

# The Influence Mechanism of Intelligent Voice Assistant and Brand Personality on Consumers' Purchase Intention

Weihaio Chen

\* Corresponding author: 1121704088@qq.com

International Business School, Guangdong University of Finance and Economics, Guangzhou, 510320, China; School of Business Administration, Guangdong, China

**Abstract.** With the rapid development of artificial intelligence technology, artificial intelligence products have become an important channel for consumers to understand product characteristics and personalities. At present, with the support of artificial intelligence and big data technology, enterprises are trying to use intelligent assistants to provide consumers with product information and purchase suggestions, in order to reduce consumers' information search and processing costs, and enhance the personalized experience of consumers' shopping process. In view of the consumption trend of this new era, this study takes intelligent voice assistant as the main body. In the context of intelligent voice assistant playing the two social roles of "partner" and "servant", it studies the difference of consumers' purchase intention on their recommended products in different situations. The research results show that: in the daily shopping context, for the brand personality of competence, the servant intelligent voice assistant is more conducive to improving consumers' purchase intention, while for the brand personality of warmth, the partner intelligent voice assistant is more conducive to improving consumers' purchase intention. In addition, information fluency plays a mediating role between the interaction effect of intelligent assistant and brand personality and purchase intention.

**Keywords:** anthropomorphism, artificial intelligence, Brand personality, purchase intention

## 1 Introduction

Artificial intelligence technology has pushed the interaction between products and consumers more possibilities, significantly changing the role of the product in the relationship and the consumer's understanding of its image. For example, Amazon's intelligent voice assistant Alexa has opened the era of buying voice products, and its advanced artificial intelligence technology has been loved and recognized by consumers <sup>[1]</sup>. Previous studies were mostly based on non-intelligent traditional products to study the consumer and product image, relationship and other aspects of research, and few studies were based on intelligent products to study the relationship between consumers and brands. The purpose of this study is to explore the relationship between the personality and image of intelligent products and the way of communication to consumers, and to contribute to the related research in the field of intelligent products.

The relationship between consumers and products/brands cannot be established without consumers' own sensory contact with products/brands. In real life, different anthropomorphic communication means have been applied to different product sales. This shows that the matching degree between brand personality and anthropomorphic communication means of smart products can enhance consumers' purchase intention for Artificial intelligence product. Humanoid communication helps brands to understand the actual needs of consumers, publish official information about brands or products, and interact with consumers as individuals, helping businesses and consumers to establish emotional and social connections [2]. It can be seen that the way of communication between intelligent voice assistants and consumers has a great impact on the relationship between the two, and the brand or product should interact with consumers with the right personality, so as to improve the acceptance of artificial intelligence products. At present, there is no relevant research on the influence of the matching of social image and communication mode of intelligent voice assistant on individual purchasing behavior and its internal mechanism.

Therefore, based on the level of social role, this study explores the influence of communication means between brand role and intelligent assistant on individual purchase intention in the process of consumer interaction, and takes information fluency as the intermediary variable to explain and test the above relationship.

## **2 Literature Review and Development of Hypotheses**

### **2.1 Intelligent Voice Assistant**

As artificial intelligence technology becomes more advanced, products can communicate with consumers in the form of anthropomorphic communication with consumers in different types of intelligent assistants. Anthropomorphism refers to the process in which the uniqueness of human beings is conferred on non-human objects such as machines. Since social role is a factor that can not be ignored in interpersonal communication, and individuals will apply role-related social rules to the human-computer interaction process, the setting of social role characteristics of intelligent assistants may activate the knowledge of role-related social norms in consumer consciousness, and then make judgments on the appropriateness of intelligent assistant behaviors. Consumers will use their own characteristics to evaluate AI, and the evaluation of AI in different roles may be affected by the degree of anthropomorphism [3]. Studies have shown that anthropomorphism affects the relationship between the individual and the object to a great extent, and is an important means to establish and maintain a close relationship [4]. Anthropomorphic brands and products can establish connections between consumers and objects by satisfying consumers' needs for belonging [5].

In general, brand anthropomorphic communication creates a relationship between consumers and products by playing a specific social role. When products interact and communicate with consumers in specific social roles, discourse features such as voice involved in the communication process will affect consumers' behavioral decisions, because it helps consumers feel a sense of belonging and identity. Brand or product anthropomorphic communication has different ways of expression, and past studies have shown that different communication ways can reflect the unique role types of the brand. Intelligent voice assistants are one of the most effective ways for brands to personify communication. When the

intelligent voice assistant is given a special social role, consumers will have social expectations related to this role, and expect the intelligent product to bring surprises. In the following research on the impact of intelligent voice communication mode on consumer brand relationship, the companion/servant image is selected in consideration of its wide market popularity and high market cognition, and it has a certain degree of compatibility with the image in the existing brand anthropomorphism research.

