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The Effects of Chatbot Gender on Consumer Buying Intention
for Products:
Human-AI Interactions in the E-Commerce Context

By

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Abstract

As conversational commerce increasingly integrates chatbot sales agents into consumer online shopping experiences, understanding how AI chatbots influence consumer decision-making has become essential for consumer behavior research that supports marketing practice. This research examines how chatbot gender affects consumer responses in e-commerce interactions across various product types. Across two studies, the current research investigates the effects of chatbot-consumer gender congruence on product attitudes and buying intentions. The findings reveal gender-specific response patterns: While female consumers rely more on perceived trustworthiness derived from chatbot gender similarity when making purchase decisions, male consumers prioritize source credibility and product-relevant expertise. The current research demonstrates that source similarity primarily influences product beliefs for utilitarian purchases but has a direct impact on purchase intentions for hedonic products. Notably, the current research also challenges assumptions about gender stereotyping, finding no significant interaction effects between chatbot gender and product types on consumer responses. This suggests that consumers may increasingly reject traditional gender biases in AI interactions. These findings offer important theoretical contributions to human-AI interaction research and practical implications for digital marketing practice.

The Effects of Chatbot Gender on Consumer Buying Intention for Products:

Human-AI Interactions in the E-Commerce Context

Imagine navigating an online store where the chatbot not only provides product recommendations based on your needs but also interacts with you like a friend. How does the perceived gender of this chatbot affect your buying intention for different products? Entering the Web 3.0 era, chatbot sales agents are frequently encountered on e-commerce platforms, substantially transforming consumer behavior (Jiang et al., 2022; Yu et al., 2024). Although prior studies have revealed that chatbots' anthropomorphic features have positive impacts on increasing consumers' buying intentions for products (e.g., Mourey et al., 2017; Sidlauskiene et al., 2023), few have explored the impact of chatbot gender on buying intentions for different product categories. It is crucial to pay more scholarly attention to relevant research and contribute to a deeper understanding of consumers' judgment and decision-making in human-AI interactions, in order to inform marketing strategies and sales activities more effectively. In the current study, we test whether effectively matching a chatbot's gender with that of consumers across different product categories enhances consumers' online shopping experiences and buying intentions, leading to better sales outcomes.

Conversational Commerce and Chatbot Sales Agents

Conversational commerce refers to a customer's buying activity through a digital assistant, involving the use of conversational agents to engage with brands and their services (Messina, 2016). AI-powered online chatbots can capture a customer's requests, delivering personalized services in real-time, such as product recommendations, usage tips, and after-sales support. These chatbot agents can not only be trained to respond to customer questions

promptly but also provide innovative solutions and empathetic care, displaying both utilitarian and social functions (Liu & Sundar, 2018; Stock & Merkle, 2018). Nevertheless, Statista (2024) revealed that 43% of consumers were unhappy using chatbot agents in the retail context, implying lower buying intention as a consequence. A plausible explanation could be that consumers have higher expectations for chatbots' error-free solutions, which may dilute their perceived warmth compared to human agents (Lou et al., 2021).

Chatbot Anthropomorphism and Impacts on Consumer Buying Intention

Anthropomorphism refers to attributing human-like features to non-human objects, such as human faces and voices, conversational tones, and personalities (Pfeuffer et al., 2019). Mourey et al. (2017) have indicated that chatbots' anthropomorphic features could significantly increase trust and bolster the emotional bond between consumers and the chatbot, resulting in more positive attitudes toward products recommended by the chatbot. In the field of chatbot agent research, numerous studies have examined the importance of chatbot anthropomorphism in increasing consumer buying intentions. For instance, Sidlauskienė et al. (2023) found that anthropomorphic chatbots with verbal design cues (e.g., informal language and small talk) significantly increased consumers' buying intentions for products compared to non-anthropomorphic chatbots. Jiang et al. (2022) also indicated that chatbots that use conversational tones can enhance user satisfaction, contributing to higher buying intentions and price premiums for products.

Chatbot Gender's Impact on Consumer Behavior

Pfeuffer et al. (2019) identified gender as a critical anthropomorphic feature of chatbots, as a gender presentation that matches consumers' expectations can enhance

perceived familiarity with the chatbot. Zogaj et al. (2023) indicated that consumers showed more positive attitudes toward same-gender chatbots, as gender alignment (i.e., similarity) can significantly contribute to psychological closeness to chatbots. In contrast, Liang et al. (2024) found that female chatbots were more effective in increasing the satisfaction of angry customers in product failure scenarios, indicating higher utility in after-sales service. Thus, chatbot gender may have varied impacts on consumer attitudes when performing different tasks.

The Interplay Between Sales Agent Gender and Product Category

Previous studies have shown that the impact of sales agent gender on consumer behavior varies across product categories. For instance, Beldad et al. (2016) found that aligning the gender of photographed virtual sales agents (VSAs) with product gender (i.e., masculine vs. feminine) could result in higher perceived product credibility and buying intention. Additionally, Ahn et al. (2022) found that participants showed more positive attitudes toward male AI recommendations for utilitarian (vs. hedonic) products, while showing more positive attitudes toward female AI recommendations for hedonic (vs. utilitarian) products. Nevertheless, very little research has identified the interaction effects of chatbot gender and product category on consumer buying intentions using real chatbots on a simulated e-commerce platform, rather than adopting scripted scenario priming.

Current Research

Despite significant findings on the impact of anthropomorphic chatbots on increasing consumers' buying intentions, there remains a lack of understanding of how chatbot gender influences their buying intentions across different product categories. It is beneficial to

understand how to effectively match chatbot sales agents' gender with consumer gender across different product categories to enhance consumer engagement and positive attitudes toward products, ultimately leading to improved buying intention and sales outcomes. Additionally, the findings of existing studies on the impact of sales agent gender and product category on consumer behavior have convergently used scripted scenario stimuli manipulations instead of real chatbot interactions (e.g., Beldad et al., 2016; Zogaj et al., 2023), which oversimplifies actual consumer behavior in online shopping.

The current research aims to examine how chatbot-consumer gender congruence affects consumers' buying intentions across different product categories, addressing two overarching research questions. The first research question investigates whether chatbot-consumer gender congruence can significantly increase consumers' buying intention for products. Although Zogaj et al. (2023) suggested that same-gender chatbots significantly boost consumers' psychological closeness to products, their findings may lack validity due to the scenario description, which overlooks the importance of observing consumer behavior in a real-time interactive process. Therefore, the current research examines whether chatbot-consumer gender congruence can significantly increase consumers' buying intention for products when using real chatbot sales agents on a simulated e-commerce platform. Specifically, the first hypothesis of this study is proposed as follows:

H1: The gender congruence between the chatbot and the consumer significantly impacts attitudes and buying intentions for both female and male participants. Specifically, attitudes and buying intentions for products will be higher when there is gender congruence between the chatbot and the consumer, compared to when there is no gender congruence.

The second research question asks whether matching a product category with a chatbot's gender can significantly increase chatbot sales agents' influence on boosting consumers' buying intentions. Ahn et al. (2022) found that consumer buying intentions were higher when pairing male chatbots with utilitarian products and female chatbots with hedonic products. Thus, the current research suggests that the consumers' buying intentions are higher when the product category aligns with the chatbot's gender (i.e., matching male chatbots with utilitarian products and female chatbots with hedonic products). Additionally, Beldad et al. (2016) found that consumer buying intention was higher when aligning the sales agent's gender with the product's gender. Therefore, the current research proposes that consumers' buying intentions are higher when the product gender aligns with the chatbot's gender (i.e., matching male chatbots with masculine products and female chatbots with feminine products). Specifically, the second hypothesis of this study is proposed as follows:

H2a: Both female and male participants will report more positive attitudes and higher buying intentions for the utilitarian product when the male chatbot recommends it. In contrast, they will report more positive attitudes and higher buying intentions for the hedonic product when the female chatbot recommends it.

H2b: Both female and male participants will report more positive attitudes and higher buying intentions for the masculine product when the male chatbot recommends it than the female chatbot does. In contrast, they will report more positive attitudes and higher buying intentions for the feminine product when the female chatbot recommends it, compared to when the male chatbot recommends it.

Study 1

Method

Participants

Study 1 examined the effects of chatbot-consumer gender congruence on attitudes and buying intentions for products among female and male participants. Additionally, it investigated whether participants have more positive attitudes and higher buying intentions for products when the product category is aligned with the chatbot's gender. Specifically, this study recruited 200 participants with an equal gender distribution of female and male participants from the United States through the Prolific platform. It has been revealed that participants on the Prolific platform have relatively higher response quality compared to those on Amazon Mechanical Turk (Douglas, 2023; Kay, 2024). The subjects were aged 18 to 85 and had a disposable income or a retirement pension from work, and they engaged in online shopping at least once in a few months. Each participant received \$2 for participating in the study, with an average finish time of eight minutes. After data cleaning, the average finish time was 12 minutes. Financial rewards were only provided for participants who interacted with the chatbot sales agent by providing their Prolific ID in the chat window and passing the attention check under a manual review procedure. The data were collected in March 2025 after approval from the UChicago AURA Institutional Review Board (IRB), with informed consent obtained from each participant in this study.

