**The Impact of AR Try-on Features on Consumer Satisfaction**

**toward Technology Products**

Zhengqiao Xie1

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 Wenzhou Kean University, Wenzhou, China, xiezh@kean.edu

**ABSTRACT**

Many industry experts emphasize that "augmented reality" (AR) technologies will be the key to the retail industry because they provide an interactive and personalized consumer experience in a virtual environment. AR technology has been applied in several specific aspects in the commercial sector, such as AR clothing try-on and AR makeup try-on, where the impact of AR technology on behavioral intention has been developed on these products. However, previous studies have not considered all types of products, including technology products. Therefore, this study examined the way consumers perceive AR technology and the degree of knowledge consumers generate about technology products through AR technology and explored the factors that influence consumers' purchase intention for technology products using AR. A total of 255 respondents comprised the final study sample who were aware of AR technology and its applications in the commercial sector, such as AR clothes try-on, before completing the questionnaire. This study combined the Stimulus-Organism-Response (SOR) and the extended Technology Acceptance Model (TAM) and proposed those customer characteristics such as the need for aesthetics, self-efficacy, navigation, need for personal interaction, and technology readiness are significant antecedents of consumer acceptance of AR technology. In this study, the Process Macro of SPSS was used as a tool to examine the collected data. This study finds that the aesthetics, navigation, and technology readiness in customer characteristics obviously affect perceived ease of use, perceived usefulness, and perceived enjoyment. Although technological products and beauty products bring different attention to consumers through AR technology, the study found that AR technology still has a positive impact on the sales of technological products. As the use of AR-based self-service technologies is becoming a new trend in the retail industry, the study can provide marketers and retailers with relevant data and analysis to understand consumers' needs or willingness to use the technology to manage the implementation plan of this technology in the future. This paper could be of interest to those interested in behavioral patterns of consumers in the Chinese market and those interested in China's retail industry.

*Keywords*: Augmented Reality, Technology Acceptance Model, Stimulus-Organism-Response Model, Self-service Technologies, Technology Products

**INTRODUCTION**

Augmented Reality (AR) is a technology that puts virtual elements into the physical environment layers. AR can combine virtual elements with reality. Virtual elements in AR involve video, images, etc. These virtual elements are located between the natural environment and the customers. Consumers can access AR and interact with these virtual elements through smart devices like smartphones and tablets (Watson et al., 2018).

AR's first appearance dates to the 1950s, but it wasn't until 2008 that AR was officially used in business (Watson et al., 2018). With the internet and mobile technology development, e-commerce is expanding globally. The fashion industry alone has an annual return worth about $62 billion (Liu et al., 2020). At the same time, many concerns have arisen among consumers, with nearly 56% of consumers expressing concern about the fit of the style, and size of the physical clothing they receive (Liu et al., 2020). According to Baytar et al. (2020), online shoppers return more garments than any other category, as many as 43%, with 70% of those returns due to incorrect sizing or color. All these have promoted the development of AR try-on in recent years.

AR try-on means that consumers can simply try on a dress or lipstick color by tapping on their phones and can quickly change the product to see how it looks virtually on them or at home. The AR try-on feature allows consumers to virtually check the fit of a product and decide whether to buy it without having to actually try it in-store (Kim & Choo, 2021). For example, IKEA and Amazon are using AR technology to provide customers with an AR preview of a product or piece of furniture online so they can see if the product is compatible with their existing room decoration; Sephora and L’Oreal are also using AR technology to show customers how different cosmetic products change in their appearance (Tan et al., 2021). Luxury brands like Gucci have also added AR to mobile apps, allowing consumers to try on Gucci fashion products remotely (Kim & Choo, 2021). In other industries like travel and hospitality, AR technology is used as an innovative marketing medium to promote brands, giving visitors virtual tours of museums and cruises (Wei, 2019).

