**How does chatbots’ voice (type, tone) influence the consumer-brand relationship? Does the chatbot’s gender matter?**

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Abstract

Chatbots are tools used in human-machine interaction to facilitate customer service and personalization for businesses. According to Gartner (2018), it is predicted that in 2020 25 % of customer interactions will be managed through chatbots or virtual assistants instead of humans. The objective of this research is to understand how chatbots’ voice (type [human vs synthetic], tone [formal vs informal]) influences the perception of chatbots and consequently the consumer-brand relationship, and how the chatbot’s gender moderates these effects. Our findings suggest that the use of a human voice is more beneficial in terms of building brand trust and brand attachment than a synthetic voice. In addition, the difference between human voice and synthetic voice was higher for female voices than for male voices. Recommendations for digital marketing managers are provided.

Keywords: Chatbot; Voice; Human-Synthetic; Formal-Informal; Gender, Consumer-brand relationship; Anthropomorphism

Résumé

Les chatbots sont des outils utilisés dans l’interaction homme-machine pour faciliter le service client et sa personnalisation. Selon Gartner (2018), il est prévu qu’en 2020, 25% des interactions clients seront gérées via des chatbots ou des assistants virtuels au lieu des humains. L’objectif de cette recherche est de comprendre comment la voix des chatbots (le type de voix [humain vs synthétique], le ton de la voix [formel vs informel]) influence la perception des chatbots et la relation consommateur-marque, et comment le genre du chatbot modère ces effets. Nos résultats suggèrent que l’utilisation d’une voix humaine est plus bénéfique en termes de confiance et d’attachement à la marque qu’une voix synthétique. De plus, la différence des effets entre la voix humaine et la voix synthétique est plus élevée pour les voix féminines que pour les voix masculines. Des recommandations pour les praticiens du marketing digital sont fournies.

Mots clés : Chatbot ; Voix ; Humain-Synthétique ; Formel-Informel ; Genre ; Relation Consommateur-Marque ; Anthropomorphisme

**How does chatbots’ voice (type, tone) influence the consumer-brand relationship? Does the chatbot’s gender matter?**

**Introduction**

Chatbots are tools used in human-machine interaction to facilitate customer service and personalization for businesses. Many companies have invested heavily in R&D and developed successful chatbots such as Amazon and Alexa (Przegalinska et al., 2019). Recently, an increased use of chatbots is observed, especially in marketing, to communicate with clients. According to Gartner (2018), it is predicted that in 2020 25 % of customer interactions will be managed through chatbots or virtual assistants instead of humans. Therefore, this topic remains highly relevant today and should be a major concern for all digital marketing managers.

Chatbots are defined as “*interactive, virtual agents that engage in verbal interactions with humans”* (Przegalinska et al., 2019). They simulate a real personal contact andgive direct answers so that people feel as if they are talking to a real conversationpartner. One goal of chatbots is to personify the company, by giving character to an inherently lifeless brand, making it easier for customers to engage with the brand and to establish a personal relationship. This consequently impacts consumer perception. However, the challenge for brands is to create an emotional link with consumers. Companies are trying to combine the utility of providing useful information as well as the idea of developing a reliable personal relationship with consumers.

Hence, the objective of this research is to understand how chatbots’ voice positively influence the consumer-brand relationship. Therefore, the variables tone of voice (informal vs. formal), and type of voice (human vs. synthetic) were manipulated. As dependent variables, brand attachment, trust, and purchase intention were measured, with the chatbot's gender as a moderating variable.