The filtering procedure left 160 valid samples for Study 1, 73 for the condition with the opposite-gender chatbot, and 87 for the condition with the same-gender chatbot.

Participants in Study 1 with valid responses were aged 19 to 74 (51.25% female, $M_{\text{age}} =$

39.57, $SD_{age} = 13.53$).

Experimental Design and Procedures

Chatbot sales agents were created by Chatbase, an online platform for building and deploying AI sales agents to handle customer support (<https://www.chatbase.co/>). Two chatbot sales agents were created using the GPT-4 model, with gender variation by avatar appearances, names, and conversational tones (see Appendix 1). Specifically, the male sales agent, Johnson, uses a more straightforward tone and concise language, while the female sales agent, Bella, uses a gentler tone and caring language. To ensure that chatbot sales agents differed only by gender and to alleviate potential confounds such as product recommendation appeals, the product recommendations from each sales agent were generated based on the same training data about specific product information used in the experiment and particular answers to specific prompts that participants might provide in the experiments. A small batch of convenience pre-test samples ($n = 35$) answered perceived differences between the two sales agents. All participants indicated gender as the primary perceived difference, with some responding with the difference in conversational tone, which was also an integrated part of chatbot gender manipulation. Chatbot sales agents were embedded in two simulated e-commerce platforms (see Appendix 2), one for each group (i.e., Chatbot gender: same vs. different; product category: utilitarian and hedonic).

This study employed a 2 (chatbot gender: same vs. opposite) \times 2 (product category: utilitarian vs. hedonic) mixed design experiment with product category as the repeated variable. Participants were first randomized into two conditions: same-gender chatbot and opposite-gender chatbot. In each condition, they were asked to buy an ergonomic mouse and

a scented candle for a new move-in. Specifically, the ergonomic mouse was used for utilitarian product manipulation, and the scented candle was used for hedonic product manipulation, which was validated as effective manipulations by Ahn et al. (2022).

Participants were then asked to interact with the chatbot sales agents by navigating the simulated e-commerce platform in each condition and providing their Prolific ID before interacting with the chatbot. After the interaction with the chatbot, they were redirected to the Qualtrics survey and indicated their attitudes toward the products recommended by the chatbot sales agent on a 7-point Likert scale (1 = negative, bad, unfavorable; 7 = positive, good, favorable) adopted from Holzwarth et al. (2006), with a Cronbach's alpha of .94. Then, they indicated their buying intention for products through three 7-point Likert scale questions ($\alpha = .93$ for the ergonomic mouse, $\alpha = .92$ for the scented candle). Finally, they confirmed the product category (1 = functional, practical, unenjoyable, not fun; 7 = not functional, impractical, enjoyable, fun) and the chatbot gender (1 = extremely masculine; 7 = extremely feminine) for manipulation checks. Specifically, the four Likert scale questions used for chatbot gender manipulation checks had a Cronbach's alpha of .91. The questions about product attitudes, buying intention, and product category manipulation checks were separated for the ergonomic mouse and the scented candle. To serve the data analysis purpose, product buying intention scores were averaged from three questions, as well as the chatbot gender manipulation check question. All participants in the study finished an attention check at the end of the experiment. There was an open-ended question asking participants about their feelings regarding chatbot sales agents' product recommendations. The full study design can be found in the [Study Protocol](#) on simulated websites.

Data Analysis

We analyzed all data using R (Version 4.3.1; R Core Team, 2023). Data was cleaned and transformed after excluding participants who 1) did not interact with the chatbot sales agent (as determined through manual review by matching Prolific IDs in the conversation window with those in the dataset) and/or 2) failed the attention check. Manipulation checks were conducted using t-tests for chatbot gender and product category manipulations. Then, Two-way ANOVA and linear regression with interaction terms were performed to assess whether chatbot-consumer gender congruence can significantly increase consumers' attitudes toward products and buying intention for products. The test results also indicated whether there were interaction effects between chatbot gender and product category. Finally, Structural Equation Modeling (SEM) was conducted to explore how consumers' attitudes toward products mediate their buying intention for those products. The complete dataset for Study 1 can be accessed at the [Cleaned and Valid Dataset for Study 1](#).

Results

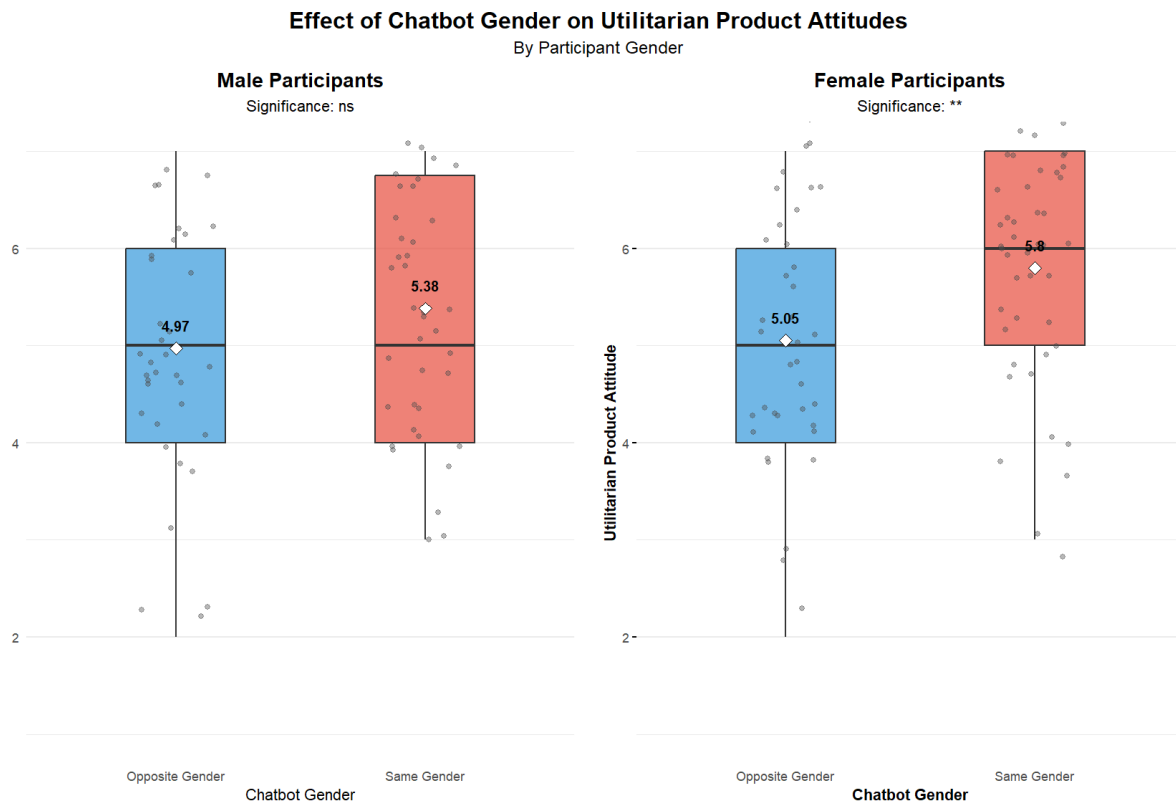
Manipulation Checks

The manipulation check of perceived chatbot gender (1 = extremely masculine, 7 = extremely feminine) was successful for Study 1. Specifically, the t-test results confirmed that male participants in the same chatbot gender condition perceived the chatbot sales agent as significantly more masculine ($M = 3.25$, $SD = 1.19$) than those in the opposite chatbot gender condition ($M = 5.38$, $SD = 1.10$), $t(75.55) = 8.18$, $p < .001$. Female participants in the same chatbot gender condition perceived the chatbot sales agent as significantly more feminine ($M = 5.52$, $SD = 1.17$) than those in the opposite chatbot gender condition ($M = 3.17$, $SD = 1.16$),

$t(77.14) = -9.07, p < .001$. The manipulations of the product category of utilitarian and hedonic products were also successful (1 = extremely utilitarian, 7 = extremely hedonic), with participants perceiving the ergonomic mouse as significantly more utilitarian ($M = 3.31, SD = 1.48$) than the scented candle ($M = 4.31, SD = 1.58$), $t(159) = -6.12, p < .001$.

