

“I would rather receive a recommendation from a voice assistant than a salesperson!”: consumer responses to interactions with artificial intelligence.

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**Abstract**

Voice assistants play a pivotal role in aiding users across various tasks, including shopping decisions. Despite the relevance of these devices, understanding the variances in consumer responses to product recommendations from voice assistants versus salespeople remains limited. Two experimental studies reveal that consumers exhibit greater intentions to use the technology and purchase recommended items when suggestions come from voice assistants. This is especially true for utilitarian choices, with no differences in purchase intentions for hedonic shopping decisions. Perceived credibility and usefulness of information are mechanisms that help to explain these effects.

*Keywords: smart assistants, purchase intentions, perceived usefulness.*

## 1. Introduction

Artificial intelligence (AI) has transformed consumer behavior, decision-making, and product interactions, enhancing personalization, improving customer experiences, and shaping purchasing patterns (Grewal et al., 2022). An example of such innovation is the voice assistant (VA), a speech application facilitating speech recognition, synthesis, and semantic understanding across various electronic devices (Huang, 2023). Also referred to as smart speakers, VAs are software agents capable of interpreting human speech and responding via synthesized voices. Popular examples include Apple's Siri, Amazon's Alexa, Microsoft's Cortana, and Google's Assistant, integrated into smartphones or dedicated home speakers. Users can engage these assistants for queries, home automation control, and basic tasks like to-do lists, online shopping, and brand interactions through verbal commands (Acikgoz et al., 2023).

This technology has become part of the daily routine of many people, with a projected global count of 8.4 billion voice assistants by 2024 (Statista, 2022). Furthermore, smart speakers have drastically changed the consumer decision journey, notably with voice searches because and VA-driven shopping, termed "voice commerce" (Mishra et al., 2022, Böhm et al., 2022). Extensive literature examines VAs in e-commerce, covering technical features, data usage, and customer adoption drivers (Acikgoz et al., 2023; Dellaert et al., 2020; Poushneh, 2021). Attributes like trust, credibility, and usefulness are pivotal for VA users, especially as VAs recommend products and services during the voice shopping process (Jain et al., 2022; Lucia-Palacios & Pérez-López, 2022).

While VAs usually recommend content and products, the impact of such recommendations on consumer behavior, particularly compared to salesperson interaction in traditional retail settings, remains understudied. Previous research has compared the impact of written recommendations, such as online reviews, with voice recommendations from VAs, and results suggest that voice interactions are more likely to influence word of mouth and purchase behavior (Flavián, Akdim, and Casaló, 2022). However, it's unclear if this positive impact on consumer responses also holds when we compare machine *versus* human interactions.

This research, therefore, proposes to answer the following questions: Does receiving product recommendations from VAs impact consumer response (e.g., purchase intentions and willingness to use the technology) differently than those from human salespersons? And how do the perceived credibility and usefulness of recommendations impact these responses? With a limited understanding of consumer decision-making in VA interactions (Dellaert et al., 2020), assessing the impact of the perceived credibility of the information on VA usage is crucial. Identifying factors driving or hindering consumers' use of voice assistants is vital for marketing decisions and strategy formulation. Furthermore, this research aims to help practitioners in enhancing speech-enabled technology usage, suggesting key aspects in which consumer decision-making may change in the presence of VAs compared to traditional shopping environments (Acikgoz et al., 2023).

## 2. Literature Review

### 2.1. Consumer responses to recommendations from voice assistants

Unlike traditional e-commerce, where consumers rely on devices with touch displays like mice or keyboards to interact with vendors, VAs enable technology-mediated purchasing solely through voice interaction, offering a seamless purchasing experience and simplifying

the purchase process. As a result, with voice commerce consumers can enjoy greater flexibility in their shopping experiences, even when it may be inconvenient or impossible to operate tactile input devices (Böhm et al., 2022).

VAs can rely on the data gathered to make suggestions for future purchases. Consequently, they can offer a selection of options, helping the choice process and likely engendering improved decision-making, leading to heightened consumer satisfaction and increased loyalty (Huh, Kim, and Li, 2023). Furthermore, the VA's skillful listening to clients and ability to convey information in clear, concise language, render them valuable for enhancing the customer experience across the entire journey. In other words, this ability to understand input and deliver suitable output, despite being non-human, could be seen as an intelligence cue that would potentially influence consumer evaluations and intentions toward this technology (Grewal et al., 2022).

