ I enjoyed using the chatbot. ○ The experience of using the chatbot was interesting. ○ I am happy with the experience of using the chatbot. ○ I would rate my experience with the chatbot with the figure ... (0-10)
Manipulation check	3	<ul style="list-style-type: none"> ○ A photo and name were shown at the chatbot. ○ The language used by the chatbot was (on a scale of 1-5): 1. Human-like - 5. Machine-like ○ The chatbot used emojis.

3.5.2. Validity and reliability

A factor analysis was performed to test whether the statements measure the correct construct and to test the correlation between the statements and the constructs. Correlation coefficients whose magnitude is about 0.5 can be considered moderately correlated (Boeijs, 2010). A minimum magnitude of 0.5 was set in the factor analysis to ensure construct validity in this study. All statements with a magnitude less than 0.5 have been removed. Two of the statements – CX3 and SERQ1 - did not correlate with the components after the first analysis. Besides, two other statements – SYSQ4 and SERQ3 – have been excluded since these statements formed a component together about the speed of the chatbot service, which is not further investigated in this study. Lastly, CX4 – the statement wherein respondents had to rate the conversation – was excluded in this analysis because it concerns a different scale and was therefore analyzed individually. The final factor analysis consists of 20 statements and is visualized in Table 4.

The final factor analysis shows five different constructs. The first construct includes all the statements of information quality and one statement of service quality. The statement of service quality – SERQ2 – fits in this construct. All the statements in the construct are about the understanding of questions and problems. Another statement that switched constructs is SYSQ5, which is about the reliability of the chatbot. This change of constructs can make sense because the statements of trust are also about the trustworthiness of the chatbot. During the study, these five constructs were used.

The Cronbach's alpha of each construct was calculated through a reliability analysis to test whether the measurement is reliable and consistent in producing comparable kinds of results under similar conditions. In this study, a construct is reliable if the alpha level (α) is above .70. As shown in Table 4, all constructs had a Cronbach's alpha greater than .70 – except Customer experience – and therefore, it may be considered reliable. The Cronbach's alpha of the construct Customer experience is below the required Cronbach's alpha of .70 and is therefore further excluded during this study. The deleted statements analyses are shown in Appendix B.

Table 4

	Constructs				
	(1) Information quality	(2) Social presence	(3) Trust	(4) Usability	(5) Customer experience
INFQ5 - The information provided by the chatbot is helpful regarding my questions or problems.	.828				
INFQ1 - The chatbot provided me with the necessary information.	.803				
INFQ2 - The chatbot provided responses to queries as I expected.	.696				
INFQ3 - The chatbot provided sufficient information	.678				
SERQ2 - The chatbot understood my questions or problems.	.651				
INFQ4 - I am satisfied with the accuracy of the information provided by the chatbot.	.634				
SP2 - Even though I could not see the agent in real life, there was a sense of human warmth.		.887			
SP1 - I felt a sense of human contact when interacting with the chatbot.		.850			
SP3 - When interacting with the chatbot, there was a sense of sociability.		.842			
SP4 - I felt there was a person who was a help to me.		.755			
TRUST3 - I believe the chatbot was truthful when conversing with me.			.762		
TRUST4 - I believe that the chatbot was credible during our conversation.			.712		
TRUST2 - I felt that the chatbot was honest in our interaction.			.705		
TRUST1 - The chatbot seemed sincere during our interaction.			.695		
SYSQ5 - The chatbot was reliable.			.600		
SYSQ3 - Using the chatbot requires minimal mental effort.				.763	
SYSQ1 - I find it easy to become skillful at using the chatbot.				.761	
SYSQ2 - I believe that chatbot was easy to use.				.719	
CX1 - I enjoyed using the chatbot.					.901
CX2 - The experience of using the chatbot was interesting.					.514
Explained variance:	41.9%	11.6%	5.5%	4.6%	4.1%
Eigenvalue:	10.46	2.90	1.37	1.15	1.03
Cronbach's alpha:	.89	.90	.90	.75	.34

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

4. Results

4.1. Manipulation check

After the survey questions, the respondents performed a manipulation test to check whether participants from different conditions differed on the assumed independent variable. For instance, respondents could indicate whether they saw the chatbot's name and photo (appearance), whether the language was human or machine-like (language style) and whether the chatbot used emojis (emoji-use).

The respondents who indicated that no emojis or no human-like appearance were present when these human-like characteristics actually were present – and vice versa – were temporarily filtered out to test whether the outcome would be different. The participants that answered 'I don't know' were not filtered out. 16 out of the 208 respondents perceived the appearance of the chatbot as different than intended, and 21 of the participants indicated that the chatbot used emojis while this was not the case, or the other way around. A scale of 1 (human-like) to 5 (machine-like) was used for the language style. Participants who indicated that the chatbot had a 'human-like' language style (1) while the chatbot used a 'machine-like' language (5) were temporarily filtered out. The same applies to the respondents who indicated that the chatbot spoke machine-like (5) while speaking with a human language style (1). 17 of the participants indicated language style differently.

Some of these respondents misunderstood more than one of the characteristics. As a result, a total of 40 respondents were temporarily removed from the dataset. However, removing the data from respondents who did not correctly complete the manipulation check did not yield a different outcome and are therefore not excluded.

4.2. Multivariate variation analysis

A multivariate variation analysis (MANOVA) was conducted to analyze the results. Like the ANOVA, the MANOVA tests a difference in the mean of a dependent variable between different groups. The MANOVA tests the difference in means of several dependent variables simultaneously as

well. Each human-like characteristic is, individually and combined, tested with MANOVA. Table 5-Table 11 visualize an overview of the results.

4.2.1. Appearance

Wilks's Λ showed that there is no significant difference between the groups with human-like appearance implemented on INFQ, usability, social presence, and trust, $\Lambda = 0.99$, $F(4, 197) = .632$, $p = .640$. The univariate test showed that these groups do not differ on INFQ, $F(1, 200) = .414$, $p = .521$. The univariate test showed that the groups do not differ on usability, $F(1, 200) = 1.364$, $p = .244$. The groups do not differ on social presence as well, $F(1, 200) = .462$, $p = .497$. The same applies for trust $F(1, 200) = .012$, $p = .913$. This means that there is no significant effect of human-like appearance on information quality, usability, social presence, and trust (H1 unsupported).