Chatbot Gender's Impacts on Attitudes toward Products

Main effect on the utilitarian product. The two-way ANOVA revealed that participants had significantly higher attitude ratings for the ergonomic mouse when it was recommended by the same-gender chatbot ($M = 5.6, SE = 0.15$) than it was recommended by the opposite-gender chatbot ($M = 5.01, SD = 0.14$), $F(1, 156) = 8.38, p = .004, d = .46$. Although the interaction between chatbot-consumer gender congruence and participant gender was not statistically significant in the two-way ANOVA ($p = .40$), exploratory analyses examining each gender separately showed potential differences in effect strength. Specifically, female participants had significantly more positive attitude ratings for the ergonomic mouse when it was recommended by the female chatbot ($M = 5.8, SE = 0.19$) than it was recommended by the male chatbot ($M = 5.01, SE = 0.21$), $F(1, 81) = 7.59, p = .007, d = .61$. This effect was not found among male participants as there was no significant difference between their attitude of the ergonomic mouse recommended by the male chatbot ($M = 5.38, SE = 0.20$) and recommended by the female chatbot ($M = 4.97, SE = 0.21$), $F(1, 77) = 1.85, p = .178$ (Figure 1). Therefore, the insignificant interaction between chatbot-consumer gender congruence and consumer gender in the two-way ANOVA test might result from a similar pattern across genders (i.e., a same-gender chatbot is preferred in both genders), even though the magnitude of the effect differs between female and male participants.

Figure 1*Effect of Chatbot Gender on Utilitarian Product Attitudes*

Main effect on the hedonic product. The two-way ANOVA results revealed no significant difference between the effects of same-gender chatbot ($M = 5.32$, $SE = 0.16$) and opposite-gender chatbot ($M = 4.97$, $SE = 0.17$), $F(1, 156) = 2.18$, $p = .142$ on attitudes toward the scented candle. Aligned with the insignificant interaction between chatbot and participant gender ($p = .543$), there was no significant difference in the chatbot gender's impacts on attitudes toward the scented candle among both female and male participants when conducting separate analyses (female: $M_{\text{opposite}} = 4.86$ vs. $M_{\text{same}} = 5.36$; male: $M_{\text{opposite}} = 5.08$ vs. $M_{\text{same}} = 5.29$).

Interaction effect of the product category. To test the interaction effect between chatbot gender and product category, a multiple linear regression was conducted on chatbot

gender congruence (opposite vs. same) and the interaction term between actual chatbot gender (female vs. male) and product type (utilitarian vs. hedonic). The results revealed a significant main effect of chatbot-consumer gender congruence on product attitudes, $B = 0.46$, $SE = 0.16$, $t(315) = 2.98$, $p = .003$, indicating that participants rated products more positively when interacting with a chatbot of the same gender in Study 1. Neither product type ($B = -0.14$, $p = .527$) nor the actual chatbot gender ($B = 0.19$, $p = .377$) had a significant main effect on product attitudes. Contrary to the hypothesis, the interaction between product type and actual chatbot gender was insignificant ($B = -0.06$, $p = .851$), suggesting that male chatbots were not more effective for utilitarian products, and female chatbots were not more effective for hedonic products.

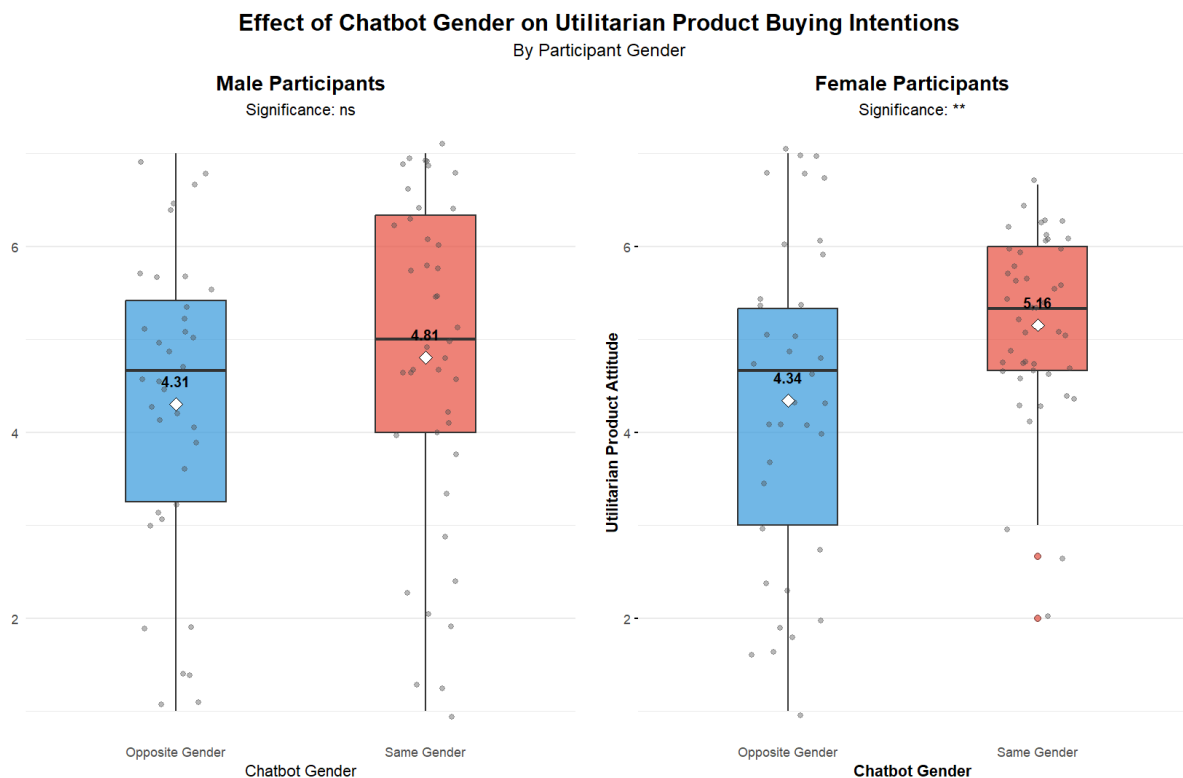
Chatbot Gender's Impacts on Buying Intention toward Products

Main effect on the utilitarian product. The two-way ANOVA results revealed that participants had significantly higher buying intention for the ergonomic mouse when it was recommended by the same-gender chatbot ($M = 4.99$, $SE = 0.17$) than it was recommended by the opposite-gender chatbot ($M = 4.32$, $SE = 0.18$), $F(1, 156) = 7.31$, $p = .008$, $d = .43$. Same as the attitudes toward the product, the interaction between chatbot and participant gender was not statistically significant in the two-way ANOVA ($p = .53$). Nevertheless, the exploratory analyses examining each gender separately showed differences in effect magnitude. Specifically, female participants had significantly higher buying intentions for the ergonomic mouse when it was recommended by the female chatbot ($M = 5.16$, $SE = 0.23$) than it was recommended by the male chatbot ($M = 4.34$, $SE = 0.26$), $F(1, 81) = 7.09$, $p = .009$, $d = .59$. There was no significant difference between male participants' buying

intention for the ergonomic mouse recommended by the male chatbot ($M = 4.81$, $SE = 0.24$) and recommended by the female chatbot ($M = 4.31$, $SE = 0.26$), $F(1, 77) = 1.68$, $p = .198$ (Figure 2).

Figure 2

Effect of Chatbot Gender on Utilitarian Product Buying Intentions



Main effect on the hedonic product. Though no significant difference was found in chatbot gender congruence's impacts on attitudes toward the scented candle, the two-way ANOVA results revealed that participants had significantly higher buying intention for the scented candle when it was recommended by the same-gender chatbot ($M = 4.88$, $SE = 0.18$) than it was recommended by the opposite-gender chatbot ($M = 4.27$, $SE = 0.19$), $F(1, 156) = 5.37$, $p = .022$, $d = .37$. Though the interaction between chatbot and participant gender was not statistically significant in the two-way ANOVA ($p = .46$), the exploratory analysis indicated that female participants had significantly higher buying intentions for the scented

candle when it was recommended by the female chatbot ($M = 4.89, SE = 0.25$) than it was recommended by the male chatbot ($M = 4.09, SE = 0.27$), $F(1, 81) = 5.13, p = .026, d = .50$.

This effect was not found among male participants as there was no significant difference between their buying intention for the scented candle recommended by the male chatbot ($M = 4.87, SE = 0.26$) and recommended by the female chatbot ($M = 4.45, SE = 0.28$), $F(1, 77) = 1.11, p = .295$.

Interaction effect of the product category. The multiple linear regression results revealed a significant main effect of chatbot-consumer gender congruence on product buying intentions, $B = 0.63, SE = 0.18, t(315) = 3.53, p < .001$, indicating that participants had significantly higher buying intentions for products when interacting with a chatbot of the same gender. Neither product type ($B = -0.09, p = .727$) nor the actual chatbot gender ($B = 0.17, p = .496$) had a significant main effect on product buying intentions. Again, the interaction between product type and actual chatbot gender was insignificant for buying intentions for products ($B = 0.01, p = .986$), suggesting that male chatbots were not more effective for selling utilitarian products, and female chatbots were not more effective for hedonic products.