AR try-on has a substantial commercial value. Many industry experts emphasize that “virtual” technologies, including augmented reality (AR), will be the key to the retail industry because they provide an interactive and personalized consumer experience in a virtual environment (Park & Kim, 2021). Essentially, AR technology enables consumers to understand and experience a product or place in a novel way (Wei, 2019). Providing consumers with AR try-on enables them to experience products in advance, which can effectively reduce unnecessary costs (Baytar et al., 2020). Due to the global COVID-19 pandemic, it is becoming increasingly important for brands to invest in digital technology and virtual experiences (Park & Kim, 2021), and in retail, the epidemic has prompted brands to shift from in-store to online services (Christ-Brendemühl & Schaarschmidt, 2021), where consumers do not need to be more physically present in the store to experience the product or risk contracting the disease from a product that carries the virus due to multiple users. Increasing sales in the retail industry while reducing the risk of disease transmission (Kim & Choo, 2021).

AR is still very young in the business. While there have been previous studies on AR in business, the vast majority have been about the fashion industry, such as the cosmetics industry and the apparel industry, while the role of AR in the tech product space has rarely been talked about. In the post-epidemic era, with the rapid development of e-commerce, can consumers better understand the products through the AR try-on function? And can AR further enhance consumers' purchase intention for technology products? This study will further investigate these questions mainly through the TAM framework. These findings will also help marketers in the technology sector to better improve and utilize AR try-on technology.

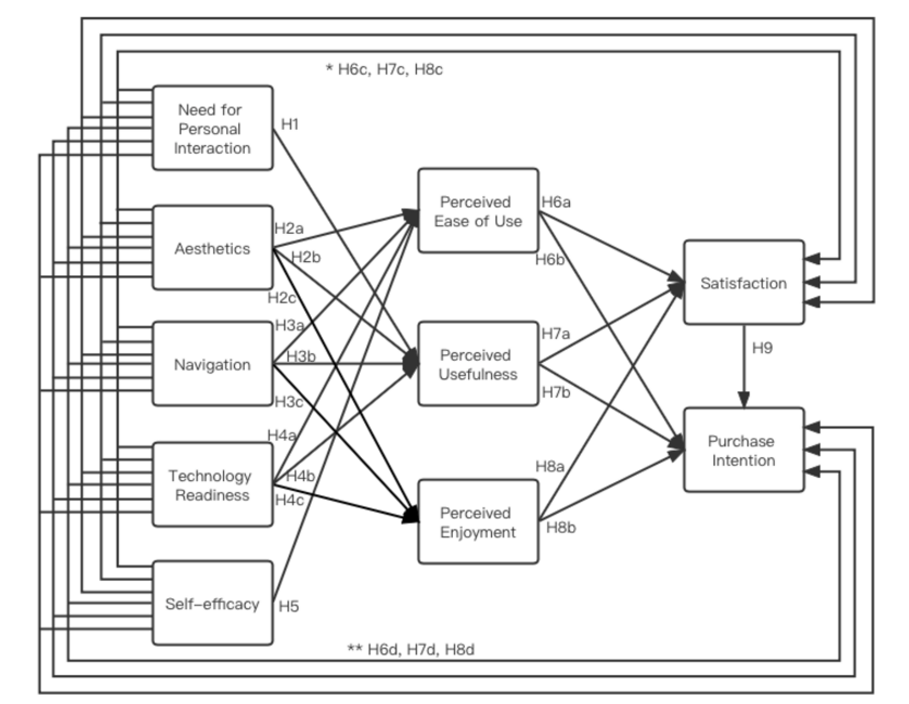
**LITERATURE REVIEW**

1. Technology Acceptance Model (TAM)

Figure 1 shows that the TAM (Technology Acceptance Model. Davis, 1989) is based on various aspects of innovation communication theory and social psychology to explore the reasons for users' acceptance of new technological innovations through perceived ease of use and perceived usefulness and to predict users' final behavioral decisions. The model has been widely used to study consumer responses in many research areas (Do et al., 2020).

