When Gender Matters: Chatbot and Brand Gender Congruence in Driving Engagement and Advocacy

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Abstract

This research investigates the impact of chatbot gender on brand engagement and advocacy, considering the brand and product category gender. Using a 2x2 experimental design with 590 participants, the study explored how male and female chatbots influence consumer perceptions of masculine (cars) and feminine (beauty care) brands. Results show that a male chatbot significantly enhances brand engagement and advocacy for masculine brands and products, whereas for feminine brands and products, chatbot gender has no significant impact. These findings challenge the prevailing view that female chatbots are always more effective. Theoretical and practical implications suggest that marketers should carefully match chatbot gender to the brand and product category, extending to virtual influencers, avatars, and robots.

Résumé

Cette recherche explore l'impact du genre des chatbots sur l'engagement et l'advocacy de la marque, en tenant compte du genre de la marque et de la catégorie de produit. En s'appuyant sur un plan expérimental 2x2 impliquant 590 participants, l'étude examine comment les chatbots masculins et féminins influencent les perceptions des consommateurs pour des marques masculines (voitures) et féminines (soins de beauté). Les résultats montrent qu'un chatbot masculin améliore significativement l'engagement et l'advocacy de la marque pour les marques et produits masculins, tandis que pour les marques et produits féminins, le genre du chatbot n'a pas d'effet significatif. Ces conclusions remettent en cause l'idée dominante selon laquelle les chatbots féminins sont toujours plus efficaces. Les implications théoriques et pratiques suggèrent que les marketeurs devraient soigneusement choisir le genre du chatbot en fonction du genre de la marque et de la catégorie de produit, et ce jusqu'aux influenceurs virtuels, avatars et robots.

Keywords: Chatbot, brand warmth, brand competence, brand gender

Mots clés: Chatbot, chaleur de la marque, compétence de la marque, genre de la marque

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Introduction and purpose

The chatbot market is expected to grow at a 23% annual rate over 2022 to 2030[1], and the adoption of chatbots by brands should continue to develop (Shumanov & Johnson, 2021). Although chatbots can provide valuable online experiences for brands (Chintalapati & Pandey, 2022), some consumers are skeptical, preferring to interact with humans (Roy & Naidoo, 2021). Consumers' evaluations are more negative when the service provider is a chatbot versus a human, even when the service is identical (Castelo et al., 2023). Therefore, research on chatbots is much needed. It is crucial to understand how to make chatbot's interactions with customers effective and convincing (Kumar et al., 2021). Studies have shown that chatbots with anthropomorphic cues drive favorable consumers' decisions and buying behavior (Go & Sundar, 2019; Zhang et al., 2019). Thus, humanizing chatbots appears as a winning strategy for marketers.

Hence, managers must carefully choose the appropriate chatbot gender for their brand. In practice, the majority of chatbots are female (Feine et al., 2020). This seems logical, considering the research investigating the positive impact of perceived brand warmth on brand identification, attitude and engagement (Kolbl et al., 2020; Pogacar et al., 2021). Brand warmth is one dimension of the BIAF model for brands (Kervyn et al., 2012), based on the SCM model (Fiske et al., 2002) which posits that people perceive social groups on two dimensions: warmth and competence. Employing a female chatbot increases brand warmth (Ahn et al., 2022), and in turn brand attitude and engagement. Furthermore, warm messages are more effective than competent ones at increasing brand engagement (Kull et al., 2021).

However, some studies reveal the importance of a male chatbot in certain conditions. First, Beldad et al. (2016) show that a male chatbot promoting a masculine product has a more

[1] https://www.acumenresearchandconsulting.com/chatbot-market

favorable impact on customers' trust and purchase intention of the product, than a female chatbot. Second, a male (female) chatbot can lead to a more favorable attitude toward a utilitarian (hedonic) product (Ahn et al., 2022). Third, future-oriented consumers prefer a competent chatbot conversation over a warm one; it is the reverse for present-oriented subjects (Roy & Naidoo, 2021). Finally, managers struggle to choose the appropriate chatbot gender for their brand: The chatbot gender may differ within the same product category (male for Mercedes and female for Ford) or be inconsistent with the brand gender (female chatbot for Hugo Boss, masculine brand). This calls for further research on the most appropriate chatbot gender for gendered brands on gendered product categories.