Exploratory Analysis: Product Attitudes as a Mediator on Buying Intentions

The mediation analysis results for the utilitarian product analysis are presented in Figure 3. Results revealed that the effect of chatbot-consumer gender congruence on buying intention for the utilitarian product was fully mediated by attitude. Specifically, chatbot-consumer gender congruence had a positive influence on attitude ($\beta = 0.22, p = .004$), which in turn positively influenced buying intention ($\beta = 0.78, p < .001$). The indirect effect was

significant ($\beta = 0.17, p = .004$), while the direct effect became insignificant ($\beta = 0.04, p = .468$) when accounting for the mediator.

For female participants, there was significant evidence of product attitude mediation, with an indirect effect ($\beta = 0.21, p = .008$). Specifically, female participants showed significantly enhanced product attitudes as the total effect ($\beta = 0.29, p = .005$), which subsequently led to stronger buying intentions ($\beta = 0.70, p < .001$). The direct effect was insignificant ($\beta = 0.08, p = .315$), suggesting that improved product attitudes fully explain the impact of same-gender chatbots on buying intentions.

In contrast, although the pathway from product attitudes to buying intentions for the ergonomic mouse was strongly significant among male participants ($\beta = 0.84, p < .001$), the effect of same-gender chatbots on product attitudes was not significant ($\beta = 0.15, p = .168$). Consequently, the indirect effect ($\beta = 0.13, p = .170$) and total effect ($\beta = 0.15, p = .189$) were not statistically significant for male participants. The direct effect of same-gender chatbot on buying intentions for the mouse was insignificant ($\beta = 0.02, p = .776$).

Figure 3

Mediation of Chatbot Gender Effects on Ergonomic Mouse Buying Intentions

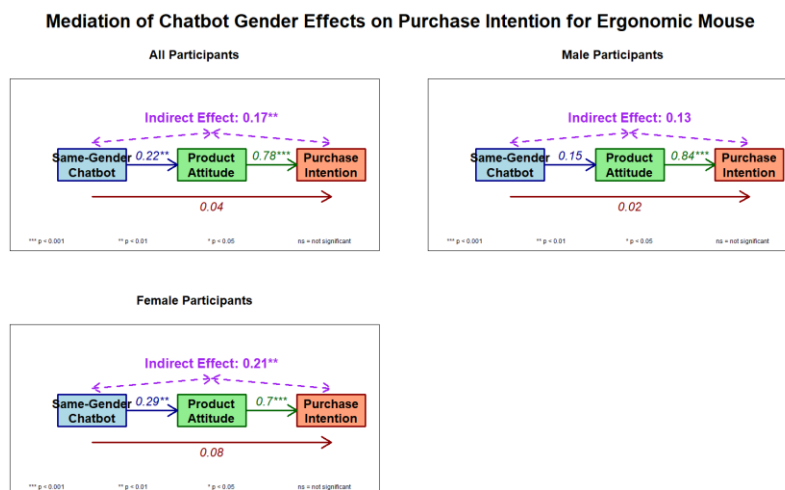
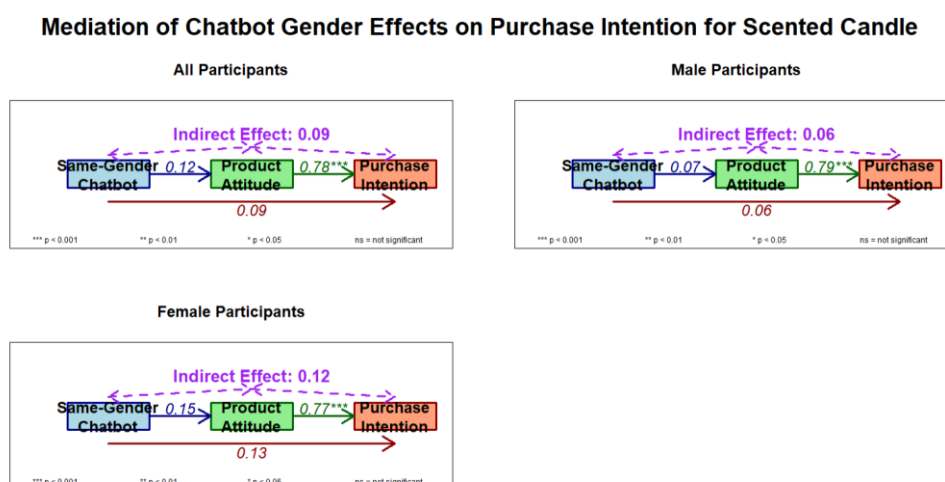


Figure 4 illustrates the mediation analysis results for the hedonic product.

Interestingly, the overall sample showed a significant total effect of chatbot-consumer gender congruence on buying intentions ($\beta = 0.18, p = 0.019$). However, this effect was not clearly mediated through product attitudes, as the indirect effect was insignificant ($\beta = 0.09, p = 0.137$). The direct effect approached the significance calibration ($\beta = 0.09, p = 0.061$), suggesting that same-gender chatbots may directly influence buying intentions for the scented candle beyond their effect on attitudes. For female participants, the total effect of chatbot-consumer gender congruence on buying intentions was significant ($\beta = 0.25, p = 0.022$), with a direct effect that approached significance ($\beta = 0.13, p = 0.057$). Nevertheless, the indirect effect through scented candle product attitudes on buying intention was not significant ($\beta = 0.12, p = 0.163$). No effect was significant for male participants despite the strong relationship between product attitudes and buying intentions.

Figure 4

Mediation of Chatbot Gender Effects on Scented Candle Buying Intentions



Discussion

Study 1 partially confirmed the hypothesis that chatbot-consumer gender congruence has a significantly positive impact on product attitudes and buying intentions. Specifically, although the two-way ANOVA results indicated that the same-gender chatbot significantly increased participants' attitudes and buying intentions among all participants, the separate exploratory analyses for female and male participants showed no significant difference for male participants. Therefore, it is plausible that female participants primarily drove the overall effect. Additionally, though the gender-matched chatbot increased female participants' attitudes and buying intentions for the utilitarian product, it only increased buying intentions, but not attitudes toward the hedonic product.

The exploratory mediation analysis further suggested that female participants drove the main effect of chatbot gender congruence, and attitudes toward the utilitarian product had a full mediation effect on the gender-matched chatbot's impact on increasing buying intention. The mediation effect was insignificant for the hedonic product, suggesting that gender-matched chatbot directly impacts buying intentions for the hedonic product without changing underlying product attitudes for female participants. In contrast, the gender-matched chatbot's impacts on male participants' attitudes and buying intentions for products were only directional, without any statistically significant direct effect or mediation impact observed. H2a was rejected as there were no significant interaction effects between chatbot gender and product category, indicating that the female and male chatbots had equally perceived efficacy in recommending both utilitarian and hedonic products.

Study 2

Method

Participants

Study 2 further examined the impacts of chatbot-consumer gender congruence on attitudes and buying intentions for products and investigated whether participants have more positive attitudes and higher buying intentions for the product when the product's gender is aligned with the chatbot's gender. This study recruited 200 participants with an equal gender distribution of female and male participants from the United States through the Prolific platform. The subjects were aged 18 to 85 and had disposable income or a retirement pension from work, and they engaged in online shopping at least once in a few months. Each participant received \$2 for participating in the study, with an average finish time of 12 minutes after data cleaning. Participants only acquired financial rewards after interacting with the chatbot sales agent and passing the attention check. The data were collected in March 2025 after approval from the UChicago AURA Institutional Review Board (IRB), with informed consent obtained from each participant in this study.

The filtering procedure left 161 valid samples for Study 2, 78 for the opposite-gender chatbot condition, and 83 for the same-gender chatbot condition. Participants in Study 2 with valid responses ranged in age from 18 to 81 years old (54.66% female, $M_{\text{age}} = 37.4$, $SD_{\text{age}} = 13.12$).

Experimental Design and Procedures

We used the same chatbot sales agents created by Chatbase in Study 2. Chatbot sales agents were embedded in two simulated e-commerce platforms, one for each group (i.e.,

Chatbot gender: same vs. different; product gender: feminine and masculine). This study employed a 2 (chatbot gender: same vs. opposite) \times 2 (product gender: masculine vs. feminine) mixed design experiment with product gender as the repeated variable. Every procedure was the same as Study 1 except for the products used for product gender manipulation. In Study 2, an electric drill was used as the masculine product, while a bakery mold was adopted as the feminine product. Items measuring buying intentions for the electric drill have an alpha of .91, and an alpha of .92 for items measuring buying intentions for the bakery mold. Apart from indicating their attitudes and buying intentions toward products, participants also confirmed the chatbot's gender and the gender of the product (1 = extremely masculine, 7 = extremely feminine) in the last section. The perceived chatbot gender measurements have an alpha of .90 for Study 2. All participants finished the attention check at the end of the experiment. The full study design can be found in the [Study Protocol](#).