In this study, brand personification roles are divided into two types: partner and servant [6]. The role of partner can be interpreted as a co-producer of benefits (helping consumers achieve their goals), emphasizing co-creation of value, but also reflecting the equal relationship between brands and consumers. Partner brand has a high level of cooperation and co-creation. In addition, partner brands can also demonstrate their support and reliability. The role of servant describes as an outsourced provider of benefits (doing the work for the consumer), reminiscent of the master-servant relationship, which implies a hierarchical consumer-brand relationship, with the consumer usually in charge.

## **2.2 Brand Personality**

Brand personality helps to enhance consumers' social perception and favorable impression of the brand, and has a certain degree of influence on consumers' emotional arousal, value perception and purchase intention. Based on the stereotype content model, this study divides brand personality into two dimensions: warmth and competence. The warmth dimension reflects the characteristics of intention, such as friendliness, sincerity and warmth; The ability dimension reflects the characteristics of ability, such as ability, intelligence and skill. Warmth and competence are two widely used dimensions in the field of stereotyping [4]. The perception of warmth and ability has a decreasing effect, when the target shows strong warmth, the perception of target ability will be reduced; However, when the target shows a strong ability, the perception of the target's enthusiasm will be reduced [7].

This study believes that for brands with warm personality, consumers may pay more attention to the emotional characteristics of smart products, while partner intelligent assistants establish emotional connections with consumers through passionate and friendly communication, which helps to enhance consumers' purchase intention. On the other hand, for brands with capable personalities, consumers pay more attention to the functionality of smart products, and the servant intelligent assistant shows its professionalism and obedience, so that consumers feel that the product has a high level of credibility.

From this, we formulate the following hypothesis:

H1a: For warmth brand personality, partner intelligent voice communication is more conducive to improving consumers' purchase intention.

H1b: For competent brand personality, servant intelligent voice communication is more conducive to improving consumers' purchase intention.

## **2.3 Information Fluency**

In previous studies on information fluency, scholars classified information fluency into different dimensions according to different information processing methods. Among the classification of information fluency, information fluency is most commonly divided into

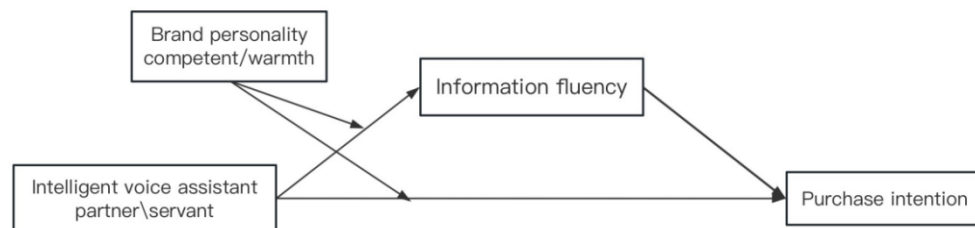
information processing fluency and information extraction fluency. Information processing fluency refers to the fact that an individual receives stimuli and information from the external environment, and the external information is familiar. Subjective feelings about the difficulty of acquiring information in mental processing such as self-perception and memory [8]. Information fluency is affected by perceptual priming, clarification, duration of presentation, repetition, or contrast, and the time for individual recognition and stimulation is shorter, such as contrast, readability of handwriting, typeface and clarity of auditory expression [9].

For brands with warm personalities, intelligent assistants can stimulate consumers' emotional needs and trigger consumers' attention to emotional cues. This is conducive to the exchange of emotional information between products and consumers [10]. On the other hand, the professional persuasion information clues and recommendation methods provided by the servant intelligent assistant will trigger the central path for consumers to process information [11]. Accurate information feedback and understanding of user commands can better enhance users' trust in the intelligent assistant, thus improving consumers' purchase intention. Figure 1 depicts our research structure of the studies.

From this, we formulate the following hypothesis:

H2a: For warmth brands, partner voice assistants can better enhance consumers' information fluency and stimulate consumers' purchase intentions.

H2b: For competent brands, partner voice assistants can better enhance consumers' information fluency and stimulate consumers' purchase intentions.