Besides influencing the shopping journey and decisions, voice technologies may impact the influence that product recommendations have on consumer responses. Previous research has already shown that purchases on a regular website have a different impact on the evaluation of the recommended products than a purchase with a VA (Whang & Im, 2020). Furthermore, voice recommendations from smart speakers tend to positively influence behavioral intentions compared to peer consumer reviews online (Flavián et al., 2022). Based on this rationale, we expect a similar effect comparing human to voice recommendations, leading to the following hypothesis:

**H1:** To receive a recommendation from a VA will positively impact (a) the intention to use the technology and (b) the intention to purchase the recommended product when compared to information received from a human.

## *2.2.Recommendation credibility*

Credibility, defined as “a quality that means someone or something can be believed and trusted” (Merriam-Webster, 2023), plays a crucial role in consumer decision-making. The credibility of sources and messages are inherently interconnected, where credible sources are more likely to produce credible messages, and vice versa. Nowadays, individuals depend heavily on the internet while seeking information. However, the abundance of data exposes them to the risk of incorrect information; thus, they may question the validity of the retrieved data. Credibility is a factor that people employ to extract reliable information for further purchases (Gaiser & Utz, 2023). Furthermore, cues that offer consumers information about who the recommender is may enhance credibility and trust perceptions (Ortega & Palacios, 2023).

In addition to the basic functions and the user experience of the virtual assistant, consumers' perceptions and interactions with the service ecosystem operator of VAs is likely to impact trust and intention to use VAs, ultimately impacting purchase intent and recurrent technology usage (Huh et al., 2023). When consumers assess the credibility of a recommendation, clear information enhances confidence and purchase willingness. Conversely, a perceived lack of credibility diminishes confidence and purchase intent (Flávia et al., 2022). As several researchers have suggested, voice assistants are believed to increase intimacy in experiences and cultivate trust between consumers and service providers, which may be associated with the credibility of the information provided by the device. Therefore, we suggest that:

**H2:** The perceived credibility of a recommendation made by voice assistants has a positive effect on consumers' behavioral intentions (a) to follow the recommendation and (b) to purchase the recommended product.

### 2.3. Recommendation usefulness

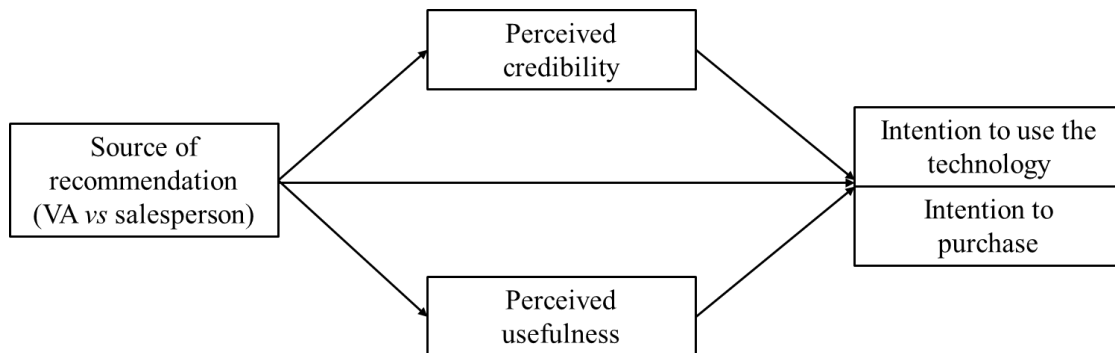
The more useful a consumer perceives a technology to be, the more likely they are to have a positive attitude and to use this technology. VAs are often perceived as useful because they can provide the customer with a personalized and convenient experience, resulting in a faster and easier process (Lucia-Palacios & Pérez-López, 2022). The perceived usefulness of new technology hinges on users' expectations of enhanced experiences with minimal obstacles (Moriuchi, 2021). In voice commerce, alongside technology usefulness, we have perceptions of recommendation usefulness, meaning the recommendation is appropriate according to the individual's needs.

Recent research suggests that consumers may view voice assistants as capable of making the "best decision" for them and reducing their cognitive load. This is especially true with high-performance expectations and intelligence, demonstrated by advanced content filtration and personalized recommendations based on consumers' previous purchasing histories and preferences (Aw et al., 2022). In the comparison between written and voice recommendations, VAs elicit higher perceptions of usefulness, which in turn leads to more intentions to purchase and recommend the suggested product (Flavián et al., 2022). Building on this premise, we anticipate that:

**H3:** The perceived usefulness of information provided by voice assistants is positively associated with (a) intention to use the technology and (b) intention to purchase.