Data Analysis

Data was cleaned and transformed after excluding participants who did not interact with the chatbot sales agent and/or failed the attention check. Manipulation checks were conducted using t-tests for chatbot gender and product gender manipulations. Two-way ANOVA and linear regression with interaction terms were used to assess whether chatbot-consumer gender congruence can significantly increase consumers' attitudes toward products and their buying intention for these products. The test results also indicated whether there were interaction effects between chatbot gender and product gender. Finally, Structural Equation Modeling (SEM) was conducted to explore how the mediation of consumers' attitudes toward products mediates their buying intention for those products. The complete

dataset for Study 2 can be accessed at the [Cleaned and Valid Dataset for Study 2](#).

Results

Manipulation Checks

The manipulation check of perceived chatbot gender (1 = extremely masculine, 7 = extremely feminine) was successful for Study 2. Specifically, the t-test results revealed that male participants in the same chatbot gender condition perceived the chatbot sales agent as significantly more masculine ($M = 3.38$, $SD = 1.15$) than those in the opposite chatbot gender condition ($M = 4.98$, $SD = 1.11$), $t(70.84) = 6.07$, $p < .001$. Female participants in the same chatbot gender condition perceived the chatbot sales agent as significantly more feminine ($M = 5.61$, $SD = .79$) than those in the opposite chatbot gender condition ($M = 3.09$, $SD = .89$), $t(83.76) = -13.93$, $p < .001$. The manipulations of the product gender of masculine and feminine products were also successful (1 = extremely masculine, 7 = extremely feminine), with participants perceiving the electric drill as significantly more masculine ($M = 3.58$, $SD = 1.26$) than the bakery mold ($M = 4.91$, $SD = 1.31$), $t(160) = -10.0$, $p < .001$.

Chatbot Gender's Impacts on Attitudes toward Products

Main effect on the masculine product. The two-way ANOVA results indicated there was no significant difference between same-gender chatbot ($M = 5.37$, $SE = 0.14$) and opposite-gender chatbot's impacts ($M = 5.22$, $SE = 0.14$), $F(1, 157) = .504$, $p = .48$ on the product attitudes toward the electric drill. Nevertheless, participant gender had a significant main effect on the product attitudes, with female participants showing significantly more positive attitudes ($M = 5.62$, $SD = 1.22$) than male participants ($M = 5.62$, $SD = 1.22$), $F(1, 157) = 10.723$, $p = .001$. The interaction between chatbot-consumer gender congruence and

participant gender was insignificant ($p = .873$). Similarly, the exploratory analyses on both female ($M_{same} = 5.71$, $SD_{same} = 1.14$ vs. $M_{opposite} = 5.53$, $SD_{opposite} = 1.30$) $F(1, 86) = .459$, $p = .500$ and male participants ($M_{same} = 5.03$, $SD_{same} = 1.44$ vs. $M_{opposite} = 4.91$, $SD_{opposite} = 1.15$) $F(1, 71) = .133$, $p = .716$ were insignificant, indicating that the chatbot-consumer gender congruence had no significant impact on their attitudes toward the electric drill.

Main effect on the feminine product. The two-way ANOVA results indicated there was no significant difference between same-gender chatbot ($M = 5.10$, $SE = 0.15$) and opposite-gender chatbot's impacts ($M = 5.14$, $SE = 0.15$), $F(1, 157) = .047$, $p = .83$ on the product attitudes toward the bakery mold. Consistent with the gender difference in attitudes toward the electric drill, female participants showed significantly more positive attitudes toward the bakery mold ($M = 5.39$, $SD = 1.33$) than male participants ($M = 4.85$, $SD = 1.34$), $F(1, 157) = 6.35$, $p = .013$. The interaction between chatbot-consumer gender congruence and participant gender was insignificant ($p = .902$). Similarly, the exploratory analyses on both female ($M_{same} = 5.38$, $SD_{same} = 1.17$ vs. $M_{opposite} = 5.40$, $SD_{opposite} = 1.50$) $F(1, 86) = .004$, $p = .951$ and male participants ($M_{same} = 4.82$, $SD_{same} = 1.45$ vs. $M_{opposite} = 4.89$, $SD_{opposite} = 1.23$) $F(1, 71) = .049$, $p = .826$ were insignificant, indicating that the chatbot-consumer gender congruence had no significant impact on their attitudes toward the bakery mold.

Interaction effect of the product gender. To test the interaction effect between chatbot gender and product gender, a multiple linear regression was conducted on chatbot gender congruence (opposite vs. same), actual chatbot gender (female vs. male), consumer gender (female vs. male), product gender (feminine vs. masculine), and the interaction terms between 1) actual chatbot gender and product gender, and 2) consumer gender and product

gender. Consumer gender was the only significant predictor ($\beta = 0.65, p = .002$), with female participants generally reporting more positive product attitudes than male participants in general. Neither chatbot gender congruence ($\beta = 0.05, p = .731$), actual chatbot gender ($\beta = 0.04, p = .843$), nor product gender ($\beta = -0.11, p = .663$) significantly predicted product attitudes.

Contrary to the hypothesis, the interaction between chatbot gender and product gender was not significant ($\beta = -0.02, p = .935$), suggesting that matching chatbot gender to product gender does not influence consumer attitudes. Similarly, the interaction between consumer gender and product gender was not significant ($\beta = -0.11, p = .695$), indicating that male and female consumers did not differ for products perceived as gendered

Chatbot Gender's Impacts on Buying Intentions toward Products

Main effect on the masculine product. The two-way ANOVA results indicated there was no significant difference between same-gender chatbot ($M = 4.88, SE = 0.15$) and opposite-gender chatbot's impacts ($M = 4.93, SE = 0.15$), $F(1, 157) = .157, p = .69$ on the buying intentions for the electric drill. Nevertheless, participant gender again had a significant main effect on the product attitudes, with female participants showing significantly higher buying intentions ($M = 5.17, SD = 1.24$) than male participants ($M = 4.65, SD = 1.41$), $F(1, 157) = 6.104, p = .015$. The interaction between chatbot-consumer gender congruence and participant gender was insignificant ($p = .194$). Similarly, the exploratory analyses on both female ($M_{same} = 5.01, SD_{same} = 1.32$ vs. $M_{opposite} = 5.33, SD_{opposite} = 1.15$) $F(1, 86) = 1.523, p = .22$ and male participants ($M_{same} = 4.75, SD_{same} = 1.43$ vs. $M_{opposite} = 4.53, SD_{opposite} = 1.41$) $F(1, 71) = .442, p = .508$ were insignificant, indicating that

the chatbot-consumer gender congruence had no significant impact on their buying intentions for the electric drill.

Main effect on the feminine product. The two-way ANOVA results indicated there was no significant difference between same-gender chatbot ($M = 4.73$, $SE = 0.16$) and opposite-gender chatbot's impacts ($M = 4.69$, $SE = 0.17$), $F(1, 157) = .001$, $p = .97$ on the buying intentions for the bakery mold. Different from the buying intentions for the electric drill, the main effect of gender was insignificant ($p = .111$). The interaction between chatbot-consumer gender congruence and participant gender was insignificant ($p = .182$). Similarly, the exploratory analyses on both female ($M_{same} = 4.76$, $SD_{same} = 1.37$ vs. $M_{opposite} = 5.03$, $SD_{opposite} = 1.38$) $F(1, 86) = .837$, $p = .363$ and male participants ($M_{same} = 4.69$, $SD_{same} = 1.66$ vs. $M_{opposite} = 4.34$, $SD_{opposite} = 1.42$) $F(1, 71) = .932$, $p = .338$ were insignificant, indicating that the chatbot-consumer gender congruence had no significant impact on their buying intentions for the bakery mold.

Interaction effect of the product gender. The multiple linear regression for buying intentions mirrored the results from attitudes, revealing that consumer gender was the only significant predictor of buying intentions in Study 2. Female participants reported more positive product attitudes than male participants ($\beta = 0.53$, $p = .017$).