Table 5

Descriptive statistics: human-like appearance

Appearance	Usability	Information quality	Social presence	Trust
No	4.38(.73)	4.31(.81)	2.72(1.14)	3.84(.81)
Yes	4.25(.80)	4.25(.80)	2.82(1.12)	3.85(.90)
Total	4.31(.77)	4.29(.77)	2.77(1.14)	3.84(.85)

4.2.2. Language style

Wilks's Λ showed that there is a significant difference between the groups with human-like language style implemented on usability, information quality, social presence, and trust, $\Lambda = 0.86$, $F(4, 197) = 8.185$, $p = < .001$. The univariate test showed that the groups do not differ on usability, $F(1, 200) = .006$, information quality, $F(1, 200) = 1.413$, $p = .236$, $p = .936$, and trust $F(1, 200) = 3.865$, $p = .051$.

However, the same test indicated that these groups do differ on social presence, $F(1, 200) = 31.308$, $p = < .001$, eta-squared = .135. This outcome means that there is a significant effect of human-like appearance on social presence. The combined mean differences of the different conditions on social presence when language style is implemented ($M_{language} = 3.17$, $SD = 1.12$) or not ($M_{nolanguage} = 2.36$, $SD = .95$) are statistically significant. This means that a human-like language style enhances the perceived social presence, supporting H2. The descriptive statistics are shown in Table 6.

Table 6*Descriptive statistics: human-like language style*

Language style	Usability	Information quality	Social presence	Trust
No	4.30(.73)	4.22(.75)	2.39 (1.01)	3.73(.84)
Yes	4.32(.82)	4.34(.79)	3.17(1.13)	3.96(.85)
Total	4.31(.77)	4.29(.77)	2.77(1.14)	3.84(.85)

4.2.3. Emoji-use

For emoji-use, Wilks's Λ showed a significant difference between the groups on usability, information quality, social presence, and trust, $\Lambda = 0.95$, $F(4, 197) = 2.868$, $p = .024$. The univariate test showed that the groups do not differ on usability, $F(1, 200) = .127$, $p = .722$, information quality, $F(1, 200) = 1.209$, $p = .273$, and trust, $F(1, 200) = .313$, $p = .576$.

However, the groups differ on social presence, $F(1, 200) = 8.565$, $p = .004$, eta-squared = .041. The combined means do statistically differ from each other when emoji-use is implemented ($M_{emoji} = 2.98$, $SD = 1.11$) or not ($M_{onlytext} = 2.57$, $SD = 1.13$). This means that an emoji-sending chatbot, in comparison to an only-text-sending chatbot, enhances the perceived social presence (H3c supported). Table 7 visualizes the mean scores and standard deviations.

Table 7*Descriptive statistics: emoji-use*

Emoji-use	Usability	Information quality	Social presence	Trust
No	4.30(.73)	4.22(.76)	2.57(1.13)	3.82(.85)
Yes	4.33(.75)	4.33(.78)	2.97(1.11)	3.87(.86)
Total	4.31(.77)	4.29(.77)	2.77(1.14)	3.84(.85)

4.2.4. Appearance and language style

For appearance and language style, Wilks's Λ showed that there is a significant difference between the groups on usability, information quality, social presence, and trust, $\Lambda = 0.92$, $F(4, 197) = 4.407$, $p = .002$. The univariate tests showed that these groups do differ on usability, $F(1, 200) = 4.029$, $p = .046$,

eta-squared = .020, information quality, $F(1, 200) = 5.850, p = .016$, eta-squared = .028, and social presence, $F(1, 200) = 4.768, p = .030$, eta-squared = .023. The groups do not significantly differ on trust, $F(1, 200) = 0.27, p = .697$. Based on these findings, there is a significant effect of appearance and language style on information quality, usability, and social presence. The results show that hypotheses H4a, H4b, and H4c are confirmed. The mean scores and standard deviations are shown in Table 8.

Table 8

Descriptive statistics: human-like appearance and human-like language style

Appearance	Language style	Usability	Information quality	Social presence	Trust
No	No	4.48(.59)	4.38(.61)	2.15(.93)	3.74(.71)
Yes	No	4.14(.81)	4.05(.83)	2.57(1.01)	3.71(.95)
No	Yes	4.27(.83)	4.25(.97)	3.28(1.03)	3.93(.89)
Yes	Yes	4.36(.79)	4.44(.56)	3.06(1.21)	3.99(.82)

There is a congruence effect of these independent variables on usability (H4a) and information quality (H4b), meaning that both independent variables must (not) be implemented in the chatbot to deliver higher perceived information quality and usability. Stating this, inconsistency in the level of anthropomorphism between the characteristics would bring a lower perceived usability, information quality, and social presence. There is an interaction effect of appearance and language style on social presence as well (H4c). However, the results showed that the level of human-like appearance is more dependent on language style ($M_{appearance*no\ language} = 2.57, SD = 1.01$) than the other way around ($M_{no\ appearance*language} = 3.28, SD = 1.03$). This means that language style is a more essential predictor within this combination than appearance. This statement is also in line with the previously shown outcomes whereby language style was positively related to social presence and appearance not. The mean differences of appearance and language style on the significant dependent variables are shown in Figures 6, 7, and 8.