Figure 1 summarizes the hypothesized relationships between the constructs.

Figure 1: Conceptual model



## 3. Method

We adopted an experimental design to collect data and test the conceptual model. By adjusting the independent variables with intricate control over the remaining surroundings, experimentation enables researchers to ascertain the causal linkages between independent and dependent variables (Viglia et al., 2021). The first study was performed with a convenience sample of Portuguese consumers, while the second study used a panel sample from Prolific.

### 3.1. Study 1

#### 3.1.1. Procedures and measures

A single-factor experiment was conducted, with the source of recommendation being the only manipulated variable: voice assistant *versus* human. Participants were randomly assigned to one of the two conditions, mitigating selection bias and ensuring that the only

difference between the groups was the recommendation source. The purchase scenario presented to respondents involved buying a book, chosen because it typically represents a moderate-involvement decision—neither purely convenience-driven nor excessively deliberated. Additionally, books can serve utilitarian purposes, such as work-related or educational needs, as well as hedonic motivations, such as leisure reading during a vacation.

The scenario featuring a VA recommendation read as follows: “Imagine you are an avid reader seeking a new book for your upcoming vacation. Understandably, given the wide range of interests you possess and the volume of options available, you start to explore several titles, genres, and authors. You are accustomed to using a voice assistant for various tasks, and you know that its personalized algorithm can suggest a list of books tailored to your preferences and past reading history. You will rely on the voice assistant’s recommendations to choose the book you will purchase.” In the second scenario, the only difference was the source of recommendation – a bookstore salesperson instead of AI. In this study, convenience sampling was employed for data collection, sourced from various available platforms, including social networking sites like Instagram, LinkedIn, and WhatsApp groups.

Perceived usefulness and credibility were measured using 4-item scale each (adapted from Flavián et al., 2022), intention to purchase was assessed with a 3-item scale (Flavián et al., 2022), and intention to use technology was measured with 3 items (adapted from Fernandes & Oliveira, 2021). Control variables encompass autonomy over purchase (Husairi & Rossi, 2023) and trust in AI (Kim et al., 2021). Respondents also provided demographic and VA use-related information.

The manipulation check was assessed with the question “Regarding the situation you just read, your book purchase would be influenced by”, with a scale ranging from “A recommendation made by a salesperson” to “A recommendation made by technology (voice assistant)”. All responses were rated on 7-point Likert scale.

### 3.1.2. Results

After a successful pretest of the scenarios ( $n=30$ ) confirmed the manipulation’s efficacy ( $F=19.20, p=0.001$ ), Study 1 was conducted with a sample of 250 individuals. However, 50 respondents did not complete the survey, resulting in a final sample of 200 respondents (52% female,  $M_{age}=35$  years old). Among voice assistant owners, the average frequency of use was once or twice a week. Despite some respondents not owning a VA, participants generally reported a moderate understanding of this technology ( $M=3.21, SD=0.87$ ) and trust in AI ( $M=4.29, SD=1.76$ ).

A one-way analysis of variance (ANOVA) confirmed the manipulation’s effectiveness ( $F=260.912, p=0.001$ ), with respondents in the technology condition perceiving the decision as influenced by a voice assistant ( $M=5.34, SD=1.98$ ), while those in the non-technology condition perceived the decision as influenced by a salesperson ( $M=1.76, SD=1.04$ ).

The analysis of scale reliability indicated acceptable internal consistency for all scales ( $\alpha=0.875$  or higher). Regarding control variables, there was a difference in perceived autonomy levels between scenarios ( $F=4.70, p=0.03$ ), but no interaction of autonomy with purchase intentions ( $t=0.50, p=0.62$ ). Although there was a significant interaction with intentions to use the technology ( $-3.32, p=0.01$ ), this effect did not hold for individuals with lower autonomy levels ( $t=-0.90, p=0.37$ ), leading to the exclusion of autonomy as a control variable.

