

Analysis of the Importance of Product Image of Intelligent Voice Assistant to Consumers' Willingness to Use

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Abstract: AI applications, represented by intelligent voice assistants, have risen rapidly worldwide, bringing convenience to consumers and opening up new business models for enterprises. With the increasingly fierce market competition, intelligent voice assistants also have serious problems of homogeneity and high content overlap. In the past, it was difficult to establish advantages in competitive products with product design ideas that only meet the functional needs of consumers. In order to solve this problem, enterprises began to design the product image of intelligent voice assistant, trying to attract consumers and improve their willingness to use by innovating the product image of intelligent voice assistant. This article crawls the online review of an intelligent voice assistant product, analyzes the importance of product image design from the actual experience of consumers, and provides some reference significance for enterprises to design the image of intelligent voice assistant products and marketing strategies.

Keywords: Intelligent voice assistant, Product image, Consumer's willingness to use.

1. Introduction

Artificial intelligence technology, as one of the core elements of the digital economy, continues to become an important driving force for the development of the digital economy and the national economy and society. AI has brought great influence and change to social development and has penetrated into all aspects of people's life. Many government agencies have introduced intelligent service robots to assist government staff to complete business consultation more efficiently through natural language processing technology and achieve high-quality interaction between government and people. Operators of online shopping and content platforms "pinduoduo" and "taobao" users according to their daily browsing and purchasing behavior. The e-commerce platform introduces intelligent customer service robots to help consumers answer common questions. In addition to auxiliary human services, in more and more scenarios, artificial intelligence has also begun to gradually replace human, directly provide services for people, and even replace people to make decisions. Many financial companies have launched artificial intelligence services, and consumers can choose "intelligent financial management robot" to develop portfolio plans for themselves; In the medical situation, many hospitals began to use "intelligent medical services" to perform some basic examinations and develop routine treatment plans. In addition, more and more lottery and lottery services are becoming intelligent. Today, AI service scenarios have been widely known and applied. Intelligent voice assistant, as one of the more important products in AI services, occupies a huge share in consumers' daily life. With the progress of technology, the intelligent voice assistant has been able to realize most of the voice commands. Therefore, the product competition of major enterprises has gradually shifted from function competition to design competition. More and more enterprises have begun to pay attention to the importance of product image to the intelligent voice assistant. Therefore, this paper will analyze

the importance of the intelligent voice assistant product image to consumers' use intention by crawling online comments.

2. Literature Review of Intelligent Voice Assistant

In their research, scholars put forward some definitions or descriptions of intelligent voice assistant. Popovic and others defined intelligent voice assistant as a personal assistant application that supports natural language interaction between users and mobile devices [1]. Nasirian et al. defined intelligent voice assistant as a tool based on intelligent voice search technology, which can be used for online shopping, language learning, answering questions, manipulating other applications or devices, chatting, and even establishing social relations [2]. Since Apple released "Siri" on the iPhone 4S in 2011, intelligent voice assistant has entered people's life [3]. Voice assistant provides a more convenient form of interaction for people. Users can operate only through voice without physical input and interaction. The convenience of intelligent voice assistant is also reflected in many related researches. Previous research has mainly focused on development and application.

From the perspective of customers, development is particularly prominent in terms of personalization and personification. Ghosh and others want to know how to design personalization of voice assistants to better enhance customer experience. Through research, it is believed that voice assistants should not accept updates from suppliers, and the improvement of skills should be obtained from users. Such voice assistants may be the most suitable for users' personalized needs [4]. Braun et al. found that by correctly matching the user's personality, the voice assistant will gain a higher degree of loveliness and trust by studying the interactive feedback between the four personalized voice assistants (friends, admirers, aunts, and housekeepers) and the user; In case of incorrect matching, the loveliness, trust, satisfaction and usefulness of voice assistants are low [5]. Jean-Francois and others found that the voice assistant can

obtain a higher sense of social presence and trust by using human-like voice than by using synthetic voice. At the same time, the feminization of voice assistants is more pleasing than that of men [6]. Chen et al. found through the research of intelligent personal assistant that personification does not directly lead to the generation of trust, and personification makes intelligent personal assistant produce greater social attraction and task attraction, which leads to stronger cognitive trust and emotional trust; In terms of enhancing trust, social attraction has a stronger impact than task attraction [7].

In terms of application in some specific industrial fields, Sezgin and others discussed how voice assistant as a telemedicine tool can provide medical care services during the epidemic [8]. Terzopoulos has studied how the voice assistant is used in daily life, and believes that the voice assistant has the potential to be used in education, but at present the voice assistant is still insufficient and needs to be improved [9]. Through research, Whang et al. found that the application of voice assistant can make consumers have a more positive perception and evaluation of shopping websites [10].