**Figure 1.** Research structure of studies.

### 3 Study 1

#### 3.1 Objectives and Overview

The purpose of study 1 was to examine the impact of the interaction between brand personality and role type of intelligent voice assistant on consumers' purchase intention. In order to verify H1a and H1b, Study 1 will verify the hypothesis through 2 x 2 experimental, and the experimental results predict the validity of H1a and H1b, that is, the interaction between passionate brand personality and partner intelligent voice assistant can improve consumers' purchase intention, while the interaction between empowered brand personality and servant intelligent voice assistant can improve consumers' purchase intention. On the basis of reviewing the previous research, this paper uses scenario simulation experiment to carry out quantitative empirical research. Through the context setting, we try to bring the respondents

into the situation of interacting with the voice assistant and become the customers who are consuming, and then ask the respondents to fill in the questionnaire. All questionnaires are based on previous studies and collect data through online surveys.

### **3.2 Method**

We recruited a total of 160 participants to participate in the experiment, and participants were both recruited from Credoma. Study1 used 2 intelligent voice assistant role types (partner vs. servant) X 2 brand personality (competent vs. warmth) between two factor groups of design. Participants were randomly assigned to one of the groups to take part in the experiment, and each participant participated in only one of the experiments. In this experiment, quantitative analysis method was used to analyze the collected questionnaire results to verify all the hypotheses of this study. SPSS was used for reliability and validity test, one-way analysis of variance (ANOVA), process was used for mediating effect test and moderating effect test, and scientific analysis results were obtained.

Firstly, participants watched videos of interaction between intelligent voice assistants of different role types and consumers, and were asked to integrate into the shopping situation as much as possible before watching. Participants were asked to imagine buying a Bluetooth speaker that functioned as a Intelligent voice assistant and then interacting with the Intelligent voice assistant. In the condition of partner intelligent voice assistant. The intelligent voice assistant will introduce this product to participants in the voice of a friend. For example, it will say: "hello my friend, I am glad to introduce this product to you". In the condition of servant intelligent voice assistant. The intelligent voice assistant will introduce this product to participants in the voice of a professional sales. For example, it will say: "Dear Sir, now I will introduce to you how to use this product".

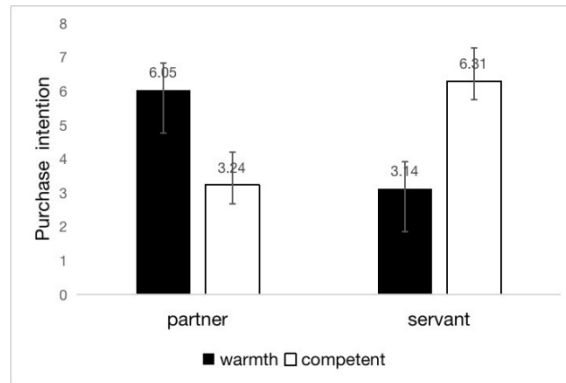
Secondly. In the condition of warmth brand personality, The Intelligent voice assistant will introduce the Bluetooth speaker, which puts out the sound quality is relatively soft, and can bring consumers a very good hearing feast. In the condition of competent brand personality, the intelligent voice assistant will describe which features the product has innovated and upgraded.

Finally, Participants were asked to indicate their intention to purchase the product based on their feelings through a single question item (How interested are you in the product? Would you recommend it to your friends? Whether you will choose to continue to purchase the product?)

### **3.3 Findings and Discussion**

Taking purchase intention as the dependent variable, role type of intelligent voice assistant (partner or servant) as the independent variable, and brand personality (warmth or competent) as the independent variable, the analysis of variance (ANOVA) shows that the interaction between role type of intelligent voice assistant and brand personality has a significant impact on purchase intention ( $F(1, 147)=151.590, p<0.001$ ). When the brand personality is warmth, compared with the servant, the partner intelligent voice assistant can improve the purchase intention of consumers ( $M_{\text{partner}}=6.05, SD=0.78, M_{\text{servant}}=3.14, SD=1.273, t(72)=11.894, p<0.05$ ). This supported hypothesis H1a. And when the brand personality is competent, compared with the partner, the servant intelligent voice assistant can improve the purchase

intention of consumers ( $M_{\text{partner}}=3.24$ ,  $SD=0.970$ ,  $M_{\text{servant}}=6.31$ ,  $SD=0.585$ ,  $t(72)=-16.957$ ,  $p<0.05$ ). This supported hypothesis H1b. This is shown in Figure 2.



**Figure 2** Results of study 1.

## 4 Study 2

### 4.1 Objectives and Overview

Experiment 2 aims to once again examine the impact of the interaction between the role type of intelligent voice assistant and brand personality on consumers' purchase intention, and verify the mediating role of information fluency. In order to verify H2a and H2b, Study 2 will verify the hypothesis through 2 x 2 experimental, and the experimental results predict the validity of H2a and H2b, that is, information fluency plays a mediating role between warmth brand personality and partner intelligent voice assistant, and information fluency plays a mediating role between competent brand personality and servant intelligent voice assistant.