To test hypotheses H1a and H1b, an ANOVA was conducted with the source of recommendation (VA vs. human) as the independent variable (IV), intention to use technology and intention to purchase as dependent variables (DV). The main effect results indicated that individuals who received a recommendation from a VA ( $M=4.68, SD=1.64$ ) were more positively influenced to use the technology than those who received a

recommendation from a human ( $M= 3.79$ ,  $SD= 1.54$ ). The results were significant ( $F= 15.82$ ,  $p= 0.001$ ), supporting H1a. However, there were no significant differences in intentions to purchase between those receiving recommendations from a VA ( $M= 4.78$ ,  $SD= 1.30$ ) and those from a human ( $M= 5.02$ ,  $SD= 1.31$ ;  $F= 1.69$ ,  $p= 0.194$ ), thus hypothesis H1b was not supported.

To assess mediation, Hayes' Model Process 4 for SPSS was employed. The initial analysis considered perceived credibility as the mediator. When we assume the intention to purchase as the DV, the path A from the source of recommendation to credibility was significant ( $t= 2.0404$ ,  $p= 0.0426$ ). Path B, testing the effect of perceived credibility on purchase intention, was also significant ( $t= 18.9270$ ,  $p= 0.000$ ). The overall path from IV to DV was not significant ( $t= 1.3021$ ,  $p= 0.1944$ ), nor was the direct path ( $t= -0.5582$ ,  $p= 0.5773$ ), when we included perceived credibility in the model. The indirect effect of the mediator was significant ( $LLCI= 0.0116$ ,  $ULCI= 0.4639$ ), confirming full mediation and hypothesis H2b. When the intention to use the technology was the DV, both path A ( $t= 2.0404$ ,  $p= 0.0426$ ) and B ( $t= 6.1406$ ,  $p= 0.0000$ ) were significant, as were the total path ( $t= -3.9779$ ,  $p= 0.0001$ ) and the direct path ( $t= -5.1674$ ,  $p= 0.0000$ ). The indirect effect was likewise significant ( $LLCI= 0.0074$ ,  $ULCI= 0.2402$ ), indicating a partial mediation of credibility on intentions to use the technology, supporting H2a.

For the mediation of perceived usefulness with the intention of purchase as the DV, we found that path A from the source of recommendation to perceived usefulness was significant ( $t= 2.2297$ ,  $p=0.0225$ ). Path B, examining the effect of perceived usefulness on intention to purchase, was also significant ( $t= 19.6116$ ,  $p= 0.000$ ). However, the total path from IV to DV was not significant ( $t= 1.367$ ,  $p= 0.1731$ ), nor was the direct path ( $t= -0.855$ ,  $p= 0.394$ ). Nonetheless, with perceived usefulness included in the model, the indirect effect of the mediator was significant ( $LLCI= 0.0465$ ,  $ULCI= 0.6343$ ), which means that the source of the recommendation's effect on purchase is fully explained by the perceived usefulness of the recommendation. Besides confirming H3b, we also confirmed H3a, which suggests that usefulness has an indirect effect on use intentions. Path A was significant ( $t= 2.2297$ ,  $p=0.0225$ ), as well as path B ( $t= 6.1160$ ,  $p= 0.0000$ ). The total path was significant ( $t= -3.9027$ ,  $p= 0.0001$ ), and so was the direct path ( $t= -5.1810$ ,  $p=0.0000$ ). Finally, the indirect path was also considered significant ( $LLCI= 0.0182$ ,  $ULCI= 0.25360$ ), confirming a partial mediation of the perceived usefulness of recommendation in the main effect between the type of recommendation and intention to use technology.

### *3.1.3. Discussion*

Results of study 1 confirmed hypotheses H1a, H2a, H2b, H3a, and H3b. Consumers display a greater intention to use technology when a recommendation came from a VA rather than a salesperson. These results are partially explained by perceived usefulness and credibility. This study builds on previous research findings (e.g., Flavián et al., 2022) by directly comparing VA and human recommendation. However, one intriguing result was the lack of a main effect related to the source of recommendation and its impact on purchase behavior. One potential explanation for this is the “word-of-machine” effect, which suggests that AI recommenders are perceived as more competent than human recommenders in utilitarian contexts and less competent than human recommenders in hedonic contexts (Longoni & Cian, 2022). Since Study 1 focused on a hedonic purchase, we decided to run a second study involving a utilitarian purchase.

## *3.2. Study 2*

### *3.2.1. Procedures and measures*

The second study utilized panel data from Prolific and followed the same methodology as Study 1. The scenario once again described a book purchase, but this time it was framed with a utilitarian motivation. Instead of purchasing a book for vacation reading, respondents imagined purchasing a book for work purposes. The experimental design remained a randomized between-subjects single-factor study (human *versus* VA recommendation).