Figure 6

Plot with mean differences appearance and language style on information quality

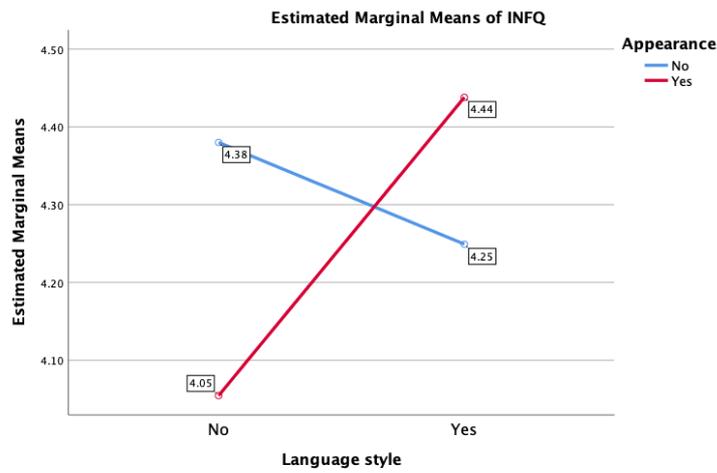


Figure 7

Plot with mean differences appearance and language style on usability

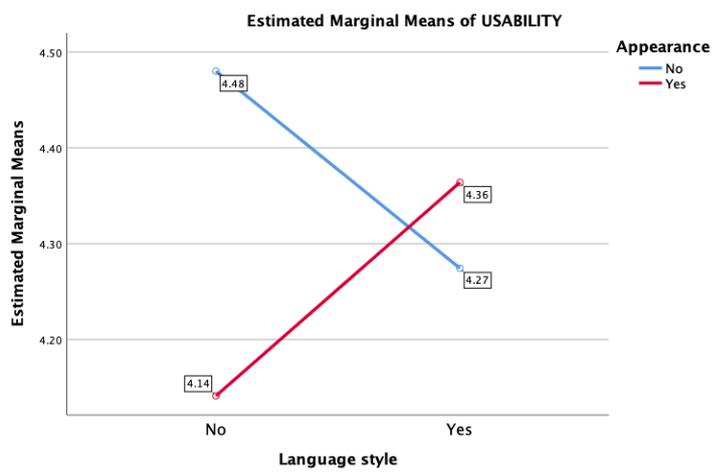
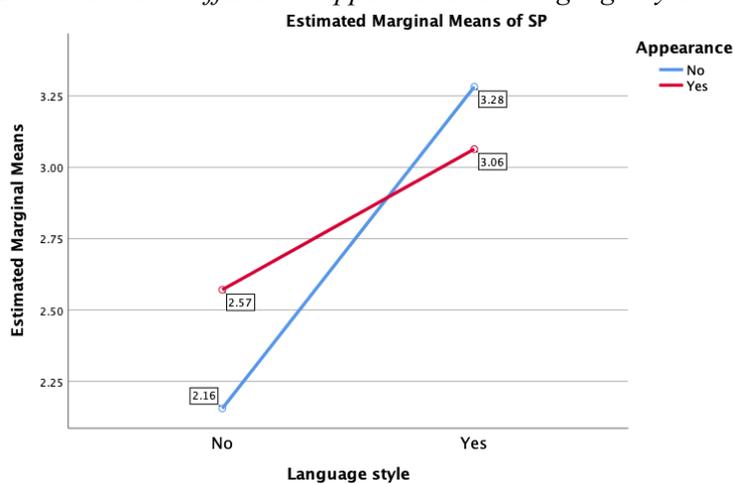


Figure 8

Plot with mean differences appearance and language style on social presence



4.2.5. Appearance and emoji-use

For the combination between appearance and emoji-use, Wilks's Λ showed that there is no significant difference between the groups on usability, information quality, social presence, and trust, $\Lambda = 0.97$, $F(4, 197) = 1.713$, $p = .148$. The univariate tests showed that these groups do not differ on usability, information quality, $F(1, 200) = .469$, $p = .494$, $F(1, 200) = .460$, $p = .498$, social presence $F(1, 200) = .000$, $p = .988$, and trust, $F(1, 200) = 1.203$, $p = .274$. This indicates that there is no significant interaction effect of emoji-use and human-like appearance on usability, information quality, social presence, and trust (H5 not confirmed). Table 9 shows the mean scores and standard deviations.

Table 9

Descriptive statistics: human-like appearance and emoji-use

Appearance	Emoji-use	Usability	Information quality	Social presence	Trust
No	No	4.39(.75)	4.29(.77)	2.55(1.15)	3.74(.81)
Yes	No	4.20(.82)	4.16(.75)	2.62(1.12)	3.89(.89)
No	Yes	4.36(.71)	4.33(.86)	2.93(1.10)	3.94(.90)
Yes	Yes	4.29(.79)	4.33(.71)	3.01(1.12)	3.81(.91)

4.2.6. Language style and emoji-use

For language style and emoji-use, Wilks's Λ showed that there is no significant difference between the groups on usability, information quality, social presence, and trust, $\Lambda = 0.99$, $F(4, 197) = .479$, $p = .751$. The univariate tests showed that these groups do not differ on usability, $F(1, 200) = .614$, $p = .434$, information quality, $F(1, 200) = .027$, $p = .869$, social presence, $F(1, 200) = .812$, $p = .369$, and trust, $F(1, 200) = .029$, $p = .865$. Overall, no significant interaction effects between language style and emoji-use on usability, information quality, social presence, and trust were found (H6 not supported).

Table 10*Descriptive statistics: human-like language style and emoji-use*

Language style	Emoji-use	Usability	Information quality	Social presence	Trust
No	No	4.33(.66)	4.15(.71)	2.09(.90)	3.68(.89)
Yes	No	4.26(.90)	4.30(.80)	3.02(1.14)	3.94(.81)
No	Yes	4.27(.79)	4.28(.78)	2.66(1.03)	3.76(.80)
Yes	Yes	4.28(.70)	4.39(.79)	3.32(1.10)	3.98(.90)

4.2.7. Appearance, language style, and emoji-use

Wilks's Λ showed no significant difference interaction effect between the groups on usability, information quality, social presence, and trust, $\Lambda = 0.99$, $F(4, 197) = .443$, $p = .777$. The univariate tests showed that these groups do not differ on usability, $F(1, 200) = .376$, $p = .545$, information quality, $F(1, 200) = .336$, $p = .563$, social presence, $F(1, 200) = .013$, $p = .911$, and trust, $F(1, 200) = .006$, $p = .940$. Based on these findings, there is no significant interaction effect of appearance, language style, and emoji-use on usability, information quality, social presence, and trust (H7 unsupported). Table 11 shows the mean scores and standard deviations of this interaction and Table 12 provides an overview of the significance per combination.

