



## The Impact of Perceived Humanlikeness of Voice Assistants on Purchase Intention

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**Introduction.** Voice assistants are voice-controlled smart devices designed to serve users' daily activities (Lee & Choi, 2017). Amazon Echo and Google Home are widely known examples. Voice assistants offer personal assistance for users in various areas, including shopping. Users can order products simply by asking their voice assistants to make the payment or saying "yes" to the device's suggestion. This relatively new shopping method is called voice shopping. With large retailers such as Walmart and Best Buy joining the market by partnering with Amazon or Google, the voice shopping market is expected to grow to a \$40 billion market by 2022 (OC&C Strategy Consultants, 2018). The fashion industry is no exception. Recently, ASOS and H&M joined the voice shopping market by partnering with Google to discover new opportunities. Despite the growing interest in voice shopping, research in this area is still in its infancy.

The voice assistant's role in voice shopping resembles a salesperson's in that it provides recommendations, necessary product information, and assistance in making a payment. Given the importance of salespeople in customers' purchase decisions (DeShields, Kara, & Kaynak, 1996), voice assistants are likely to influence consumers' decisions to purchase when they are viewed as salespeople. Therefore, how much consumers view voice assistants as human (like a salesperson) and form social relationships with them can be an important predictor of voice shopping. Therefore, the current study aims to examine the relationships between consumers' personality traits, their perception of the humanlikeness of voice assistants, parasocial relationships, and purchase decisions.

**Literature Review and Hypotheses.** Anthropomorphism describes individuals' tendency to imbue humanlike features on to nonhuman agents and to respond to them as if they are a human being (Epley, Waytz, & Cacioppo, 2007). Epley et al. (2007) proposed that individual differences in three key psychological determinants impact the likelihood to anthropomorphize (**H1-1, H1-2, H1-3**). First, lonely individuals are more likely to anthropomorphize as a result of seeking social connection. Second, individuals who tend to engage in effortful correction mental processes (i.e., need for cognition) are less likely to anthropomorphize because they are less likely to rely on readily accessible anthropomorphic cues (i.e., humanlike traits found on nonhuman agents) triggering anthropomorphism. Third, individuals with a desire to reduce uncertainty and ambiguity are more likely to anthropomorphize as a result of trying to gain a sense of controllability. Individuals can have a greater sense of control by anthropomorphizing nonhuman agents because, for human beings, explaining and understanding a human's behavior is relatively easier than doing the same for a non-human agent's behavior. In addition, in the

voice shopping context, users are expected to perceive voice assistants as more human when they use voice assistants in a social-interaction manner than in a task-oriented manner (**H1-4**).

When users perceive voice assistants as humanlike agents, they are expected to be more inclined to form pseudo-human relationships with voice assistants (**H2**). Previous studies demonstrated that people respond positively to anthropomorphized products and view them as more credible sources for long-term relationships because the products are perceived as more conscious and responsible, as if they are humans (Aggarwal & McGill, 2007; Chandler & Schwarz, 2010). Following parasocial interaction theory (Horton & Wohl, 1956), which posits that people can form pseudo-social relationships (i.e., parasocial relationships) with others even through imagined interaction, users are more likely to form parasocial relationships with voice assistants when perceiving them as humanlike agents. Further, once the parasocial relationship is built, consumers are expected to have a greater intention to make a purchase using voice assistants (**H3**). Previously, researchers reported that consumers engaged in impulse purchases when they developed parasocial relationships with media figures (e.g., shopping hosts) promoting the product (Park & Lennon, 2006). Similarly, those who develop closer relationships with voice assistants will have a greater intention to shop using voice assistants.

**Method.** An online survey was conducted. This study only recruited current owners of Amazon Echo. Previously validated measures were used with 7-point rating scales. A total of 171 usable data (63% female, mean age=29.08 years, 70.8% Caucasian) was collected through Amazon MTurk. Before answering the questionnaire, the participants were asked to recall their past experiences of using their Amazon voice assistants.

**Result.** Structural equation modeling was employed to test the hypotheses. The confirmatory factor analysis (CFA) indicated an acceptable model fit (CFI=.98, GFI=.87, NFI=.89, RMSEA=.030), and the convergent validity and discriminant validity of the measurement model was verified. The fit indices of the structural model displayed an acceptable fit ( $\chi^2_{(335)} = 401.053$ , CMIN/df=1.20, GFI=.87, CFI=.98, NFI=.88, RMSEA=.03). Figure 1 summarizes the results.

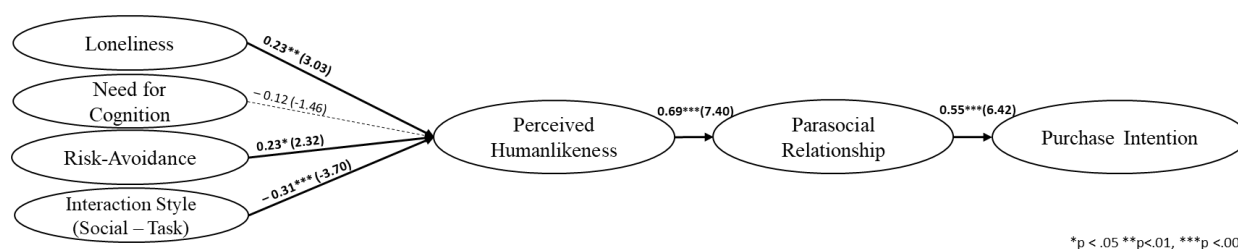


Figure 1. The results of the structural equation model.

**Discussion.** The results confirmed the importance of the humanlikeness of voice assistants in voice shopping. The perceived humanlikeness of the voice assistants was positively related to forming stronger parasocial relationships, and thus the intention to purchase using voice assistants. Further, as Epley et al. (2007) proposed, loneliness and risk-avoidance were predictors of perceiving voice assistants as more humanlike agents. The need for cognition had a negative

relationship with perceived humanlikeness, but the path was not statistically significant. Interaction style was negatively correlated with the perceived humanlikeness of the voice assistants such that the more the users perceived their interaction with their voice assistants as more task-oriented, the less they evaluated their voice assistants to be humanlike agents. The results of this study address caution for users who are lonely and who may engage in more impulse purchases using voice assistants. For practitioners, developing and promoting more socially-oriented functions can lead to forming closer relationships with users and exert greater social influence. The study contributes to the voice assistants literature.

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