**Background and Research Problem**

Barcelos et al. (2018) studied the effect of human vs. corporate tone of voice on purchase intention on social media. They proposed hedonic value and perceived risk about the purchase as mediating variables. The authors demonstrated that human voice can have a positive, negative or negligible effect on purchase intention depending on the context. The use of human voice increases the hedonic value, and this positively influences purchase intention, moderated by the consumer goal. More recently, Barcelos et al. (2019) conducted an experimental study to analyze the effect of tone of voice on the attitude toward hotel brands, concluding that the use of a human tone of voice transmits more emotions and consequently increases the hedonic value a customer perceives. Furthermore, Przegalinska et al. (2019) identified trust as the key factor in the creation of successful human-computer interactions. The authors studied the relation between trust and anthropomorphism and showed that because humans are sociable individuals, anthropomorphizing chatbots increases the user’s trust. Likewise, Chérif and Lemoine (2019) demonstrated that consumers interacting with a virtual assistant having human voice perceive it to be more socially present than those interacting with a virtual assistant having a synthetic voice. Consequently, the human voice builds more trust in the virtual assistant and generates stronger behavioral intentions. Therefore, the natural human voice is considered to be more persuasive than a synthetic voice.

Zoghaib (2019) studied the effect of voices on consumers. Speakers with serious (vs. acute), matte (vs. bright), and smooth (vs. rough) voices are the most effective. Indeed, speakers with acute, matte, and smooth voices are perceived as more proficient. Chung et al. (2018) studied the utilization of chatbots in the form of e-service agents particularly in the luxury retailing sector, demonstrating how companies can use digital marketing tools to promote customer satisfaction. The results revealed that accuracy and credibility both have a significant mediating role in the positive effect of e-service agents marketing efforts on customer satisfaction. In a nutshell, these previous studies are setting a foundation concerning the use of virtual assistants in the marketing field. The conclusion from the studies undertaken by the authors highlight the importance of hedonic value, social presence as well as the anthropomorphism that is perceived from the human tone of voice which subsequently strengthens purchase behavioral intentions.

However, according to Zoghaib (2019), the results of her study could have been biased because respondents might have already been familiar with the actual brand voices that were used. In addition, as Zoghaib (2017) points out, the speaker's gender should be included as a moderating variable when studying voice effects on consumer responses. The results from Zoghaib (2017; 2019) indicated many direct effects on attitude and brand recall but the concept of brand attachment was not addressed. Therefore, we further explore this aspect. Barcelos et al. (2018; 2019) studied the effect of tone of voice using hotel and restaurant industries as examples. Hence, we focus on a broader understanding of the effects of chatbot voice by conducting our research in the luxury fashion industry. This industry is particularly interesting because the personal relationship and attachment between the brand and the customer are essentially relevant in this sector. In a physical store, the sales associates are representing the brand’s personality and are engaging in personal relationships with the customers. One sales associate of a luxury brand describes that for very important customers, “*we* *become more like a styling advisor or a fashion friend”* (Dion and Borraz, 2017, p. 77). In the online world, customers are interacting with chatbots or voice assistants. We focus on how these relationships can be built in an online setting in the luxury fashion industry. This led us to three research questions: How does type of voice (human vs. synthetic) influence brand attachment and trust? How does tone of voice (formal vs. informal) influence brand attachment and trust? Is the chatbot’s gender moderating the effects of type of voice and tone of voice on brand attachment and trust?

**Theoretical Framework**

***Type of voice and Tone***

On the one hand, type of voice can be categorized into human voice and synthetic voice. According to Chérif and Lemoine (2019), synthetic voice is an artificial voice produced from text-to-speech, while the human voice is a pre-recorded voice by a human being. On the other hand, tone of voice is defined as “*the way a person is speaking to someone*” (Merriam-Webster, 2020). In a marketing context, Barcelos et al. (2018) describe the tone of voice as “*the* *stylistic choices in [the] pattern of communication*” (p. 61) of an organization. According to the conversational human voice (Kelleher, 2009), the informal conversational human voice is defined as “*an engaging and natural style of organizational communication”* (p. 177), which is making the companyfeel closer, more human and more real to the customer in online communications (Park & Cameron, 2014). Inversely, the formal corporate tone of voice is traditionally used by those organizations that still employ an old management style approach and it is considered more distant and formal.

