

## How Formal Should a Chatbot Be? An Examination from a Construal Level Theory Perspective

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### Problem and Purpose

Incorporating artificial intelligence (AI) in Internet-based services or *e-services* of apparel retailers can help serve customers effectively without time or locational constraints (Calantone et al., 2018). Apparel brands, including luxury brands, have started implementing chatbots, or AI agents that communicate with users via natural language conversation using a text-based modality, to enhance personalized e-services (Dhaoui, 2014). Chatbots' linguistic style can impact their human-likeness, thereby influencing consumers' responses (e.g., brand attitudes, chatbot use intention, chatbot trust; Chattaraman et al., 2019; Gretry et al., 2017); however, very few studies have examined how brand-related factors impact the effect of a chatbot's linguistic style on consumer responses. Therefore, this study investigates 1) the effects of a brand's e-service chatbot linguistic style (formal vs. informal) on consumers' responses, particularly, perceived linguistic appropriateness and chatbot trust, and 2) how brand type (luxury vs. mainstream brand) moderates these effects.

### Relevant Literature and Hypotheses

Chatbots may employ two major linguistic styles: formal versus informal styles (Gretry et al., 2017). A formal style refers to the use of standard, emotionless, passive, and deferential words, while an informal style addresses the use of abbreviated, casual, direct, emotional, and colloquial words commonly used among familiar people. Formal linguistic styles are known to convey a perception of expertise, politeness, authority, and trustworthiness (Pavlick & Tetreault, 2016; Toma & D'Angelo, 2015) and thus are more frequently adopted during business and information sharing situations as compared to informal styles (Gretry et al., 2017). Given that a brand's e-service chatbot is designed to provide customers with information and services in a retail context, we predict that **(H1)** a brand's chatbot adopting a formal (vs. informal) linguistic style is perceived to be more (a) linguistically appropriate and (b) trustworthy.

According to the construal level theory (CLT; Trope & Liberman, 2010), psychological distance refers to the perceived distance between an object and the person's self. A formal linguistic style has been found to increase psychological distance, whereas an informal style shows warmth and friendliness, conveys a sense of close social relationship, and thus decreases psychological distance (Gretry et al., 2017; Stephan et al., 2010). Luxury brands are expensive and exclusive brands which tend to keep a strategic distance from mass markets; hence, consumers may feel excluded and psychologically distant from luxury brands (Jiang et al., 2014; Park et al., 2020). CLT postulates that consumers' evaluation of an object is enhanced when the psychological distance from the object matches their mental representation of the object (Kim et al., 2019). The congruence in the psychological distance enables consumers to feel a

sense of rightness and enhances trustworthiness (Jager & Weber, 2020). Thus, we hypothesize that **(H2)** brand type moderates the linguistic style effect; specifically, the effects of linguistic style on consumers' perceptions of the **(a)** linguistic appropriateness and **(b)** trustworthiness of a chatbot are stronger for a luxury brand (vs. a mainstream brand). We also predict that **(H3)** the moderating effect of brand type of linguistic style on perceived trustworthiness is mediated by perceived linguistic appropriateness.

## Methods

An online experiment with a 2 (chatbot linguistic style: informal vs. formal)  $\times$  2 (brand type: luxury vs. mainstream) between-subjects design was conducted. The chatbot linguistic style factor was manipulated by two versions of a chatbot built using *IBM Watson Assistant*. The formal chatbot was free of errors in punctuation/grammar/spelling and used third-person pronouns, passive voice, and other formal expressions suggested by Gretry et al. (2017), whereas the informal chatbot used informal punctuations and expressions, simplified sentences by removing honorifics, and purposeful grammar/spelling/punctuation tweaks and contractions and abbreviations commonly used in everyday casual and friendly text messaging. The two levels of the brand type factor were manipulated by using two brands, Louis Vuitton and Zara, which were named as the most popular luxury brand and the best fashion mainstream brand, respectively, in 2022 by trade publications (Beauloye, 2022; Ranker, 2022). These manipulations were calibrated through pretests.

A convenience sample of 203 college students (140 females;  $M_{\text{age}} = 21.6$ ) enrolled at a Southeastern university participated in the main experiment. Participants first completed a perceived luxuriousness measure for both Louis Vuitton and Zara (for manipulation check). Then, they were randomly assigned to one of the four experimental conditions and watched a video clip showing a chatbot, posed as their assigned brand's chatbot, assisting a customer's product return via text messaging using either formal or informal linguistic style. Then, the participants completed 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) measures of perceptions of linguistic style (for manipulation check), linguistic appropriateness, and chatbot trustworthiness, all adapted from the literature, and demographic items.

## Results

The formal chatbot ( $M = 3.00$ ) was perceived to be significantly more formal than the informal chatbot ( $M = 2.03$ ;  $t_{201} = -5.82$ ,  $p < .001$ ), and Louis Vuitton ( $M = 4.44$ ) was perceived to be significantly more luxurious than Zara ( $M = 2.91$ ;  $t_{202} = -26.65$ ,  $p < .001$ ); therefore, the manipulations were successful. Results from a multivariate analysis of variance (MANOVA) revealed a significant main effect of linguistic style and a significant Linguistic Style  $\times$  Brand Type interaction effect. Follow-up univariate ANOVA showed that the formal chatbot was significantly more linguistically appropriate ( $M_{\text{formal}} = 3.83$ ;  $M_{\text{informal}} = 2.86$ ;  $F_{1, 199} = 55.32$ ,  $p < .001$ ) and trustworthy ( $M_{\text{formal}} = 4.03$ ;  $M_{\text{informal}} = 3.70$ ;  $F_{1, 199} = 7.72$ ,  $p < .01$ ), supporting H1. The Linguistic Style  $\times$  Brand Type interaction effect was significant for perceived linguistic appropriateness ( $F_{1, 199} = 8.34$ ,  $p < .01$ ). Specifically, the mean difference ( $MD_{\text{formal} - \text{informal}}$ ) in linguistic appropriateness was larger for the luxury brand ( $MD = .135$ ,  $p < .001$ ) than for the mainstream

brand ( $MD = .59, p < .01$ ). Thus, H2a was supported. However, this interaction effect was non-significant for chatbot trustworthiness ( $p = .373$ ); thus, H2b was rejected.

Next, to test the mediation effect of perceived appropriateness (H3), PROCESS Model 8 using 5,000 bootstrap samples was run, revealing that perceived appropriateness fully mediated the Linguistic Style  $\times$  Brand Type interaction effect on chatbot trustworthiness (effect = .18, 95% CI [.04, .38]).

### Discussions and Implications

The findings of this study indicate that an e-service chatbot's formal linguistic style increases consumers' perceptions of linguistic appropriateness and trustworthiness of the chatbot, but this effect is stronger for luxury brands than for mainstream brands. These findings extend CLT by suggesting psychological distance congruence as a potentially important principle to design a chatbot's linguistic style in retail service contexts. This study also provides practical insights for both luxury and mainstream brands in terms of adopting the appropriate linguistic style of their service chatbots to enhance consumers' perceptions of chatbots' service.

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