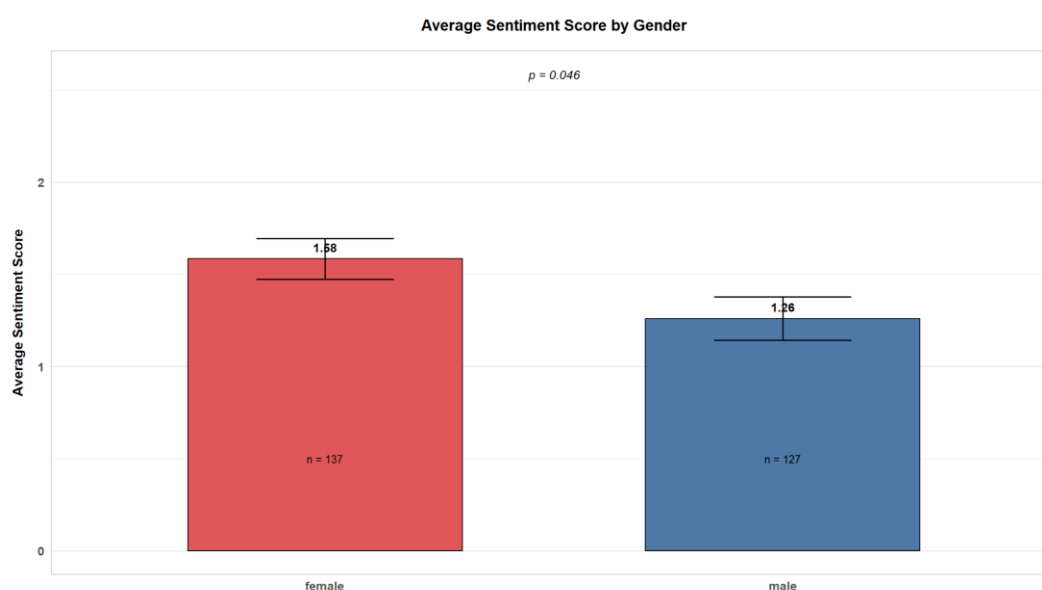
Discussion

Study 2 failed to reject the null hypothesis in both hypotheses 1 and 2b. Specifically, no significant effect on product attitudes or buying intentions for masculine or feminine products was found for chatbot gender congruence, actual chatbot gender, or the interactions between actual chatbot gender and product gender. The only observations from Study 2 were

that female participants tended to have significantly more positive attitudes and higher buying intentions for the electric drill, as well as for the bakery mold, than male participants. To further identify whether there are significant differences between female and male participants' attitudes toward the chatbot sales agents and their service, a sentiment analysis of participants' feelings about the chatbot sales agents was conducted using the Bing lexicon from the open-ended questions. The results of both studies indicated that female participants had significantly higher sentiment scores ($M = 1.58$, $SD = 1.29$) than male participants ($M = 1.26$, $SD = 1.33$), $t(259.23) = 2.01$, $p = .046$ (Figure 5). This suggests that female participants generally had a more positive feeling about the chatbot sales agents used in the current research. In contrast, male participants were potentially more critical of chatbot recommendations, despite both female and male participants using more positive words than negative words in their open-ended comments. Appendix 3 shows the word clouds of sample positive and negative words from female and male participants.

Figure 5

Sentiment Scores of Female Participants and Male Participants (Cross-Study)



General Discussion

Chatbot-Consumer Gender Congruence's Positive Effects on Buying Intentions

Study 1 found significant positive effects of matching the chatbot's gender with the consumer's gender. For utilitarian products, the current study found that same-gender chatbot interactions led to more positive attitudes and higher buying intentions than opposite-gender interactions. This finding aligns with similarity-attraction theory (Byrne, 1997; Montoya & Horton, 2013), which suggests that perceived similarity enhances attraction and trust in interactions, ultimately leading to favorable behavioral outcomes. In utilitarian product purchase contexts where functional performance and source expertise (e.g., knowledge about product information) play important roles (Filieri et al., 2023), the gender-matched chatbot likely creates a sense of similarity and familiarity that facilitates trust formation, which may further enhance positive attitudes and buying intentions for the utilitarian product.

In contrast, the chatbot gender congruence effect was not statistically significant on product attitudes toward the hedonic product. However, the directional patterns were consistent with the utilitarian condition for both male and female participants. This suggests that for hedonic products, where experiential aspects and peripheral cues are more important in consumer decision-making (Li et al., 2012), the trustworthiness based on chatbot gender congruence may become less influential than emotional appeals. Nevertheless, it is worth noting that the chatbot gender congruence could significantly increase female participants' buying intentions for the hedonic product, revealing consistency with Krugman's (1966) sequence model of involvement, which contended that individuals are more likely to undergo behavioral change before attitude change under low-involvement processing. As hedonic

consumption focuses much less on product functionality, this may explain why chatbot gender congruence had a primary impact on buying intentions than attitudes toward the scented candle, due to relatively low cognitive involvement.

Unlike previous findings that chatbot-consumer gender congruence can significantly boost attitudes and buying intentions for both female and male participants (Zogaj et al., 2023), the current study found statistically significant impacts only among female participants across both product types. This gender difference aligns with prior research, which suggests that the perceived trustworthiness has a more substantial impact on women's buying intentions in the e-commerce context than on men (Faqih, 2016). Therefore, female participants might rely more on similarity cues derived from chatbot gender congruence when formulating their purchase decisions.

The contrast between Study 1 and Study 2 results is particularly insightful. When product nature is explicitly relevant to gender in Study 2, the positive effects of chatbot-consumer gender congruence observed in Study 1 were eliminated. This suggests that consumers may be more conscious about rejecting stereotypes when gender associations are more salient. These results suggest that strictly conforming to gender-congruent chatbot designs in the marketing context may be unnecessary when recommending gendered products, as consumers may be equally accepting of recommendations regardless of the perceived chatbot gender. This could potentially reduce the reinforcement of gender stereotypes in the e-commerce context and a broader digital environment.

The Fallacy of Chatbot Gender-Product Category Alignment Effects

Contrary to the hypothesis that female chatbots might be better at selling hedonic

products and male chatbots would increase buying intentions for utilitarian products, participants in the current study perceived that both chatbots have the same efficacy in selling the hedonic and utilitarian products. These findings challenge conventional assumptions and findings about gender-matching in commercial contexts for utilitarian and hedonic products (Ahn et al., 2022). While gender-matching between users and chatbots influences consumer responses, traditional gender stereotype effects regarding product expertise (e.g., female chatbots were perceived as more friendly and helpful when selling hedonic products, while male chatbots were perceived as more competent and informative when selling utilitarian products) did not appear in chatbot interactions. This suggests that consumers did not associate specific product types with specific chatbot genders based on stereotypical assumptions about gender-based competencies in the current study. This finding is also consistent with previous research, which showed lower consumer satisfaction for chatbots associated with explicit gender traits when selling specific product types, compared to non-gendered chatbots (McDonnell & Baxter, 2019).

In Study 2, the non-significant effects on product attitudes and buying intentions for both feminine and masculine products suggest that consumers may be actively rejecting traditional gender stereotypes in AI interactions, challenging previous research findings that matching the gender of virtual sales agents with product gender can have favorable impacts (Beldad et al., 2016). Participants appeared to view both female and male chatbots as equally capable of recommending traditionally gendered products. This finding aligns with broader societal shifts toward gender equality in the US and challenges the assumptions that gendered recommendations are more persuasive.

Product Attitudes Explain Gender Congruence's Impacts on Buying Intentions

Although no significant interaction effects were found between chatbot gender and product category, the exploratory mediation analysis revealed different patterns of chatbot gender congruence's impact on product attitudes and buying intentions for utilitarian and hedonic products. For the utilitarian product, the full mediation effect of product attitudes on same-gender chatbot's impacts on buying intention was observed. This is consistent with the explanation that trustworthiness matters in the utilitarian purchase context, as the enhanced similarity from the same-gender chatbot first triggers attitude change, which ultimately leads to behavioral outcomes on buying intentions. Nevertheless, there was no mediation effect of product attitudes on buying intention for the hedonic product. Instead, the direct impact of a same-gender chatbot on buying intentions was significant in this context, further enhancing the robustness of the main effect observations and confirming the explanation that hedonic purchases rely more on low-involvement cognitive processing, thereby triggering a behavioral change without changing the underlying product attitudes or beliefs.

Notably, both the mediating effect of product attitudes and the direct effect of a same-gender chatbot on buying intentions were only observed among female participants, indicating that it was more difficult to alter male participants' attitudes and buying intentions for products using a same-gender chatbot sales agent compared with female participants. A plausible explanation could be that men were more sensitive to human-like AI chatbots than women in e-commerce. Pelau et al. (2022) found that men were more willing to trust and had higher buying intentions for products recommended by less human-like chatbots, as they were believed to have fewer errors. This suggests that men might be more critical of chatbot

recommendations from more human-like chatbots, such as those in the current study. In Study 2, the finding that female participants tended to have more positive product attitudes and higher buying intentions was consistent with this explanation: men potentially adopt more critical points of view toward AI recommendations regardless of the chatbot's perceived gender. The sentiment analysis also revealed that male participants were more critical of chatbot sales agents in our study compared to female participants, further supporting this explanation.

Managerial Implications

The current research shows that female participants were more positive in their responsiveness to gender similarity in chatbot interactions than male participants. This gender difference suggests that personalization strategies could be gender-specific. Companies could prioritize gender-matching in chatbot recommendations in the e-commerce context for female consumers, as this can significantly enhance product attitudes and purchase intentions by fostering trust. Nevertheless, the greater difficulty in changing male consumers' attitudes identified in the current research presents both a challenge and an opportunity. Companies should recognize that attitude formation may require different strategies than those effective with female consumers when targeting male consumers. Instead of focusing primarily on building rapport through perceived similarity, chatbots interacting with male users might emphasize concrete product benefits, relevant expertise, and factual information.