1. Stimulus-Organism-Response Model (S-O-R)

The S-O-R (Stimulus-Organism-Response) model has been widely used to predict consumer behavior (Russell & Pratt, 1980). The main concept is that stimulus (S) influences people's internal affective assessment (O) and consequently leads to an avoidance response (R). In the context of consumer decision-making, stimuli are defined as external factors that can drive a user's purchase decision (Do et al., 2020). The new model based on the TAM model proposed by Castillo et al., (2021) this study will mainly refer to the effects of some of the customer characteristics on perceived usefulness and perceived ease of use, which include the need for personal interaction, aesthetics, navigation, technology readiness, and self-efficacy (Castillo & Bigne, 2021). Do et al. (2020). studied and modeled the impact of AR technology on impulse consumption of tourism by combining the TAM model and SOR model. Mainly refer to the effects of perceived usefulness and perceived ease of use on perceived enjoyment and satisfaction, respectively. The conceptual framework for this study is therefore shown in Figure 1.



Note: \* Mediating effect of perceived ease of use between antecedent of TAM and satisfaction: H10a, H11a, H12a, H13a, H14a

\*\* Mediating effect of perceived ease of use between antecedent of TAM and purchase intention: H10b, H11b, H12b, H13b, H14b

**RESEARCH METHOD**

In this study, both Chinese and English online questionnaires were used. The items of all variables in the questionnaire were taken from previous studies. Cronbach’s alpha internal consistency measure was used for reliability analysis. Correlation tests were used in this study to determine the relationships among independent variables, mediating variables, and dependent variables. Hayes Process Macro was used as a statistical tool to analyze the path coefficients of continuous results by multiple regression.

**FINDINGS**

All the variables are significant as shown in Table 1.

TABLE 1  
summary of hypothesis testing results

|  |  |
| --- | --- |
| Hypothesis | Results |
| H1: The need for personal interaction has a negative impact on perceived usefulness. | Rejected |
| H2a: Aesthetics has a positive impact on perceived ease of use. | Supported |
| H2b: Aesthetics has a positive impact on perceived usefulness. | Supported |
| H2c: Aesthetics has a positive impact on perceived enjoyment. | Supported |
| H3a: Navigation has a positive impact on perceived ease of use. | Supported |
| H3b: Navigation has a positive impact on perceived usefulness. | Supported |
| H3c: Navigation has a positive impact on perceived enjoyment. | Supported |
| H4a: Technology readiness has a positive impact on perceived ease of use. | Rejected |
| H4b: Technology readiness has a positive impact on perceived usefulness. | Supported |
| H4c: Technology readiness has a positive impact on perceived enjoyment. | Supported |
| H5: Self-efficacy has a positive impact on perceived ease of use. | Rejected |
| H6a: Perceived ease of use has a positive impact on satisfaction. | Supported |
| H6b: Perceived ease of use has a positive impact on purchase intention. | Supported |
| H6c: Perceived ease of use mediates the relationship between factors and satisfaction. | Supported |
| H6d: Perceived ease of use mediates the relationship between factors and purchase intentions. | Supported |
| H7a: Perceived usefulness has a positive impact on satisfaction. | Supported |
| H7b: Perceived usefulness has a positive impact on purchase intention. | Supported |
| H7c: Perceived usefulness mediates the relationship between factors and satisfaction. | Supported |
| H7d: Perceived usefulness mediates the relationship between factors and purchase intentions. | Supported |
| H8a: Perceived enjoyment has a positive impact on satisfaction. | Supported |
| H8b: Perceived enjoyment has a positive impact on purchase intention. | Supported |
| H8c: Perceived enjoyment mediates the relationship between factors and satisfaction. | Supported |
| H8d: Perceived enjoyment mediates the relationship between factors and purchase intentions. | Supported |
| H9: Satisfaction has a positive impact on purchase intention. | Supported |

**CONCLUSIONS**

The research results of this paper are helpful to expand consumers' knowledge of satisfaction with and purchase intention of technological products through AR technology, as well as the application of AR technology in technological products. In addition, it helps tech companies better think about AR-based sales and marketing models.