Table 11*Descriptive statistics: human-like appearance, human-like language style, and emoji-use*

Appearance	Language style	Emoji-use	Usability	Information quality	Social presence	Trust
No	No	No	4.51(.61)	4.38(.55)	1.87(.89)	3.64(.76)
No	Yes	No	4.28(.87)	4.21(.93)	3.14(1.04)	3.84(.86)
No	Yes	Yes	4.27(.81)	4.29(1.02)	3.42(1.02)	4.02(.93)
No	No	Yes	4.45(.58)	4.38(.68)	2.44(.97)	3.85(.66)
Yes	No	No	3.16(.68)	3.92(.78)	2.30(.88)	3.73(1.01)
Yes	No	Yes	4.12(.92)	4.19(.86)	2.84(1.06)	3.69(.92)
Yes	Yes	No	4.23(.95)	4.38(.78)	2.91(1.24)	4.04(.76)
Yes	Yes	Yes	4.49(.56)	4.49(.45)	3.22(1.19)	3.94(.90)

Table 12*Overview significance per combination*

	Dependent variable	Significant
Appearance	Information Quality	No
	Usability	No
	Social Presence	No
	Trust	No
Language style	Information Quality	No
	Usability	No
	Social Presence	Yes
	Trust	No
Emoji-use	Information Quality	No
	Usability	No
	Social Presence	Yes
	Trust	No
Appearance*Language style	Information Quality	Yes
	Usability	Yes
	Social Presence	Yes
	Trust	No
Appearance*Emoji-use	Information Quality	No
	Usability	No
	Social Presence	No
	Trust	No
Language style*Emoji-use	Information Quality	No
	Usability	No
	Social Presence	No
	Trust	No
Appearance*Language style*Emoji-use	Information Quality	No
	Usability	No
	Social Presence	No
	Trust	No

4.3. Customer experience

During this study, the construct ‘customer experience’ was not reliable enough ($\alpha = .34$) and therefore excluded. To find out how the respondents experienced the conversation with the chatbot, the respondents were asked to rate the conversation between 0-10. These results could indicate the customer experience. Table 13 provides the results.

Table 13

Descriptive statistics: customer experience

Appearance	Language style	Emoji-use	Mean	SD	N
No	No	No	6.96	1.37	25
		Yes	7.12	1.42	25
		Total	7.04	1.38	50
	Yes	No	7.31	1.78	26
		Yes	7.48	1.64	25
		Total	7.39	1.70	51
	Total	No	7.14	1.59	51
		Yes	7.30	1.53	50
		Total	7.22	1.55	101
Yes	No	No	6.60	1.47	25
		Yes	6.80	1.97	30
		Total	6.71	1.75	55
	Yes	No	7.44	1.25	27
		Yes	7.76	1.20	25
		Total	7.60	1.23	52
	Total	No	7.04	1.41	52
		Yes	7.24	1.72	55
		Total	7.14	1.58	107
Total	No	No	6.78	1.42	50
		Yes	6.95	1.74	55
		Total	6.87	1.59	105
	Yes	No	7.38	1.52	53
		Yes	7.62	1.43	50
		Total	7.50	1.47	103
	Total	No	7.09	1.50	103
		Yes	7.27	1.63	105
		Total	7.18	1.56	208

The results in Table 13 show that there are no significant effects of human-like appearance and emoji-use on customer experience. In general, chatbots that had a human-like language style ($M_{language} = 7.50, SD = 1.59$) were rated higher than chatbots without a human-like language style ($M_{nolanguage} = 6.87, SD = 1.56$), which means that there is a significant effect of human-like language style on customer experience ($F = 8.743, p = .003$). Although Table 13 shows no significant effect of appearance*language*emoji, this condition received the highest grade during the experiment ($M = 7.76, SD = 1.20$).

4.4. Overview hypotheses and conceptual model

The factor analysis and reliability analysis results showed that not all the constructs were significant, which means that not all the (sub)hypotheses and research questions could be answered. The original constructs (a) system quality, (b) information quality, (c) service quality, (d) social presence, (e) trust, and (f) and customer experience have been converted in new constructs: (a) usability, (b) information quality, (c) social presence, and (d) trust. Figure 9 shows the modified conceptual model. Table 14 illustrates an overview of the hypotheses.

Figure 9

Modified conceptual model

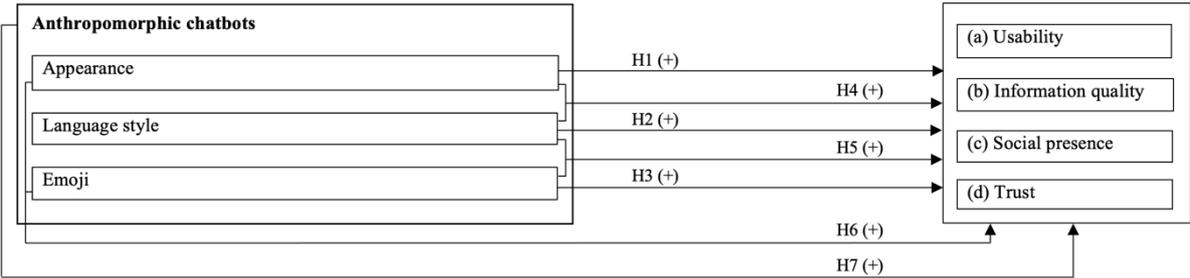


Table 14*Overview hypotheses*

	Hypothesis	Supported
H1	Chatbots with a human-like appearance have a more positive effect on (a) usability, (b) information quality, (c) social presence, and (d) trust than chatbots without.	No
H2	Chatbots that use a human-like language style have a greater positive effect on (a) usability, (b) information quality, (c) social presence, and (d) trust than chatbots without.	H2c
H3	Chatbots that include emojis in their text messages have a greater positive effect on (a) usability, (b) information quality, (c) social presence, and (d) trust than chatbots without.	H3c
H4	Human-like appearance and human-like language style interact with each other on (a) usability, (b) information quality, (c) social presence, and (d) trust.	H4a, H4b, H4c
H5	Human-like language style and the use of emoji interact with each other on (a) usability, (b) information quality, (c) social presence, and (d) trust.	No
H6	Human-like appearance and the use of emoji interact with each other on (a) usability, (b) information quality, (c) social presence, and (d) trust.	No
H7	Human-like appearance, human-like language style, and emoji-use interact with each other on (a) usability, (b) information quality, (c) social presence, and (d) trust.	No

5. Discussion, limitations, future research, and conclusion**5.1. Discussion**

The major aim of this study was to provide insight into the role of human characteristics in chatbots by increasing customer experience (in the context of an online shop). An experiment (2x2x2 between-subject design) was conducted to answer the research purpose. The appearance of the chatbot (name and picture versus no name or image), the language style (human-like versus machine-like), and emoji-use (with or without) were manipulated to find out whether there are significant effects on system quality, information quality, service quality, social presence, trust, and customer experience.