Additionally, the current research revealed distinct patterns in how chatbots influence consumer decision-making across product categories. For utilitarian products, chatbot gender-matching influences purchase intentions by first changing product attitudes. This suggests

that for utilitarian products like electronics, chatbots should focus on building trust and positive product perceptions by providing detailed information and rational appeals to change underlying beliefs about product values. Conversely, behavioral intentions can change even without significant attitudinal shifts in attitude for the hedonic product. This implies that for experiential-oriented products such as luxury goods or entertainment items, chatbots should focus on creating immediate emotional connections and desire. For instance, companies selling hedonic products should design chatbot interactions that generate excitement and engagement, potentially using more expressive language and storytelling approaches.

Limitations and Future Directions

Several limitations in the experimental design for the current research should be acknowledged. First, the manipulation of chatbot gender was limited to testing feminine “Bella” and masculine “Johnson” personas, which represent relatively consistent gender attributes. Future research would benefit significantly from exploring counter-stereotypical presentations such as “Bella” using a more straightforward and masculine conversational tone, and “Johnson” using a gentler and more feminine conversational tone, to better understand how traditional gender expectancy violations might influence consumer perceptions and responses to AI recommendations. Second, the between-subjects design in our study only randomized participants in each condition to either the same or the opposite chatbot gender. Nevertheless, participants were separately recruited for Study 1 and Study 2. Therefore, there was no randomization for exposure to the product category study (i.e., utilitarian and hedonic products) or the product gender study (i.e., feminine and masculine products). Participants in different studies might have systematic differences that limit the

validity of research findings. Future studies could adopt better randomization procedures or use a within-subjects design that exposes participants to all four product conditions with counterbalanced orders to determine if individual differences emerge when participants can directly compare experiences across broader product types. The fixed question order (i.e., participants first answered questions about the utilitarian or masculine product) represents another methodological limitation. Future studies should randomize the question sequence to counterbalance potential order effects that might have influenced participant responses, particularly for construct measures that appear later in the survey.

A logistical issue was the constrained functionality of the experimental chatbot sales agents used in this study, which only provided basic information on a single product in each category, without additional details such as prices or comparisons among product alternatives. As one participant noted, “I do not have a problem with it, but want the AI agent to provide options and compare those options for me.” This limitation in product choice may restrict the ecological validity, influencing participants’ evaluations of the chatbots’ usefulness and introducing a confound in the impacts of chatbot gender on attitudes and buying intentions. Future research should incorporate multiple product options with comparison capabilities to better reflect real-world shopping experiences, while controlling for perceived usefulness as a variable in data analysis. Field studies examining actual consumer-chatbot interactions in commercial settings could provide more ecologically valid insights and help bridge the gap between experimental findings and real-world applications.

Finally, this study did not measure chatbot likability, which might be an important mediating factor between chatbot gender and product evaluations or buying intentions. Future

research should incorporate more nuanced measurements of participants' attitudes toward the chatbot recommendation quality, such as likability, trustworthiness, and perceived expertise, as identified in the previous sections. These factors may better explain the relationship between chatbot gender and consumer responses than gender stereotypes alone. It would also be beneficial to account for other potential mediator variables, such as chatbot personality traits and participants' prior familiarity with AI systems, in future research.

Conclusion

This research examines the impact of chatbot gender on consumer product attitudes and buying intentions across various product types, offering significant insights into the role of gender in consumer-AI interactions within the e-commerce context. The findings indicated that while female consumers may rely more on trustworthiness derived from chatbot agent similarity to formulate product purchase decisions, male consumers tended to prioritize source credibility and product-relevant expertise that the chatbot sales agent could provide. Additionally, the finding showed that while source similarity primarily affects underlying product beliefs, which ultimately lead to behavioral outcomes in the utilitarian purchase context, source similarity also tends to have a direct impact on buying intentions for hedonic products. The findings from Study 2 further challenge assumptions about gender stereotyping in chatbot interactions, revealing that consumers may be increasingly rejecting traditional gender biases when evaluating product recommendations from gendered chatbot sales agents. These results have important implications for marketers and developers of AI chatbot sales agents, suggesting that rigid conformity to gender-matching strategies may be unnecessary and shortsighted. As conversational commerce continues to evolve, the current research

contributes to a more comprehensive understanding of human-AI interaction dynamics. It highlights the potential for technology design that moves beyond traditional gender stereotypes. Future research should build on these insights by exploring more diverse gender presentations in chatbot sales agents, enhancing methodological validity, and examining real-world purchasing behaviors further to strengthen the understanding of this rapidly developing field.

References

- Ahn, J., Kim, J., & Sung, Y. (2022). The effect of gender stereotypes on artificial intelligence recommendations. *Journal of Business Research*, 141, 50-59.
<https://doi.org/10.1016/j.jbusres.2021.12.007>
- Beldad, A., Hegner, S., & Hoppen, J. (2016). The effect of virtual sales agent (VSA) gender–product gender congruence on product advice credibility, trust in VSA and online vendor, and purchase intention. *Computers in Human Behavior*, 60, 62-72.
<https://doi.org/10.1016/j.chb.2016.02.046>
- Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships*, 14(3), 417-431.
<https://doi.org/10.1177/0265407597143008>
- Douglas, B. D., Ewell, P. J., & Brauer, M. (2023). Data quality in online human-subjects research: Comparisons between MTurk, Prolific, CloudResearch, Qualtrics, and SONA. *Plosone*, 18(3), e0279720. <https://doi.org/10.1371/journal.pone.0279720>
- Faqih, K. M. (2016). An empirical analysis of factors predicting the behavioral intention to adopt Internet shopping technology among non-shoppers in a developing country context: Does gender matter?. *Journal of Retailing and Consumer Services*, 30, 140-164. <https://doi.org/10.1016/j.jretconser.2016.01.016>
- Filieri, R., Acikgoz, F., & Du, H. (2023). Electronic word-of-mouth from video bloggers: The role of content quality and source homophily across hedonic and utilitarian products. *Journal of Business Research*, 160, 113774.
<https://doi.org/10.1016/j.jbusres.2023.113774>

- Holzwarth, M., Janiszewski, C., & Neumann, M. M. (2006). The influence of avatars on online consumer shopping behavior. *Journal of Marketing*, 70(4), 19-36.
<https://doi.org/10.1509/jmkg.70.4.019>
- Jiang, H., Cheng, Y., Yang, J., & Gao, S. (2022). AI-powered chatbot communication with customers: Dialogic interactions, satisfaction, engagement, and customer behavior. *Computers in Human Behavior*, 134, 107329.
<https://doi.org/10.1016/j.chb.2022.107329>
- Kay, A. C. (2024). *Why you shouldn't trust data collected on MTurk* (Version 1) [Preprint]. PsyArXiv. <https://doi.org/10.31234/osf.io/zs6pk>
- Krugman, H. E. (1966). The measurement of advertising involvement. *Public Opinion Quarterly*, 30(4), 583-596. <https://doi.org/10.1086/267457>
- Li, M., Dong, Z. Y., & Chen, X. (2012). Factors influencing consumption experience of mobile commerce: A study from experiential view. *Internet Research*, 22(2), 120-141.
<https://doi.org/10.1108/10662241211214539>
- Liang, S., Li, R., Lan, B., Chu, Y., Zhang, M., & Li, L. (2024). Untouchable them: The effect of chatbot gender on angry customers. *Journal of Research in Interactive Marketing*, 18(6), 1099-1135. <https://doi.org/10.1108/JRIM-02-2023-0061>
- Liu, B., & Sundar, S. S. (2018). Should machines express sympathy and empathy? Experiments with a health advice chatbot. *Cyberpsychology, Behavior, and Social Networking*, 21(10), 625-636. <https://doi.org/10.1089/cyber.2018.0110>
- Lou, C., Kang, H., & Tse, C. H. (2021). Bots vs. humans: How schema congruity, contingency-based interactivity, and sympathy influence consumer perceptions and

- patronage intentions. *International Journal of Advertising*, 41(4), 655–684.
<https://doi.org/10.1080/02650487.2021.1951510>
- McDonnell, M., & Baxter, D. (2019). Chatbots and gender stereotyping. *Interacting with Computers*, 31(2), 116-121. <https://doi.org/10.1093/iwc/iwz007>
- Messina, C. (2016, January 19). *2016 will be the year of conversational commerce*. Medium.
<https://medium.com/chris-messina/2016-will-be-the-year-of-conversational-commerce-1586e85e3991#.bsdskkyji>.
- Montoya, R. M., & Horton, R. S. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships*, 30(1), 64-94. <https://doi.org/10.1177/0265407512452989>
- Mourey, J. A., Olson, J. G., & Yoon, C. (2017). Products as pals: Engaging with anthropomorphic products mitigates the effects of social exclusion. *Journal of Consumer Research*, 44(2), 414-431. <https://doi.org/10.1093/jcr/ucx038>
- Pelau, C., Popa, L. A., Bojescu, I., & Niculescu, M. (2022, May). Are Men More Affected by AI Anthropomorphism? Comparative Research on the Perception of AI Human-like Characteristics Between Genders. In *Proceedings of the 8th BASIQ International Conference on New Trends in Sustainable Business and Consumption, Graz, Austria* (pp. 25-27). DOI: [10.24818/BASIQ/2022/08/090](https://doi.org/10.24818/BASIQ/2022/08/090)
- Pfeuffer, N., Benlian, A., Gimpel, H., & Hinz, O. (2019). Anthropomorphic information systems. *Business & Information Systems Engineering*, 61, 523-533.
<https://doi.org/10.1007/s12599-019-00599-y>
- R Core Team. (2023). R: A language and environment for statistical computing (Version