Therefore, building on brand gender (Grohmann, 2009) and BIAF (Kervyn et al., 2012), the purpose of this research is to evaluate the impact of chatbot gender on brand outcomes, for masculine/feminine brands on masculine/feminine product categories.

Based on Beldad et al. (2016) who demonstrate that a male (female) chatbot promoting a masculine (feminine) product has a more favorable impact on customers' trust and purchase intention, and using brand engagement and brand advocacy as key brand outcomes in such digital context (Kull et al., 2021), we posit:

H1: For masculine product categories, a male chatbot enhances more a) brand engagement, and b) brand advocacy, than a female chatbot

H2: For feminine product categories, a female chatbot enhances more a) brand engagement b) brand advocacy, than a male chatbot.

Methodology

We used a 2 (chatbot gender: male/female) X 2 (product category gender: masculine/feminine) between-subject design. In a pretest, beauty care and cars were selected as the most suitable feminine/masculine product categories. Two brands were chosen for each category: **Tesla** and **Ford** (cars – masculine brands), **Nivea** and **Dove** (beauty care – feminine brands), based on their awareness/size, and a pre-test (112 respondents). Tesla (MBP=4.39/FBP=3.41) and Ford (MBP=4.55/FBP=2.92) are masculine, while Dove (MBP=3.79/FBP=5.11) and Nivea (MBP=4.09/FBP=4.88) are feminine. For the chatbots, a pretest (45 students) was led to choose the final faces and names.

Sample, procedure and measures

590 US participants were randomly assigned to one category and one brand. This allowed to examine also results for male/female sub-samples. The online experiment was designed in 3 stages: 1) evaluation of one brand in terms of familiarity, brand gender, brand warmth and competence, brand engagement and advocacy (measures from prior literature), 2) interaction

with a male or female chatbot (8 interactions), 3) reevaluation of the brand (same measures) and chatbot assessment.

The interaction with the chatbot started by: "*Hello I am Michael/Linda, your digital assistant, thanks for contacting Tesla/Ford/Nivea/Dove*". Then the chatbot proposed advice on driving or beauty care tips, choosing between 3 scenarii: For cars, "*Tips to stay focus while driving*", or "*How to drive safely to your destination*" or "*Discover a global and positive philosophy for driving*". Respondents were randomly assigned to one of the 3 tested scenarii: One-way between groups ANOVA were conducted to explore potential differences between them. There were no significant differences on the masculine category (cars: $F(2,328)=2.094$, $p=.125$) or the feminine one (beauty care: $F(2,321)=2.344$, $p=.098$). Manipulation checks showed that chatbot interactions were appreciated (e.g. The quality of the chatbot interaction is good: 5.26). There were no significant differences in the experiment check between male/female chatbots, male/female respondents and between the two tested brands within the category.

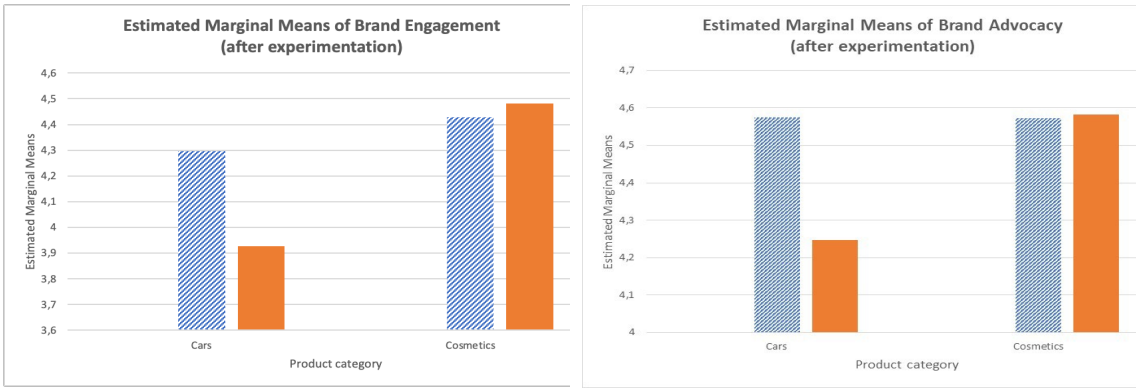
Findings

A two-way between-groups MANOVA was performed to investigate chatbot genders and product categories differences in brand outcomes. There was a significant difference between chatbot's gender and product category on the combined dependent variables, $F(2,538)=5.065$, $p=.007$; $\eta 2 = .018$.