***Trust and brand attachment***

Hon and Grunig (1999) refer to trust as “*one party’s level of confidence in and willingness to open oneself to the other party*” (p.19). Between humans, such behavior is based on credibility and confidence (Casselland Bickmore, 2000).In a business context, Przegalinska et al. (2019) argue that trust is based on manydifferent aspects such as competence and effectiveness, integrity andreliability, truth, credibility and confidence (Paine, 2016). Regarding brand attachment, it is the strength of the bond connecting the brand with the self (Park et al., 2006). It also involves the cognitive and emotional connection which exists between the brand and self as well as the salience of this bond (Park et al., 2010). In this case, the brand is viewed as an extension of self, this means that people can get attached to brands just as much as they do with other human beings or objects.

***Social response theory***

It is the ability of a communication medium to transmit social cues. It is highly related to intimacy and psychological closeness. Social response theory clarifies that people apply general social rules used in human interactions, when interacting with machines that have human attributes. (Nass and Moon, 2000; Reeves and Nass, 1996). The degree of social presence is stronger when it comes to oral interaction than textual interaction (Nass and Gong, 2000; Sallnas, 2005).

***Anthropomorphism***

The concept of anthropomorphism can be defined as “*the tendency to attribute human characteristics to inanimate objects*” (Duffy, 2003, p. 180). It focuses on both physical human characteristics and on the human-like mind (Przegalinska et al., 2019). Conversations with virtual assistants having anthropomorphic traits are well perceived by the users because they are considered as more motivating and natural (McBreen and Jack, 2001).

***Social role theory and gender stereotypes***

Gender roles are “​*consensual beliefs about the attributes of women and men*”​ (Eagly and Karau, 2002, p. 574) and the social role theory states that listeners or spectators infer a link between the gender and the characteristics or actions of people. Social role theory encompasses both expectations about actual and ideal actions of members of the group (Eagly, 1987). There are various attributes that are ascribed stereotypically to women or men. One of the most important ones are communal and agentic attributes (Eagly, 1987). For example, women are stereotypically described as kind, helpful, sympathetic, supportive and gentle while men are stereotypically ascribed to be dominant, daring, competitive, aggressive, self-confident and ambitious (Eagly and Karau, 2002).

Based on the aforementioned arguments, we propose the following hypotheses:

|  |  |  |
| --- | --- | --- |
| *H1* | *Chatbot evaluation (i.e. anthropomorphism, trust, attitude) is higher when consumers are exposed to human voices compared to synthetic voices.* | *Anthropomorphism (Duffy, 2003); Social response theory (Nass and Steuer, 1993)* |
| *H2* | *Brand trust, brand attachment and purchase intention is higher when consumers are exposed to human voices compared to synthetic voices.* | *Social response theory (Nass and Steuer, 1993)* |
| *H3* | *Chatbot evaluation (i.e. anthropomorphism, trust, attitude) is higher when consumers are exposed to an informal tone of voice compared to a formal tone of voice.* | *Conversational human voice (Kelleher, 2009)* |
| *H4* | *Brand trust, brand attachment and purchase intention is higher when consumers are exposed to an informal tone of voice compared to a formal tone of voice.* | *Conversational human voice (Kelleher, 2009)* |
| *H5* | *The difference of chatbot evaluation (i.e. trust, attitude) between human and synthetic voices is higher when consumers are exposed to a female voice compared to a male voice.* | *Social role theory (Eagly, 1987)* |
| *H6* | *The difference of brand trust, brand attachment and purchase intention between human and synthetic voice is higher when consumers are exposed to a female voice compared to a male voice.* | *Social role theory (Eagly, 1987)* |
| *H7* | *The difference of chatbot evaluation (i.e. trust, attitude) between the formal and informal tone of voice is higher when consumers are exposed to a female voice compared to a male voice.* | *Conversational human voice (Kelleher, 2009); Social role theory (Eagly, 1987)* |
| *H8* | *The difference of brand trust, brand attachment and purchase intention between the formal and informal tone of voice is higher when consumers are exposed to a female voice compared to a male voice.* | *Conversational human voice (Kelleher, 2009); Social role theory (Eagly, 1987)* |