4.3.1) [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org/>

Sidlauskiene, J., Joye, Y., & Auruskeviciene, V. (2023). AI-based chatbots in conversational commerce and their effects on product and price perceptions. *Electronic Markets*, 33(1), 44. <https://doi.org/10.1007/s12525-023-00663-2>

Statista. (2024). *Consumer satisfaction with chatbot customer service in the United States as of June 2022*. <https://www.statista.com/statistics/657148/united-states-consumer-satisfaction-with-chatbot-service/>

Stock, R. M., & Merkle, M. (2018). Can humanoid service robots perform better than service employees? A comparison of innovative behavior cues. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 1056-1065. <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1138&context=hicss-51>

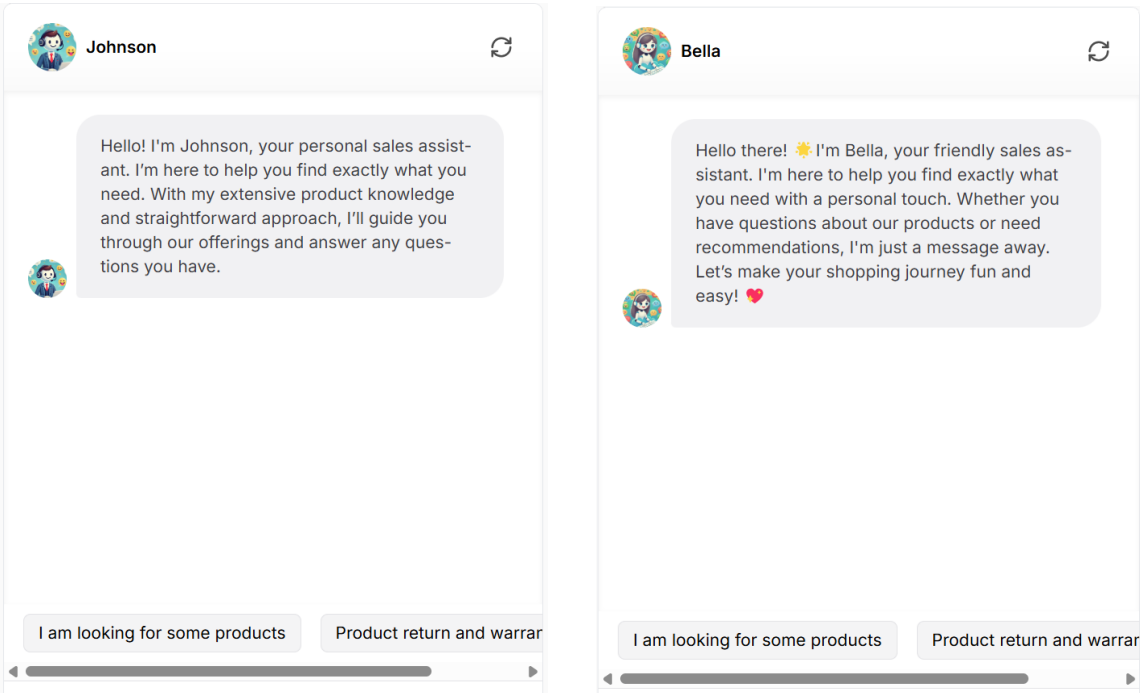
Yu, S., Xiong, J., & Shen, H. (2024). The rise of chatbots: The effect of using chatbot agents on consumers' responses to request rejection. *Journal of Consumer Psychology*, 34(1), 35-48. <https://doi.org/10.1002/jcpy.1330>

Zogaj, A., Mähner, P. M., Yang, L., & Tscheulin, D. K. (2023). It's a Match! The effects of chatbot anthropomorphization and chatbot gender on consumer behavior. *Journal of Business Research*, 155, 113412. <https://doi.org/10.1016/j.jbusres.2022.113412>

Appendix

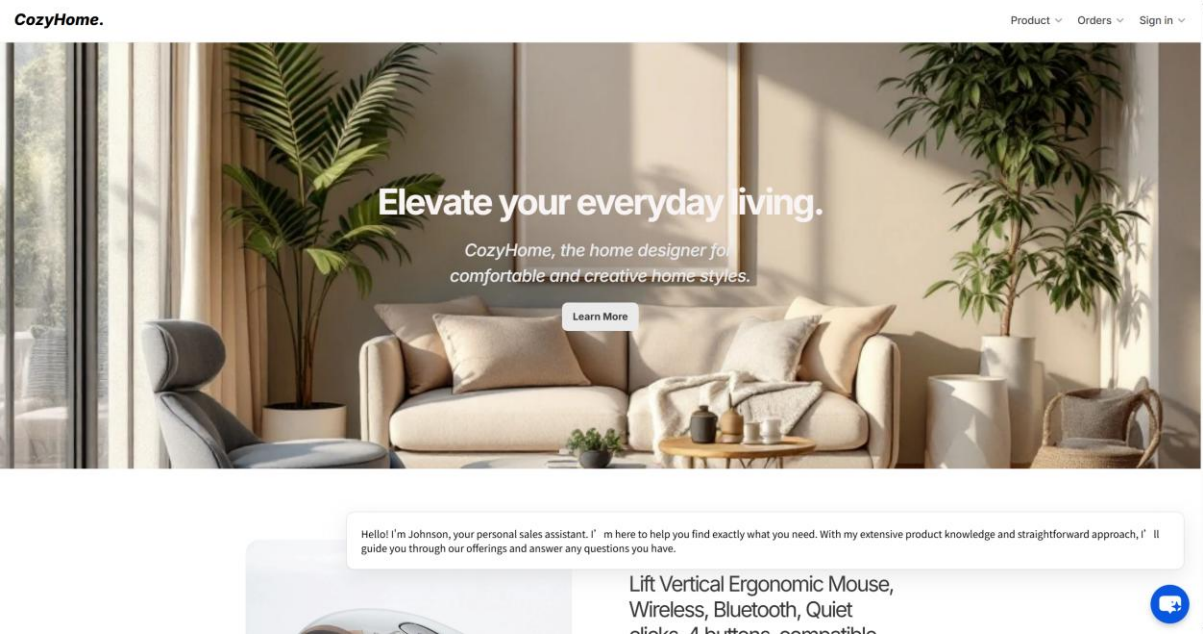
Appendix 1

Chatbot Sales Agents with Gender Variations



Appendix 2

Simulated E-Commerce Platforms





Lift Vertical Ergonomic Mouse,
Wireless, Bluetooth, Quiet
clicks, 4 buttons, compatible
with Windows / macOS /
iPadOS, Laptop, PC - Graphite

500 + bought in last month

Add to cart

Learn more

Scented Candle, 19.4oz, 110
Hours Long Lasting for Home,
2 Wick Natural Soy Candles in
Glass Jar, Stress Relief Candle

500 + bought in last month

Add to cart

Learn more



Cordless Drill Set, 12V Power
Drill Set with Battery and
Charger, Electric Driver/Drill
Bits, 3/8" Keyless Chuck, 21+1
Torque Setting, 180 inch-lbs,
with LED Electric Drill Set

500 + bought in last month

Add to cart

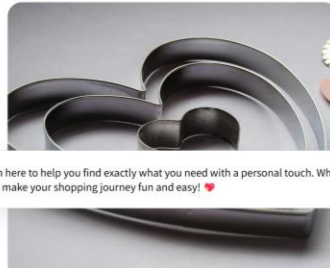
Learn more

Bakery Mold Set, 3 Pc. Kit,
Measuring 3", 4" and 5",
Heart-Shaped Metal Baking
Rings for Pastry, Biscuits, and
Dough Cutting, Heavy Duty
and Reusable

500 + bought in last month

Add to cart

Learn more



Hello there! 🌟 I'm Bella, your friendly sales assistant. I'm here to help you find exactly what you need with a personal touch. Whether you have questions about our products or need recommendations, I'm just a message away. Let's make your shopping journey fun and easy! ❤️

Made in F

Appendix 3

Word Clouds for Sentiment Analysis by Participant Gender (by tokenized response)

Male Participants: Positive vs. Negative Words

helpful
friendly
strong
easy
trust
knowledgeable
fast
polite
prompt
easier
appreciated
nice
enjoyed
recommend

ugly
cons
bad
annoying
complex
errors

Female Participants: Positive vs. Negative Words

helpful
friendly
nice
love
trust
efficient
fine
enjoyed
easy
cheerful
recommended
precise
pretty

unable