### 4.2 Method

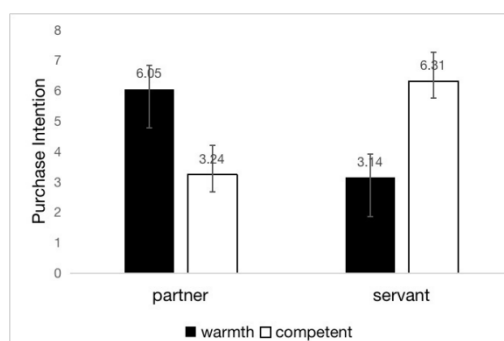
We recruited a total of 200 participants to participate in the experiment, and participants were both recruited from Credoma. Study 2 still used 2 intelligent voice assistant role types (partner vs. servant) x 2 brand personality (competent vs. warmth) between two factor groups of design. Participants were randomly assigned to one of the groups to take part in the experiment, and each participant participated in only one of the experiments. Study 2 repeated the procedure of study 1 and asked participants to fill out a purchase intention scale and an information fluency scale (Do you think the information about the product is easy to understand? Do you think the information about the product is true and reliable? Do you think the information about the product is reasonable?) [12].

### 4.3 Findings and Discussion

The analysis of variance (ANOVA) shows that the interaction between role type of intelligent voice assistant and brand personality has a significant impact on purchase intention ( $F(1,176) = 1.778$ ,  $p < 0.001$ ). When the brand personality is warmth, compared with the servant, the partner intelligent voice assistant can improve the purchase intention of consumers

( $M_{\text{partner}}=5.97$ ,  $SD=0.87$ ,  $M_{\text{servant}}=5.32$ ,  $SD=0.99$ ,  $F(1, 174) = 5.040$ ,  $p < 0.05$ ). This supported hypothesis H1a again. And when the brand personality is competent, compared with the partner, the servant intelligent voice assistant can improve the purchase intention of consumers ( $M_{\text{partner}}=5.14$ ,  $SD=1.18$ ,  $M_{\text{servant}}=5.96$ ,  $SD=0.73$ ,  $F(1, 174) = 5.59$ ,  $p < 0.05$ ). This supported hypothesis H1b again.

In addition, this study takes information fluency as a dependent variable. The analysis of variance (ANOVA) shows that the interaction between role type of intelligent voice assistant and brand personality has a significant impact on information fluency. When the brand personality is warmth, compared with the servant, the partner intelligent voice assistant can improve the information fluency ( $M_{\text{partner}}=6.03$ ,  $SD=0.704$ ,  $M_{\text{servant}}=5.45$ ,  $SD=0.81$ ,  $F(1,174) = 12.944$ ,  $p < 0.05$ ). This supported hypothesis H2a. And when the brand personality is competent, compared with the partner, the servant intelligent voice assistant can improve the information fluency ( $M_{\text{partner}}=5.64$ ,  $SD=0.94$ ,  $M_{\text{servant}}=6.01$ ,  $SD=0.701$ ,  $F(1,174)=4.150$ ,  $p < 0.05$ ). This supported hypothesis H2b. The result is shown in Figure 3.



**Figure 3** Results of study 2.

## 5 Conclusion

### 5.1 Theoretical Contributions

First, this study promotes the research of anthropomorphism of intelligent products from the perspective of consumer interaction with artificial intelligence. Practice shows that consumers have great interest and attention to different forms of anthropomorphic images of intelligent products (Wu et al., 2017; Rhee and Choi, 2020). The innovation of this research lies in the communication mode of intelligent products based on different role images, combined with the differences in brand personality, so that consumers can feel the individuation and intelligence of intelligent products in different situations, so as to promote the relationship between the two sides.

Second, this study contributes to the future research on the relationship between consumers and brands. Although brand personification can further enhance brand personality, the communication mode between consumers and brands still needs to be further upgraded, and the relationship between consumers and brands can be maintained to a large extent through artificial intelligence.

Third, this study further verifies that smart products can promote consumers' perception of specific role images through appropriate voice communication, and transmit relevant information at the sensory level for the imagification of brand personality, thus promoting the updating of the way of shaping brand personality.

## 5.2 Limitations and Further Research

First, the design and implementation of complex tasks in the experiment are still difficult to obtain satisfactory results, and the experiment can not effectively control the influence of intelligent products' wrong behavior on consumers' anthropomorphic perception. Future studies can set up more types of consumption scenarios, such as the failure of voice interaction between consumers and smart products, or the negative emotions brought by anthropomorphism to consumers. This is helpful to improve the accuracy of experimental conclusions.