The conceptual model is presented as follows:

Chatbot evaluation

Consumer-brand relationship

H1, H2

Type of voice (Human vs. Synthetic)

Chatbot anthropomorphism

Brand trust

Purchase intention

Attitude towards the Chatbot

H3, H4

Tone of voice (Formal vs. Informal)

Brand attachment

Chatbot trustworthiness

H5, H6

H7, H8

Chatbot gender

**Methodology and Key outcomes**

After cleaning database by excluding respondents who failed the attention check (Kung et al., 2018), 161 participants (66% female; 59% aged 26-35, 20% aged 36-45; 57% monthly earning $10,000-$50,000, 27% $50,001-$90,000) living in the United States were retained in the study. They were randomly assigned to one condition of a 2 (type of voice: synthetic vs. human) x 2 (tone of voice: formal vs informal) x 2 (the chatbot’s gender: male vs female) factorial design with the independent variables manipulated between-participants. Respondents were recruited on Amazon Mechanical Turk in exchange of $0,80.

To manipulate the voices, an audio file was presented. To create the synthetic voices, the online software Animaker.come was used and the language for the voice records was US English. The human voices were recorded using a phone by a male and female American native speaker to avoid bias because of foreign accents. For the formal and informal tone of voice, two texts with the same content were written. In the formal text, the chatbot presents itself with its last name and as a “*virtual assistant*” that “*assist[s] you in your shopping and provide[s] any assistance you may need*”. In contrast to that, the informal chatbot presents itself as a “*shopping friend*” and uses only its first name. The full texts are attached in Appendix A. This manipulation is similar to the manipulation of Barcelos et al. (2018; 2019). To avoid bias due to familiarity or prior brand associations and attitudes, a fictional brand (i.e. ‘Adhémar’) was created specifically for this study.

All scales used in the questionnaire were taken from previous literature (trust: Chaudhuri and Holbrook, 2001; brand attachment: Thomson et al., 2005; brand anthropomorphism: Aggarwal and McGill, 2007; purchase intention: Rodgers, 2004) and were measured on a 7-point Likert scale from “1:Strongly disagree” to “7:Strongly agree”. The scales showed high internal consistency (αtrust-chatbot=0.870; αattitude-chatbot=0.936; αchatbot anthropomorphism=0.922; αbrand trust=0.925; αbrand attachment=0.959; αpurchase intention=0.938).

Analysis of the manipulation check showed that human voice was indeed perceived as more human than synthetic voice (Mhuman=5.22 vs. Msynthetic=3.04, *t* (160) = 7.32, p < .05). Regarding the tone of voice, formal tone was indeed perceived as more formal than informal tone (Mformal=4.96 vs. Minformal=3.84, *t* (160) = 3.68, p < .05).

Results show direct significant effects of voices on the attitude towards the chatbot (Mhuman=5.12 vs. Msynthetic=4.29; F(1,153)=10.03; p<0.001), the anthropomorphism of the chatbot (Mhuman=5.43 vs. Msynthetic=4.04; F(1,153)=6.53; p<0.05) and brand attachment ((Mhuman=4.73 vs. Msynthetic=4.08; F(1,153)=6.94; p<0.01), with the human voice being evaluated significantly higher than the synthetic voice. As all mediating and dependent variables were positively correlated (p<0.01), through PROCESS (Hayes, 2013, Model 4; 95% confidence interval from 10,000 bootstrap samples) for SPSS, we found indirect effects of type of voice on chatbot trust, brand trust and purchase intention mediated by attitude, anthropomorphism and brand attachment. Additionally, we found moderating effects of the chatbot’s gender on the relationship between type of voice and chatbot trust (F(1,146)=5.68; p<0.05) as well as attitude towards the chatbot (F(1,146)=5.51; p<0.05) and purchase intention (F(1,146)=6.37; p<0.05), and in the relationship between tone of voice and chatbot trust (F(1,146)=7.30; p<0.01), attitude towards the chatbot (F(1,146)=12.52; p<0.001), anthropomorphism (F(1,146)=7.67; p<0.01) and brand attachment (F(1,146)=5.97; p<0.05).