Measurements instruments were consistent with those used in Study 1. However, we included one question to assess respondents' perception of recommendation personalization: "I believe the book recommendation I received was personalized to my needs according to my profile". Additionally, we added one question to verify if respondents perceived the scenario as more utilitarian, asking: "The purchase of the book described is focused on a book to be used at work". Responses were rated on a 7-point Likert scale.

### 3.2.2. Results

The sample comprised 90 valid responses from Prolific users, who received a small fee for their participation. The majority were female (60%), with most respondents aged under 25 years old (49%), and 41% aged between 26 and 41 years old. Overall, Study 2 respondents were younger than those in Study 1. Control variables analysis revealed no difference in perceived autonomy between scenarios ( $F=0.08$ ,  $p=0.78$ ). Despite more female respondents, there were no gender differences in purchase intentions ( $F=1.23$ ,  $p=0.25$ ) or intentions to use the technology ( $F=1.25$ ,  $p=0.23$ ). Regarding technology use, most respondents reported owning and using their voice assistants, typically once a week ( $M=3.38$ ,  $SD=1.76$ ). They moderately trusted AI ( $M=5.18$ ,  $SD=1.18$ ) and perceived the purchase as utilitarian ( $M=5.88$ ,  $SD=0.87$ ). Moreover, respondents perceived VA recommendations as more personalized ( $M=5.70$ ,  $SD=1.06$ ) than those from salespersons ( $M=4.95$ ,  $SD=1.46$ ), with statistically significant differences ( $F=7.81$ ,  $p=0.01$ ).

Scale reliability analysis confirmed that all scales had a Cronbach's alpha above 0.836. The manipulation worked as expected ( $F=1354.18$ ,  $p=0.001$ ), with respondents perceiving the scenario with the voice assistant as technology-assisted ( $M=6.64$ ,  $SD=0.64$ ) and those in the salesperson scenario as human-assisted ( $M=1.58$ ,  $SD=0.66$ ).

Regarding H1, individuals who received a recommendation from a VA ( $M=5.79$ ,  $SD=1.23$ ) exhibited more positive intentions to use the technology than those who received a recommendation from a human ( $M=4.69$ ,  $SD=1.60$ ). The ANOVA results were statistically significant ( $F=13.32$ ,  $p=0.001$ ), supporting H1a. Additionally, those who received recommendations from the VA ( $M=5.55$ ,  $SD=1.10$ ) were slightly more likely to purchase than those who received information from a human ( $M=5.10$ ,  $SD=1.32$ ). These results were marginally significant ( $F=3.09$ ,  $p=0.082$ ), supporting H1b.

For the mediation of recommendation credibility, when considering purchase intention as the DV, path A was deemed insignificant ( $t=-1.5319$ ,  $p=0.1291$ ), while path B was considered significant ( $t=6.7915$ ,  $p=0.0000$ ). The overall path from the independent variable to the dependent variable was marginally significant ( $t=-1.7597$ ,  $p=0.0819$ ), but the direct path was not ( $t=-1.0415$ ,  $p=0.3005$ ). Additionally, the indirect effect of the mediator was not significant (LLCI = -0.5096, ULCI = 0.0436). Therefore, based on these results, perceived credibility does not mediate the relationship between the type of recommendation and purchase intentions. H4a was rejected, contrary to results found in Study 1.

Regarding the DV intention to use technology, mediation analysis confirmed that path B ( $t=3.2637$ ,  $p=0.0016$ ), the total path ( $t=-3.6508$ ,  $p=0.0004$ ), and the direct path ( $t=-3.2696$ ,  $p=0.0015$ ) were significant. However, path A ( $t=-1.5319$ ,  $p=0.1291$ ) and the indirect effect (LLCI = -0.3131, ULCI = 0.0204) were not significant. Thus, while perceived credibility



significantly influences the intention to use technology, it does not mediate the relationship between the IV and DV. Therefore, H4b was also rejected.