Second, future research may consider adjusting the time, way and speech type of the interaction between consumers and intelligent products in the experiment, so as to observe consumers' impression perception of intelligent voice assistants. It is also possible to make the interaction between participants and intelligent voice assistants more flexible and credible by imitating foreign experimental methods.

Third, this study only verified the difference in the influence of partner type and servant type intelligent voice communication on consumers' product purchase intention. Future research can classify intelligent products according to different anthropomorphic cues and make further analysis.

## References

- [1] Ramadan, Zahy B. 2021. "'Alexafying' Shoppers: The Examination of Amazon's Captive Relationship Strategy." *Journal of Retailing & Consumer Services* 62 (September): N.PAG. doi:10.1016/j.jretconser.2021.102610.
- [2] Reavey, Brooke, Marina Puzakova, Trina Larsen Andras, and Hyokjin Kwak. 2018. "The Multidimensionality of Anthropomorphism in Advertising: The Moderating Roles of Cognitive Busyness and Assertive Language." *International Journal of Advertising* 37 (3): 440–62. doi:10.1080/02650487.2018.1438054.
- [3] Wu, Jintao, Junsong Chen, and Wenyu Dou. 2017. "The Internet of Things and InteractionStyle: The Effect of Smart Interaction on Brand Attachment." *Journal of Marketing Management* 33 (1/2): 61–75. doi:10.1080/0267257X.2016.1233132.
- [4] Karanika, Katerina, and Margaret K. Hogg. 2020. "Self-object Relationships in Consumers' Spontaneous Metaphors of Anthropomorphism, Zoomorphism, and Dehumanization." *Journal of Business Research* 109 (March): 15–25. doi:10.1016/j.jbusres.2019.10.005.
- [5] Yang, Linyun W., Pankaj Aggarwal, and Ann L. McGill. 2020. "The 3C's of Anthropomorphism: Connection, Comprehension, and Competition." *Consumer Psychology Review* 3(1):3–19. doi:10.1002/arcp.1054.
- [6] Rhee, Chong Eun, and Junho Choi. 2020. "Effects of Personalization and Social Role in Voice Shopping: An Experimental Study on Product Recommendation by a Conversational Voice Agent."



- Computers in Human Behavior 109 (August): N.PAG. doi:10.1016/j.chb.2020.106359.
- [7] Aggarwal & Ann L. McGill. (2012). When Brands Seem Human, Do Humans Act Like Brands? Automatic Behavioral Priming Effects of Brand Anthropomorphism. *Journal of Consumer Research* (2),307-323.<https://doi.org/10.1086/662614>
- [8] Lee, Jieun, Genya Abe, Kenji Sato, and Makoto Itoh. 2021. "Developing Human-Machine Trust: Impacts of Prior Instruction and Automation Failure on Driver Trust in Partially Automated Vehicles." *Transportation Research: Part F* 81 (August): 384–95. doi:10.1016/j.trf.2021.06.013.
- [9] Song, Hyunjin, and Norbert Schwarz. 2008. "If It's Hard to Read, It's Hard to Do: Processing Fluency Affects Effort Prediction and Motivation." *Psychological Science* 19 (10): 986–88. doi:10.1111/j.1467-9280.2008.02189.x.
- [10] Tussyadiah I. P., Park S. Consumer Evaluation of Hotel Service Robots [M]. *Information and Communication Technologies in Tourism 2018*, 2018.
- [11] Lee, Jieun, Genya Abe, Kenji Sato, and Makoto Itoh. 2021. "Developing Human-Machine Trust: Impacts of Prior Instruction and Automation Failure on Driver Trust in Partially Automated Vehicles." *Transportation Research: Part F* 81 (August): 384–95. doi:10.1016/j.trf.2021.06.013.
- [12] Chang, CJ. Price or quality? The influence of fluency on the dual role of price. *Mark Lett* 24, 369–380 (2013). <https://doi.org/10.1007/s11002-013-9223-8>
- [13] Wu, Jintao, Junsong Chen, and Wenyu Dou. 2017."The Internet of Things and Interaction Style: The Effect of Smart Interaction on Brand Attachment." *Journal of Marketing Management* 33 (1/2): 61–75. doi:10.1080/0267257X.2016.1233132.
- [14] Rhee, Chong Eun, and Junho Choi. 2020. "Effects of Personalization and Social Role in Voice Shopping: An Experimental Study on Product Recommendation by a Conversational Voice Agent." *Computers in Human Behavior* 109 (August): N.PAG. doi:10.1016/j.chb.2020.106359.