Both brand engagement and advocacy reached statistical significance: Brand engagement $F(1,539)=6.248$, $p=.013$, $\eta 2 = .011$, brand advocacy $F(1,539)=8.177$, $p=.004$, $\eta 2 = .015$. To confirm this result, a 2 X 2 between groups ANCOVA was conducted to assess the effectiveness of chatbot's gender in enhancing (a) brand engagement and (b) advocacy for cars and cosmetics. There was a significant interaction effect for brand engagement ($F(1,540)=7.189$; $p=.008$. $\eta 2=.013$) and brand advocacy ($F(1,540)=3.884$; $p=.011$. $\eta 2 =.012$). These results suggest that male and female chatbots impact differently brand engagement and advocacy for cars or cosmetics (figure 1).

Bootstrap analysis and post-hoc comparisons were conducted to aid our interpretation of the findings. For cars, after adjusting for brand engagement and advocacy scores at Time 1, the mean scores for brand engagement ($\delta_{cosmetics:male\text{-}female}=.371$, $p<.001$) and advocacy ($\delta_{cars:male\text{-}female}=.328$, $p<.001$) after experimentation between male/female chatbots were statistically significant. However, for cosmetics, the effect was directional only in the expected direction but not significant for both brand engagement ($\delta_{cars:male\text{-}female}=-.053$, $p=.638$) and advocacy ($\delta_{cosmetics:male\text{-}female}=-.010$, $p=.916$). Therefore, we assume that the male chatbot is the most suitable choice for masculine product categories, whereas for feminine product categories, a

male or female chatbot can be used. Then H1 is supported, but H2 can't be validated.



The covariates included in the model are evaluated using the following values: brand engagement (before exp.) = 4.154 and brand advocacy (before exp.)=4.414

Chatbot gender: Male chatbot Female chatbot

Figure 1

Further analysis using a mixed between-within subject analysis of variance was conducted to confirm this interpretation. There was a significant interaction between chatbot gender, product category and time, for both brand engagement ($F(1,541)=7.928$, $p=.007$; $\eta 2 = .014$) and brand advocacy ($F(1,541)=6.591$, $p=.011$; $\eta 2 = .012$).

We also checked for the women sub-sample that the female chatbot enhanced directionally only brand engagement and advocacy, compared to the male one.

Theoretical implications

This shows the effect of the chatbot gender on brand engagement and advocacy, for brands on masculine/feminine product categories. For masculine ones, a male chatbot improves more brand engagement and advocacy than a female chatbot, contrasting with 1) research that recommends a female chatbot for its warmth (Kull et al, 2021; Ahn et al., 2022), and 2) actual practices (Feine et al, 2021). This result comforts first findings of Beldad et al. (2016) on congruence. However, for feminine product categories, both female and male chatbots generate similar levels of brand engagement and advocacy, contrasting with prior findings from Beldad et al. (2016) and with current practices (Feine et al., 2021). A male chatbot can also be effective in this feminine context. This might be explained by ambivalent sexism theory (Bareket and Fiske, 2023; Glick and Fiske, 2001) showing that men in nurturing roles can still be seen as competent if they come across as helpful rather than dominant, especially if the message conveys expertise alongside a supportive, benevolent tone (which was the case in the experimentation).

Practical Implications

Managers should consider both chatbot genders, depending on the product category gender and the brand gender. This could also provide insightful directions whenever marketers need to personify their brand, for real or virtual influencers, avatar in metaverse, or robots…

Originality/Value

This research challenges the prevailing idea that a female chatbot is always the best choice and is the first to demonstrate the impact of chatbot gender on brand outcomes.

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