The research result of this paper provides theoretical suggestions on how consumers' purchase intention can better develop the marketing mode of live streaming e-commerce under the specific scenario of live streaming, to help relevant management teams of live streaming platforms seek ways to improve consumers' purchase intention in reality. It also provides some theoretical supplements for the existing research and further suggestions for the development of an online e-commerce model.

**IMPLICATION**

Respondents’ data helps to understand customer attitudes when combining AR and technology products, retaining the potential implications of studying AR commercial applications. Scholars can develop higher-level AR service experiences for technology products. It provides insight into the current consumption of technology products and its innovative marketing mode. The conceptual model combined with TAM and SOR provides a new perspective for consumer behavior prediction in the technology product industry. This combination provides a better understanding of the relationship between consumer behavior and technology products.

Leveraging AR technology could be a potential sales/marketing approach for the future, bringing incalculable profit and market buying changes. In addition, the paper could help tech companies develop a new strategy for selling products online. This study also focuses on the remote online purchase of technological products, which mainly focuses on the potential cost reduction of offline physical stores of technological products and the potential profit increase of remote online stores. The research results will help marketers to better improve the virtual experience of products based on AR and promote online sales. The main influence aspects from the customer's perspective are also given. Companies can base on AR technology to provide customers with more personalized services and product choices. This study also gives some inspiration to the marketing channels of scientific and technological products, so that marketers can innovate marketing models and enhance customers' online interactive experience.

**References**

Baytar, F., Chung, T., & Shin, E. (2020). Evaluating garments in augmented Reality when shopping online. *Journal of Fashion Marketing and Management: An International Journal*, 24(4), 667-683. https://doi.org/10.1108/jfmm-05-2018-0077

Castillo S, M. J., & Bigne, E. (2021). A model of adoption of AR-based self-service technologies: a two country comparison. *International Journal of Retail & Distribution Management*, 49(7), 875–898. https://doi.org/10.1108/ijrdm-09-2020-0380

Christ-Brendemühl, S., & Schaarschmidt, M. (2021). Customer fairness perceptions in augmented reality-based online services. *Journal of Service Management*, ahead-of-print(ahead-of-print). https://doi.org/10.1108/josm-01-2021-0012

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.

Do, H.-N., Shih, W., & Ha, Q.-A. (2020). Effects of mobile augmented reality apps on impulse buying behavior: An investigation in the tourism field. *Heliyon*, 6(8), e04667. https://doi.org/10.1016/j.heliyon.2020.e04667

Kim, T. H., & Choo, H. J. (2021). Augmented Reality as a product presentation tool: focusing on the role of product information and presence in AR. *Fashion and Textiles*, 8(1). https://doi.org/10.1186/s40691-021-00261-w

Liu, Y., Liu, Y., Xu, S., Cheng, K., Masuko, S., & Tanaka, J. (2020). Comparing VR- and AR-Based Try-On systems using personalized avatars. *Electronics*, 9(11), 1814. https://doi.org/10.3390/electronics9111814

Park, H., & Kim, S. (2021). Do augmented and virtual reality technologies increase consumers’ purchase intentions? The Role of Cognitive Elaboration and Shopping Goals. *Clothing and Textiles Research Journal*, 0887302X2199428. https://doi.org/10.1177/0887302x21994287

Tan, Y.-C., Chandukala, S. R., & Reddy, S. K. (2021). Augmented reality in retail and its impact on sales. Journal of Marketing, 86(1), 002224292199544. https://doi.org/10.1177/0022242921995449

Watson, A., Alexander, B., & Salavati, L. (2018). The impact of experiential augmented reality applications on fashion purchase intention. *International Journal of Retail & Distribution Management*, 48(5), 433-451.

Wei, W. (2019). Research progress on virtual Reality (VR) and augmented Reality (AR) in tourism and hospitality. *Journal of Hospitality and Tourism Technology*. https://doi.org/10.1108/jhtt-04-2018-0030