For the mediation of usefulness with purchase intentions as the DV, the relationship between the source of recommendation and the mediator was significant ( $t = -2.4266$ ,  $p = 0.0173$ ). Similarly, the effect of the mediator on the dependent variable was significant ( $t = 6.3455$ ,  $p = 0.000$ ). However, the total path from the source of recommendation to purchase intention was not significant ( $t = -1.7597$ ,  $p = 0.0819$ ), nor was the direct path ( $t = -0.4596$ ,  $p = 0.6470$ ). Nonetheless, the indirect effect of the mediator was significant (LLCI =  $-0.5644$ , ULCI =  $-0.0484$ ), confirming full mediation. This supports H3b and indicates that the effect of the source of recommendation on purchase is fully explained by perceived usefulness, consistent with Study 1. When considering the intention to use the technology as the DV, path A ( $t = -2.4266$ ,  $p = 0.0173$ ) and path B ( $t = 2.1612$ ,  $p = 0.0334$ ) were significant. Similarly, the total path ( $t = -3.6508$ ,  $p = 0.0004$ ) and the direct path ( $t = -3.0662$ ,  $p = 0.0029$ ) were significant. However, the indirect path was insignificant (LLCI =  $-0.3018$ , ULCI =  $0.0076$ ). Therefore, hypothesis H3a was rejected, contrary to Study 1.

### 3.2.3. Discussion

Study 2, framed as a book purchase with utilitarian motivation, confirmed that the type of recommendation source differently impacts consumer responses. We observed the same main effect for intention to use the technology in both Study 1 and Study 2. However, while Study 1 showed no difference in intention to purchase the recommended product, Study 2 suggests that this effect may vary when the purchase is utilitarian. Respondents reported more intentions to follow the suggestion of a VA than of a salesperson, confirming previous research findings (Flavián et al., 2022). The explanation for these main effects in the two studies may be a confirmation of the “word-of-machine” effect, as respondents expressed greater purchase intentions regarding the machine recommendation only in the utilitarian purchase context.

We also identified differences in mediation, with no indirect impact on credibility and an indirect effect of the perceived usefulness of recommendation only for purchase intentions. These results are intriguing since the literature suggests that perceived credibility and usefulness would influence intentions to use VA technology (Acikgoz et al., 2023). These discrepancies between the two studies could potentially be explained by the different purchase motivations underlying the scenarios (Jain et al., 2022).

## 4. Conclusion

The purchase stage of the consumer journey has evolved significantly with the integration of VAs. Consumers now can streamline the ordering process by linking their accounts to VAs, enabling them to reorder previously purchased items with a simple voice command. This technology serves as a decision-making aid by generating personalized suggestions to match products to consumers' expressed preferences or implicit behaviors (Dellaert et al., 2020). Despite the numerous advantages offered by VAs in terms of convenience and personalization, there remains a gap in our understanding of how this technology influences consumer responses and the underlying mechanisms driving these effects.

The research results suggest that consumers indeed exhibit different intentions to use the technology and purchase the recommended product depending on the source of the recommendation. Thus far, voice assistant recommendations appear to be more effective than human suggestions, even in the presence of a salesperson. Previous research has primarily

focused on comparing written and voice recommendations (Flavián et al., 2022), while our study contributes theoretically by shedding light on the distinctions between recommendations from a VA and those from a human being.

Furthermore, this research addresses the call made by Grewal et al. (2022) for researchers to explore whether VA-mediated communications increase evaluations and usage intentions, contingent upon VA characteristics. While our findings suggest that perceptions of usefulness and credibility impact consumer responses, it's important to note that other variables, beyond VA characteristics or the information provided by this technology, may also impact behaviors such as intentions to use and purchase the suggested products.

Additionally, our results confirm that consumers have higher intentions to use the technology, whether for utilitarian or hedonic purposes when interacting with a voice assistant. This finding is particularly intriguing and warrants further examination, as it could suggest a carry-over effect resulting from familiarity with a technology. However, this effect was not observed when we considered purchase intentions. In summary, consumers appear to be equally influenced by a salesperson or a VA recommendation in a more hedonic purchase context, while individuals engaging in utilitarian purchases reported more positive impacts from the VA, supporting the notion of a "word-of-machine" effect (Longoni & Cian, 2022).

Future research should further investigate explanatory mechanisms for the lack of mediation, particularly regarding credibility perceptions in utilitarian contexts. Since utilitarian decisions typically undergo more scrutiny than hedonic choices, we would expect mediation effects to be consistent across both scenarios (Jain et al., 2022). Moreover, future research could illuminate the distinctions in consumer behavior between utilitarian and hedonic contexts. Another variable worth exploring in future studies is the perceived warmth of the recommendation agent. Theory suggests that humans are generally perceived as warmer than technologies; however, factors such as familiarity with the VA or its human-like characteristics in interaction may mitigate this effect (Whang & Im, 2021).

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