In terms of use, some scholars have also considered that the privacy of voice assistant has a significant impact on consumer acceptance [11]. Users will inevitably cause personal data leakage during the use of voice assistant, which requires the service provider to obtain sufficient trust from users through actions to reduce users' concerns about privacy. Similarly, negative technical obstacles, such as information failure, function failure and system failure, if the service provider fails to solve them in a timely and effective manner, the user's expectation of voice assistant will be reduced, resulting in reduced use [12]. Accordingly, by providing services that users need, such as timely information, perception of social existence and entertainment, and improvement of users' satisfaction with services [13], interactive experience [14], users will enhance their use of voice assistants.

Although in the past, scholars have done a lot of research from the development and application of intelligent voice assistant, and the research of intelligent voice assistant on consumer behavior has also been involved, few scholars have discussed the relationship between the product image of intelligent voice assistant and consumer use intention from the perspective of product image. Lack of research support for the relationship between intelligent products and consumer behavior under the background of artificial intelligence technology. Therefore, it is necessary to study the product image of intelligent voice assistant.

3. Research on Product Image

In order to promote the relationship between products and consumers, enterprises usually carefully design the product image. The characteristics of products that can be perceived by consumers are defined as product image [15]. The image of products affects the interaction between consumers and products to a certain extent [16], and plays a very important role in the relationship between consumers and products. Product image includes three levels: external - image in product design, internal - product quality and service quality, and extension - social image carried by the product [17]. The image in product design means that people can intuitively understand the product and form certain cognition through

such as appearance, sound, line, color, texture, etc. Products can change the relationship between consumers and products through different image packaging, and affect consumers' attitudes. When products are endowed with human characteristics, the interaction between consumers and products will be transformed into the relationship between people, following the principles of interpersonal interaction [18].

At the level of intelligent voice assistant, more and more enterprises have begun to design intelligent voice assistant with personified product image and other designs, trying to improve the competitiveness of the product by improving consumers' willingness to use the product. There are many benefits of anthropomorphic design, including improving user experience and cultivating customer brand loyalty [19]. Different product image designs directly change the relationship between consumers and products or brands. Although the product image has been widely studied by scholars in the traditional field, with the support of AI technology, the product image and technology have become more diversified. In this context, the product image of intelligent voice assistant is also different from the traditional field. Consumer online reviews are often the most authentic feedback of consumers after using the product. Therefore, the data of consumer online reviews can also reflect the objective evaluation of consumers and excavate the product characteristics that affect their willingness to use. This article will also analyze the online comments of consumers of intelligent voice assistant products crawling the online shopping platform, starting from the actual experience of consumers, and explore the importance of the impact of product image on their willingness to use.

4. Research Design and Analysis

In order to obtain consumer comment data, we compared the intelligent voice assistant products that have been put on the shelves of Taobao shopping platform, and selected the intelligent voice speaker product. Then, the web crawler tool is used to extract the comments of Taobao Mall on the intelligent voice speaker product. After preprocessing, a total of 10805 effective online comments are finally obtained. Through ROST CM6 software, the 10805 comment data crawled are processed by word segmentation and the stop words are filtered, and the high-frequency feature words of consumer comments are extracted, and the top 20 words of word frequency are selected according to the frequency of feature words from high to low, as shown in Table 1:

It can be seen from Table 1 that these 20 high-frequency words are the most prominent feature words in consumers' comments after using the intelligent voice assistant. These high-frequency feature words have a relatively concentrated display of consumers' interactive experience. The words most mentioned by consumers in the comments are also the most impressive features after using the intelligent voice assistant products and the characteristics that consumers themselves pay most attention to. From the above concentrated distribution of high-frequency feature words, it can be observed that the feature words related to product image design are shape, workmanship, appearance, texture, robot, exquisite and beautiful. Product image accounts for about 35% of the top 20 feature words in consumers' comprehensive evaluation of intelligent voice assistant products.

Table 1. Top 20 words in terms of frequency of online reviews by consumers

Characteristic word	word frequency	Characteristic word	word frequency
function	2095	powerful	915
appearance	1840	texture	915
tone quality	1470	lovely	910
study	1435	Sound effect	880
quality	1175	intelligence	800
work	1160	robot	650
service	1045	like	590
sensitive	980	convenient	450
voice	965	delicate	345
appearance	930	pretty	290

5. Conclusion

According to the research results, the product image of intelligent voice assistant has an obvious effect on consumers' willingness to use. Among the top 20 high-frequency words that can be extracted from 10805 consumer online comment data, the proportion of feature words about the product image is 35%, highlighting the importance of intelligent voice assistant product image design.

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