The dependent variable ‘service quality’ has been excluded during the study because of validity issues. Since a few statements of the construct were not significantly valid, the dependent variable ‘system quality’ has been converted to ‘usability’. Besides, ‘customer experience’ was not significantly valid. This means that the final dependent variables used in this study were: usability, information quality, social presence, and trust. The first research question was as follows: *RQ 1: "To what extent do the human-like chatbot characteristics appearance, language style, and the use of emoji individually increase the customer experience?"*

The reliability analysis excluded the customer experience construct, meaning that no effect of appearance, language style, and emoji-use could be measured. However, during the survey, respondents were asked to rate the conversation with the chatbot through a figure between 0-10. While there was no significant mean difference found for appearance and emoji-use, there was a significant effect of language style on the rating of the conversation. Although customer experience could not be measured, the significant mean difference in language style might serve as an indication that chatbots with a human-like language style positively affect the customer experience.

Although multiple studies showed that chatbots with a human-like appearance create trust, increase the social presence, meet the social needs of the customer, which in turn positively affects the customer experience (Følstad et al., 2018; Sheehan et al., 2020), no significant effects were found on usability, information quality, social presence, and trust (H1 unsupported). A reason for this might be that the respondents did not notice the difference in appearance (human-like appearance versus robotic). The manipulation check showed that 16 of the 208 participants (7.7%) indicated that they had seen a human-like appearance at the chatbot while this was not the case or vice versa. Another explanation might be that the appearance of the chatbot did not matter because the participants already knew it was a chatbot. Additionally, it may be that when customers look for a chatbot on a webpage, they pay more attention to the chat itself than the appearance of the chatbot. Besides, although the pre-test participants did mention the differences in the appearance of the chatbot, the difference may not have been appropriately perceived during the survey because it was a fictitious company with a forced conversation.

Akthar et al. (2018) stated that human likeness and language are irrelevant if the chatbot provides real-time support to users. While Akthar and colleagues noted that language has no significant effect on customer experience, several other studies declared that language style is essential in improving customer experience (Elsholz et al., 2018; Laban & Araujo, 2020; Liebrecht et al., 2021). During this study, there was a significant effect of human-like language style on the conversating rating, indicating customer experience. Based on this finding, it can be assumed that language style significantly affects the customer experience. Besides, a significant relationship between language style and the perceived social presence was found (H2c supported). Although there is a mean

difference between the chatbots (human-like language style versus robotic language style) on trust, the effect was not significant enough. An explanation for this result might be that although a human-like language style enhances the perceived social presence of the chatbot, the mean difference in trust is not significant because it was a fictitious company with a forced conversation (H2d unsupported). H2a and H2b could not be confirmed as well. Literature, whereby the chatbot served more as an assistant in problem-solving situations, showed that the language style is less relevant as long as the chatbot is efficient (usability) and answers the question correctly (information quality) (Völke & Planing, 2019). It might be that the same applied within this study. Stating this, a human-like language style provides a more natural conversation, but if the user is helped at the end of the conversation, the user is satisfied (Akthar et al., 2018).

Previous studies showed that emoji-sending chatbots are perceived as more humane and enrich the conversation experience for the customer (Beattie et al., 2020; Liu et al., 2018). When individuals feel that emoji-sending chatbots were exerting effort to contextualize, clarify, and orient their messages, which are adaptive qualities of competent and human-like communicators (Beattie et al., 2020). Emojis make a conversation more natural which can enhance the perceived social presence. These findings are in line with the results of this study, where a significant relationship was found between emoji-use and the perceived social presence (H3c confirmed). Nevertheless, there were no significant effects between emoji-use on usability, information quality, trust, and customer experience.

However, the emoji-sending chatbots within this study included an emoji in every message they had sent. This excess use of emojis may not have made a significant difference, but it may be that adding emojis to a few messages does make a difference to the customer experience. That said, the overuse of emojis can make the user feel uncomfortable as it wanted to appear too human and could have caused the uncanny valley effect (Ciechanowski et al., 2019).

The results showed no significant effects of emoji-sending chatbots on usability and information quality. Although Beattie and colleagues (2020) confirmed that emoji-sending chatbots are perceived as more humane, Akthar and colleagues (2018) showed that the level of anthropomorphism does not matter if the chatbot is efficient (usability), answers the question properly (information quality), and is helped at the end of the conversation. These findings may be explained by

the users' goal orientation chatbot's ability to answer simple inquiries seems to be enough to satisfy users (Følstad & Skjuve, 2019). The second research question was as follows: *RQ 2: "To what extent do the human-like chatbot characteristics appearance, language style, and the use of emojis interact with each other in increasing the customer experience?"*

It was expected that all the interaction effects would affect usability, information quality, social presence, and trust. However, only the hypotheses of chatbots with a combination of a human-like appearance and language style on usability (H4a), information quality (H4b), and social presence (H4c) were confirmed. The results showed a congruence effect of these human-like characteristics on usability and information quality. The perceived usability and information quality were higher when appearance and language style were both (not) implemented than when only one of these characteristics was implemented. While usability and information quality are more about the use of the chatbot, the significant interaction effect of the characteristics on the social presence (H4c) is more about the feeling an individual had about the chatbot. The congruence effect on usability can be explained by the fact that consumers expect a more natural and human-to-human conversation of a chatbot when there is a human-like appearance (and vice versa), and that incongruence might give an unpleasant feeling. The researcher did not understand why the information sent by a chatbot (information quality) with both appearance and language style implemented (or none) would be perceived as more relevant or of value for the recipient than chatbots with one of the two characteristics implemented. Stating this, no explicable reason was found for the congruence effect on information quality, which needs to be studied further. Furthermore, only the effect of the two characteristics on trust was not significant. A possible explanation is that humans might trust Information Systems more than humans because computers are automatically generated. When chatbots do act too much like humans, it could be that users have less trust in the chatbot (Przegalinska et al., 2019).

As mentioned earlier, a human-like language style positively affects the perceived social presence of a chatbot. While there was no significant effect of a human-like appearance on the dependent variables, the combination of a human-like appearance and language style have significant effects (except trust). An explanation for this outcome (human-like appearance*human-like language

style) might be that language style is an essential predictor, whereby appearance fosters the effect on social presence. Stating this, the perceived social presence may be higher when a chatbot with human-like language has an image and name as well. However, the study results indicated that the other combinations (language style*emoji-use and appearance*language style*emoji-use) did not significantly interact on social presence. Except for the interaction effects of appearance and language style on usability, information quality, and social presence, no significant interaction effects were found for the other combinations, which unsupported those hypotheses.