**Conclusion**

Our findings suggest that the use of a human voice is more beneficial in terms of building brand trust and brand attachment than a synthetic voice. We extended past studies that demonstrated isolated effects of type of voice (human vs synthetic) and tone of voice on the consumer-brand relationship (Barcelos et al., 2018, 2019; Chérif and Lemoine, 2019; Zoghaib, 2019). Our results are in line with the social response theory (Nass and Moon, 2000) and the anthropomorphism theory (Aggarwal and McGill, 2007). By creating a more human chatbot for customers to interact with, managers can transmit more social cues and use the chatbot as a personification of the brand to strengthen the attachment of customers to the brand. When customers are attached to a brand, they are willing to buy more and to pay more for a specific brand that they are loyal to. The use of voice assistants with human voices is challenging for managers because it is not as easy to have human voices pre-recorded for different situations as it is with synthetic voices. Moreover, we recommend that marketing managers, website and chatbot designers should consider using human voice for their virtual assistant as crucial. Luxury brands that are constantly seeking ways to address their savvy customers should also consider introducing chatbots that interact orally with a human voice, as a way of keeping the brand lovers engaged and to promote brand attachment and trust and consequently purchase intentions. Surprisingly, to our knowledge, there are no luxury fashion brands with speaking chatbots on their website to date. Although, they are already recognizing the importance of chatbots to engage with their customers in a personal way and to build relationships, introducing voiceovers to these chatbots could be the next step. Our results imply that it would be beneficial to use a human voice instead of a synthetic voice to build stronger brand attachment, trust and increase purchase intention.

For the purpose of future research, from our results, we discovered that the difference between human voice and synthetic voice was higher for female voices than for male voices in the industry that we had chosen. Hence, precisely the effects of the chatbot’s gender and gender of the respondent would be interesting to study in a different context because fashion products are mostly gender-specific, so consumers might be more sensitive to the chatbot’s gender in this sector than in other sectors. Therefore, a future study could test the model in a more gender-neutral industry such as the financial industry. Moreover, we recommend that in order to get a direct significant effect on the brand trust, for future research the length of the chatbot audio should be longer. In addition, the study should be carried out in another country perhaps one of the European countries that have high uncertainty avoidance to see if consumers would be interested in interacting with voiceover virtual assistants. Lastly, we suggest that brand image should be introduced as a dependent variable to observe how a chatbot can have an impact on the image of a brand.

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**Appendix: Voice recording texts**

Formal x Female:

Welcome to Adhémar! I am Ms. Wellington. As your virtual assistant, I will be happy to share our latest news, assist you in your shopping and provide any assistance you may need. Do not hesitate to contact if you need any help.

Formel x Male:

Welcome to Adhémar! I am Mr. Wellington. As your virtual assistant, I will be happy to share our latest news, assist you in your shopping and provide any assistance you may need. Do not hesitate to contact if you need any help.

Informal x Male:

Hey! what’s up? thanks for popping in at Adhémar! I'm Matthew and I’m your shopping friend. I'm so excited to share our latest fashion trends and find you the best style that suits you. Just gimme a shout if you need anything!

Informal x Female:

Hey! what’s up? thanks for popping in at Adhémar! I'm Salli and I’m your shopping friend. I'm so excited to share our latest fashion trends and find you the best style that suits you. Just gimme a shout if you need anything!