A human-like appearance might play a more minor role in the customer service context than previously suggested. However, appearance may, in combination with language style, enhance the perceived social presence because the users perceive the chatbot more as a human agent. Nevertheless, when adding emojis to this condition (appearance*language*emoji), there is no significant effect on the dependent variables. Derks and colleagues (2007) concluded that using too many emojis may give the recipients the feeling that the sender (chatbot) wants to be too friendly, which can reverse the desired effect. Therefore, emojis should be used with caution since they can be considered an unnecessary distraction. It might be that the recipients felt too many human likenesses while they knew it was a chatbot, which could give an unpleasant feeling (Przegalinska et al., 2019). Nevertheless, no negative effect of emoji-use within this combination was found, which means that these findings of previous studies cannot be confirmed, and further research is recommended.

Multiple studies stated that people prefer chatbots that look and act like humans (Araujo, 2018; Beattie et al., 2020; Følstad et al., 2018). However, the results of this study showed that might not always be the case. If the users know they are talking to a chatbot instead of a human agent, too many (or fake) humanness may interfere in what matters: getting the needed assistance. According to Ciechanowski and colleagues (2019), there is a limit to how much a chatbot should act like a human, as a too-human-like robot might trigger the uncanny valley effect. It might be that this was also the case in this study. Other studies showed that, in the end, it is essential that the chatbot is efficient, effective, and answers the question correctly (Akthar et al., 2018; Erickson, 1997).

Furthermore, the language style of the chatbot seemed an essential indicator for customer experience. Consumers prefer to have a genuine conversation with someone because they are

experienced as reliable. Therefore, a chatbot that uses a more natural and personal language style enhances the customer experience (Araujo, 2018; Elsholz et al., 2019). Overall, users may have positive attitudes towards using chatbots if they are efficient, problem-solving, and do not act too much like humans.

5.2. Limitations

This study includes several limitations. The first limitation relates to the online experiment. The participants first had a conversation with one of the eight different versions of the chatbot. Each chatbot version had the same scenario attached (fictive company). Within this scenario, the participants were given a list of questions (via buttons) they had to ask the chatbots, which could not be modified in any way. This means that the conversation was pre-determined, which might feel too scripted to elicit meaningful feelings about the chatbot. Besides, because of the scripted scenario with buttons, both the participants and chatbots could not give any other answers than the pre-determined answers.

For future research, it is recommended that the participants formulate the questions themselves based on a pre-determined scenario. This can give the participants more of the feeling of a real conversation because they can phrase the questions and answers themselves, increasing the validity of the study.

Second, the respondents participated on their own devices because of the online experiment. Because (different) smartphones, tablets or laptops were used, there was no control over the display of the survey. Although the survey is designed to be completed on different devices, it is possible that respondents participated in the study on a tablet or laptop differently than on their smartphone. In addition, it is not excluded that one device works faster or differently than the other. During this study, no measurements were taken on which device the respondents completed the survey on. To determine whether the conversation is experienced differently per device, it is recommended to ask in a follow-up survey on which device the respondents completed the survey.

Another limitation is that the researcher had no insight into the external factors the participant was in when completing the survey. Since it was an online experiment, there is a possibility that

participants have been influenced by external factors (noises, internet problems, or other distractions the researcher had no control over).

Lastly, a manipulation check was done at the end of the questionnaire to check whether participants from different conditions differed on the assumed independent variables. The participants were asked questions about the chatbot: about the appearance (name and image or not) of the chatbot, the language (human or robotic), and emojis (used in the conversation or not). The test found that not all participants indicated or perceived the human-like features as intended. Although the human-like characteristics were pre-tested, there is a possibility that the method used is not reliable and valid enough. Therefore, the researcher cannot fully conclude that participants correctly perceived, interpreted, or responded to the stimulus. This means that the conclusions drawn regarding the relationship between the independent and dependent variables may be less accurate.

5.3. Future research

It is recommended that a larger sample be used for future research so that participants who interpreted the characteristics differently can be filtered out. Although the human-like characteristics were pre-tested, a different interpretation of these characteristics may give a different result. For instance, it has not been tested whether there is a difference in a male or female avatar. In addition, it has not been tested whether there is a difference in which emojis are used or how often. It may be useful to test this in future research.

There was found a significant congruence effect of appearance and language style on perceived information quality. However, no explanation for this outcome was not found. The same applied to the mean differences of emoji-use in the combination of appearance, language style, and emoji-use. While there were mean differences, these differences were not significant. Further research is recommended to study the reason for these outcomes.

The results of this study showed that language style is an essential and significant indicator. As mentioned, a chatbot that uses a more human-like language style improves the customer experience. However, previous research has shown a limit to how much a chatbot must behave like a human. During this study, the participants had a small conversation with the chatbot, activating or not

activating a human-like language style (with no varying degrees inside). Therefore, it is recommended to further investigate the role of a chatbot's language style, analyzing different degrees of a human-like language style.

Based on the findings of this study, companies with chatbots should mainly focus on efficiency and effectiveness and that the chatbot answers the question correctly. However, because every type of company has different customers, it is possible that for every type of company a different composition of chatbot characteristics (human-like characteristics) provides a better customer experience. To find out which chatbot is the best fit for a type of company, it is advisable to do further research.

5.4. Conclusion

This study aimed to provide insight into the role of human-like characteristics – appearance, language style, and emoji-use – in increasing customer experience. While no significant effect was found between appearance and the dependent variables, the findings revealed that language style is an essential indicator of perceived social presence and has a significant relationship with customer experience. In addition, emoji-use showed a significant effect on perceived social presence. Besides, there are significant congruence effects between human-like appearance and language style on usability and information quality. Moreover, an interaction effect was found between human-like appearance and language style on social presence.

A chatbot that uses a human-like language style enhances the customer experience. This finding offers opportunities for further research. It is recommended to further investigate the role of a chatbot's language style, analyzing different degrees of a human-like language style.

Companies with chatbots should focus on efficiency and effectiveness and that the chatbot answers the question correctly. In addition, there can be a different outcome for every company with different types of customers. To find out which chatbot is the best fit for a type of company, it is advisable to do further research first.

Language style plays a significant role in the friendliness of the conversation. Individuals prefer chatbots that look and act like humans, but there is a limit to how much a chatbot should act like

a human. Future research is recommended to further explore the human-like characteristics in varying degrees to indicate to what extent the characteristics affect the customer experience. In the end, users may have positive attitudes towards using chatbots if they are efficient, problem-solving, and do not act too much like humans.

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Chatbot 3: Appearance and language style

The image displays three separate chatbot interaction windows, each with a red header bar containing a close button (X) and a minus sign (-). Each window features a profile picture of Emma and her name.

- Scenario 1 (Left):**
 - User: "Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen."
 - Chatbot: "Hi, ik ben Emma. Uiteraard kan ik je meer informatie geven over de eetkamerstoel Brando. Wat zou je graag willen weten?"
 - User: "De mooie eetkamerstoel Brando heeft een goede prijs-kwaliteitsverhouding en kost €129,- per stuk."
 - Chatbot: "Kan ik je verder nog ergens mee helpen of over informeren?"
 - User: "Kan ik je verder nog ergens mee helpen of over informeren?"
 - Buttons: "Prijs", "Levertijd", "Beschikbaarheid", "Ja", "Kleur".
- Scenario 2 (Middle):**
 - User: "Waar wil je graag meer over weten?"
 - Chatbot: "De levertijd van eetkamerstoel Brando is tussen de 5 en 8 werkdagen. Uiteraard ontvang je een track-and-trace code zodra de order is verstuurd, zodat je precies weet wanneer je van je nieuwe stoel(en) kunt gaan genieten!"
 - User: "Kan ik je verder nog ergens mee helpen of over informeren?"
 - Buttons: "Levertijd", "Beschikbaarheid", "Ja", "Kleur".
- Scenario 3 (Right):**
 - User: "Waar wil je graag meer over weten?"
 - Chatbot: "Goed nieuws! De eetkamerstoel Brando is ruim op voorraad in alle beschikbare kleuren."
 - User: "Kan ik je verder nog ergens mee helpen of over informeren?"
 - Chatbot: "Waar wil je graag meer over weten?"
 - Buttons: "Beschikbaarheid", "Ja", "Kleur".

Waarmee kan ik je helpen?

Waarmee kan ik je helpen?

Waarmee kan ik je helpen?

The image shows a single chatbot interaction window with a red header bar containing a close button (X) and a minus sign (-). It features a profile picture of Emma and her name.

- Chatbot: "De eetkamerstoel Brando is te verkrijgen in 4 verschillende kleuren: antraciet, beige, cognac en olijfgroen. Vier mooie kleuren als je het mij vraagt. Misschien ook leuk om ze te combineren!"
- User: "Kan ik je verder nog ergens mee helpen of over informeren?"
- Buttons: "Nee", "Kleur".
- Chatbot: "Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst. Groetjes Emma"

Waarmee kan ik je helpen?

Chatbot 4: Appearance, language style, and emoji-use

The image displays three sequential chatbot conversations. Each window has a red header with a close button (X) and a minus sign (-). The chatbot's name 'Emma' is shown in the top left of each window.

Window 1: The user asks, "Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen." The chatbot replies, "Hi, ik ben Emma. Uiteraard kan ik je meer informatie geven over de eetkamerstoel Brando. Wat zou je graag willen weten?" A red button labeled "Prijs" is visible.

Window 2: The user asks, "Waar wil je graag meer over weten?" The chatbot provides two pieces of information: "De levertijd van eetkamerstoel Brando is tussen de 5 en 8 werkdagen. 📦" and "Uiteraard ontvang je een track-and-trace code zodra de order is verstuurd, zodat je precies weet wanneer je van je nieuwe stoel(en) kunt gaan genieten!" A red button labeled "Levertijd" is visible.

Window 3: The user asks, "Waar wil je graag meer over weten?" The chatbot replies, "Goed nieuws! De eetkamerstoel Brando is ruim op voorraad in alle beschikbare kleuren. 😊" and "Kan ik je verder nog ergens mee helpen of over informeren? 😊" A red button labeled "Beschikbaarheid" is visible.

Below each window is a footer with the text "Waarmee kan ik je helpen?"

The image displays two sequential chatbot conversations. Each window has a red header with a close button (X) and a minus sign (-). The chatbot's name 'Emma' is shown in the top left of each window.

Window 1: The user asks, "Waar wil je graag meer over weten?" The chatbot replies, "De eetkamerstoel Brando is te verkrijgen in 4 verschillende kleuren: antraciet, beige, cognac en olijfgroen. Vier mooie kleuren als je het mij vraagt. Misschien ook leuk om ze te combineren! 😊" A red button labeled "Ja" is visible.

Window 2: The user asks, "Kan ik je verder nog ergens mee helpen of over informeren? 😊" The chatbot replies, "Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst. 😊 Groetjes Emma" A red button labeled "Nee" is visible.

Below each window is a footer with the text "Waarmee kan ik je helpen?"

Chatbot 5: Language style

The image displays three chatbot conversations side-by-side, each in a red header bar with a 'Chatbot' label and a close button. Each conversation starts with a user input and a chatbot response.

- Conversation 1 (Left):**
 - User: 'Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen.'
 - Chatbot: 'Hi! Uiteraard kan ik je meer informatie geven over de eetkamerstoel Brando. Wat zou je graag willen weten?' (Red button: **Prijs**)
 - User: 'De mooie eetkamerstoel Brando heeft een goede prijs-kwaliteitsverhouding en kost €129,- per stuk.'
 - Chatbot: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Levertijd**)
 - User: 'Waar wil je graag meer over weten?' (Red button: **Ja**)
 - Chatbot: 'De levertijd van eetkamerstoel Brando is tussen de 5 en 8 werkdagen. Uiteraard ontvang je een track-and-trace code zodra de order is verstuurd, zodat je precies weet wanneer je van je nieuwe stoel(en) kunt gaan genieten!' (Red button: **Beschikbaarheid**)
 - User: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Ja**)
- Conversation 2 (Middle):**
 - User: 'Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen.'
 - Chatbot: 'Hi! Uiteraard kan ik je meer informatie geven over de eetkamerstoel Brando. Wat zou je graag willen weten?' (Red button: **Prijs**)
 - User: 'De mooie eetkamerstoel Brando heeft een goede prijs-kwaliteitsverhouding en kost €129,- per stuk.'
 - Chatbot: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Levertijd**)
 - User: 'Waar wil je graag meer over weten?' (Red button: **Ja**)
 - Chatbot: 'De levertijd van eetkamerstoel Brando is tussen de 5 en 8 werkdagen. Uiteraard ontvang je een track-and-trace code zodra de order is verstuurd, zodat je precies weet wanneer je van je nieuwe stoel(en) kunt gaan genieten!' (Red button: **Beschikbaarheid**)
 - User: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Ja**)
- Conversation 3 (Right):**
 - User: 'Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen.'
 - Chatbot: 'Hi! Uiteraard kan ik je meer informatie geven over de eetkamerstoel Brando. Wat zou je graag willen weten?' (Red button: **Prijs**)
 - User: 'De mooie eetkamerstoel Brando heeft een goede prijs-kwaliteitsverhouding en kost €129,- per stuk.'
 - Chatbot: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Levertijd**)
 - User: 'Waar wil je graag meer over weten?' (Red button: **Ja**)
 - Chatbot: 'Goed nieuws! De eetkamerstoel Brando is ruim op voorraad in alle beschikbare kleuren.' (Red button: **Beschikbaarheid**)
 - User: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Ja**)
 - Chatbot: 'Waar wil je graag meer over weten?' (Red button: **Ja**)

How can we help you? | How can we help you? | How can we help you?

The image displays two chatbot conversations side-by-side, each in a red header bar with a 'Chatbot' label and a close button.

- Conversation 1 (Left):**
 - User: 'De eetkamerstoel Brando is te verkrijgen in 4 verschillende kleuren: antraciet, beige, cognac en olijfgroen. Vier mooie kleuren als je het mij vraagt. Misschien ook leuk om ze te combineren!' (Red button: **Kleur**)
 - Chatbot: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Nee**)
 - User: 'Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst.'
 - Chatbot: 'Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst.'
- Conversation 2 (Right):**
 - User: 'De eetkamerstoel Brando is te verkrijgen in 4 verschillende kleuren: antraciet, beige, cognac en olijfgroen. Vier mooie kleuren als je het mij vraagt. Misschien ook leuk om ze te combineren!' (Red button: **Kleur**)
 - Chatbot: 'Kan ik je verder nog ergens mee helpen of over informeren?' (Red button: **Nee**)
 - User: 'Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst.'
 - Chatbot: 'Helemaal goed. Ik hoop dat je wat wijzer bent geworden over de eetkamerstoel Brando. Succes en nog een fijne dag gewenst.'

How can we help you? | How can we help you?

Chatbot 6: Language style and emoji-use

The first screenshot shows a user asking for more information about dining chairs. The chatbot responds with a friendly greeting and offers to provide more details. The user asks for the price, and the chatbot provides the price and quality information. The user asks for more help, and the chatbot offers to provide more information. The user asks for the delivery time, and the chatbot provides the delivery time and tracking information. The user asks for more help, and the chatbot offers to provide more information.

The second screenshot shows a user asking for more information about dining chairs. The chatbot responds with a friendly greeting and offers to provide more details. The user asks for the price, and the chatbot provides the price and quality information. The user asks for more help, and the chatbot offers to provide more information. The user asks for the delivery time, and the chatbot provides the delivery time and tracking information. The user asks for more help, and the chatbot offers to provide more information.

The third screenshot shows a user asking for more information about dining chairs. The chatbot responds with a friendly greeting and offers to provide more details. The user asks for the price, and the chatbot provides the price and quality information. The user asks for more help, and the chatbot offers to provide more information. The user asks for the delivery time, and the chatbot provides the delivery time and tracking information. The user asks for more help, and the chatbot offers to provide more information.

The first screenshot shows a user asking for more information about dining chairs. The chatbot responds with a friendly greeting and offers to provide more details. The user asks for the price, and the chatbot provides the price and quality information. The user asks for more help, and the chatbot offers to provide more information. The user asks for the delivery time, and the chatbot provides the delivery time and tracking information. The user asks for more help, and the chatbot offers to provide more information.

The second screenshot shows a user asking for more information about dining chairs. The chatbot responds with a friendly greeting and offers to provide more details. The user asks for the price, and the chatbot provides the price and quality information. The user asks for more help, and the chatbot offers to provide more information. The user asks for the delivery time, and the chatbot provides the delivery time and tracking information. The user asks for more help, and the chatbot offers to provide more information.

Chatbot 7: Emoji-use

The image displays three side-by-side chatbot interaction windows. Each window has a red header with a close button and a 'Chatbot' label. The interactions are as follows:

- Window 1:** User: "Hoi, ik wil graag meer informatie over de Brando eetkamerstoelen." Bot: "Kies een van de knoppen om meer informatie te krijgen. 😊" Buttons: Prijs, Levertijd. Bot: "€129,- per stuk. 😊" Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Bot: "Het gesprek is beëindigd."
- Window 2:** Bot: "Levertijd: 5-8 werkdagen. 📦" Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Button: Beschikbaarheid. Bot: "De eetkamerstoel Brando is nog ruim op voorraad in alle beschikbare kleuren. 😊" Bot: "Wil je meer informatie?" Button: Nee. Bot: "Het gesprek is beëindigd."
- Window 3:** Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Button: Kleur. Bot: "Beschikbaar in 4 kleuren: antraciet, beige, cognac en olijfgroen. 🎨" Bot: "Wil je meer informatie?" Button: Nee. Bot: "Het gesprek is beëindigd."

Each window is powered by Watermelon.

Chatbot 8: No human-like characteristics

The image displays three side-by-side chatbot interaction windows, identical to those in the previous section. However, the bot's responses are devoid of emojis and human-like phrasing:

- Window 1:** Bot: "Kies een van de knoppen om meer informatie te krijgen." Buttons: Prijs, Levertijd. Bot: "€129,- per stuk." Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Bot: "Het gesprek is beëindigd."
- Window 2:** Bot: "Levertijd: 5-8 werkdagen." Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Button: Beschikbaarheid. Bot: "De eetkamerstoel Brando is nog ruim op voorraad in alle beschikbare kleuren." Bot: "Wil je meer informatie?" Button: Nee. Bot: "Het gesprek is beëindigd."
- Window 3:** Bot: "Wil je meer informatie?" Button: Ja. Bot: "Kies een van de knoppen." Button: Kleur. Bot: "Beschikbaar in 4 kleuren: antraciet, beige, cognac en olijfgroen." Bot: "Wil je meer informatie?" Button: Nee. Bot: "Het gesprek is beëindigd."

Each window is powered by Watermelon.

7.2. Appendix B – Deleted statements

Construct	Statement
Service quality – SERQ1	I am satisfied with the customer support provided by offering this chatbot service.
Service quality – SERQ3	The chatbot responded to my requests fast enough.
Customer experience – CX1	I enjoyed using the chatbot.
Customer experience – CX2	The experience of using the chatbot was interesting.
Customer experience – CX3	I am happy with the experience of using the chatbot.