The Role of Cutting-Edge Fashion Technology on Consumer-Brand Relationships: The Moderating Effect of Interactive Smart Mirror Types

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Background and Objectives: Fashion companies are undertaking the dramatic changes of digital transformation to meet rapidly evolving consumer needs (Zaki, 2010). The rise of technology provides opportunities for them, but also some challenges, such as a need for identifying/adopting the right technology among various available options. The effectiveness of technology for the brand can be assessed by whether it builds positive consumer-brand relationships, meaning how consumers think, feel, and do with the brand (Veloutsou, 2007). For example, during the pandemic, technological advancement enabled consumers to shop online in a convenient way more than ever before, so that the accessibility to the brand in the online setting significantly affected consumer-brand relationship (Jabeen et al., 2022). On the other hand, consumers wanted to be back to the physical stores for both rational (e.g., try on clothing for fit) and emotional (e.g., browse the store for fun) reasons even during the pandemic (Roggeveen & Sethuraman, 2020). This opens up the opportunities to build the positive consumer-brand relationship in the physical store setting, such as through experiential retailing (i.e., offers unique experiences beyond the traditional ones) (Jahn et al., 2018). Specifically, smart mirrors become prevalent as a part of this experiential retailing. Thus, the purpose of this study is to examine the effects of two types of smart mirrors, in relation to personal characteristics, on technology and brand perceptions as well as shopping intention.

Balance theory. Heider (1958) introduced the triadic balance postulation in cognition, so-called balance theory. This was explained with three cognitive elements, the perceiver, the object/person to be evaluated, and another object/person related to that object (Awa & Nwuche, 2010). Its fundamental thrust entails that individuals adjust their cognitive elements for internal consistency and harmony. This is a theoretical foundation of our study as we posit that the evaluation of a brand (an object) will be related to the technology used by the brand (another object related to it).

Interactive smart mirror type I. The first interactive smart mirror type introduced in the market and used by existing fashion brands is the one for the fitting room. Each fitting room using this type of smart mirrors is outfitted with RFID technology, so that the items brought into the room are scanned and listed on the mirror (Maheshwari et al, 2017). Rebecca Minkoff, a well-known luxury fashion designer, is an innovator adopted this technology in her flagship store to increase consumer experience in an early development stage of this type of mirrors (Pratas et al., 2022).

Interactive smart mirror type II. The second smart mirror type introduced in the market is the one that consumers do not need to try on clothing, but the mirror shows the garment on a consumer virtually in the mirror. Cisco introduced the StyleMe mirror and FXGear developed the mirror, called FXMirror, where shoppers try on clothing virtually without the hassle of changing clothing in a traditional way (Fretwell, 2012; Liu et al., 2021). These two mirror types are key viable options in the market, thus, this study is comparing them associated with the consumer-brand relationships.

Consumer-brand relationships: Consumer-brand relationships can be built in many ways, such as optimizing customer service, shaping the brand community, and increasing brand experience (Kumar & Kaushik, 2020). Thus, this study utilizes the smart mirrors as to increase brand experience for fashion consumers. In addition, personal characteristics of consumers, such as innovativeness, hedonic motivation, and fashion involvement, play important roles in technology adoption and brand choice (Qasem, 2021). Thus, this study hypothesizes the relationships among variables as followings. *H1: Personal characteristics affect their perception of technology; H2: The perception of technology affects the brand perception; H3: The brand perception affects the intention to shop; H4: There is a moderating effect of smart mirror types on these relationships.*

Method: The quantitative research design employing the online survey was used for this study. Upon receiving the IRB approval, data were collected from the Qualtrics' panel. The scales used in this study were adopted from the existing literature with minor modifications to fit them into our research topic (e.g., Chang et al., 2014; O'Cass, 2000). Participants answered the questions about personal characteristics and then, the video about the interactive smart mirror was presented, followed by questions related to the smart mirror and the brand, as well as the demographic questions (Table 1). The random order to show two different mirror types was used to eliminate the order effect as we used the within-subject research design. A total of 639 completed data were used for data analyses using LISREL (Brown & Moore, 2012). The Confirmatory Factor Analysis (CFA) was performed for the measurement model and to check the reliability and validity of our scales. After the CFA, Structural Equation Modeling (SEM) was performed to examine the relationships among the variables of our framework. To examine the moderating effect of the mirror types, we compared the results of SEM for each type of mirror.

Table 1. Demographic information

Characteristics		Frequency/Percentage	
Number of Respondents		639	
Gender		Total	Percentage (%)
	Female	376	58.8
	Male	226	35.4
	Missing	39	5.8
Age (Mean)		35.5	
Ethnicity			
	Caucasian/White	507	79.3
	African-American	90	14.0
	Asian/Pacific Islander	25	4.0
	American Indian	17	2.7
Education			
	Finished High School	162	25.3
	Completed Community College	228	35.7
	Completed College	116	18.2
	Completed Graduate School	104	16.3
	Other	29	4.5
Household Income			
	$19,999 or less	160	25.0
	$20,000-39,999	133	20.8
	$40,000-59,999	113	17.7
	$60,000-79,999	64	10.0
	$80,000-99,999	42	6.6
	$100,000 or above	117	18.3
	Missing	10	1.6

Results: First, for the smart mirror type I, the result of the CFA model shows the good model-data fit: (RMSEA=0.072, NFI=0.97, CFI=0.98, TLI=0.97). The SEM result shows the good model-data fit (RMSEA=0.067, NFI=0.97, CFI=0.98, TLI=0.98) with the significant relationships among most of the variables. Second, for the smart mirror type II, the result of the CFA model shows the good fit: (RMSEA=0.072, NFI=0.97, CFI=0.98, TLI=0.98). The SEM result also shows the good model-data fit (RMSEA=0.067, NFI=0.97, CFI=0.98, TLI=0.98) with the significant relationships among most of the variables. Therefore, H1-H4 were partially or fully supported (Figure 1).

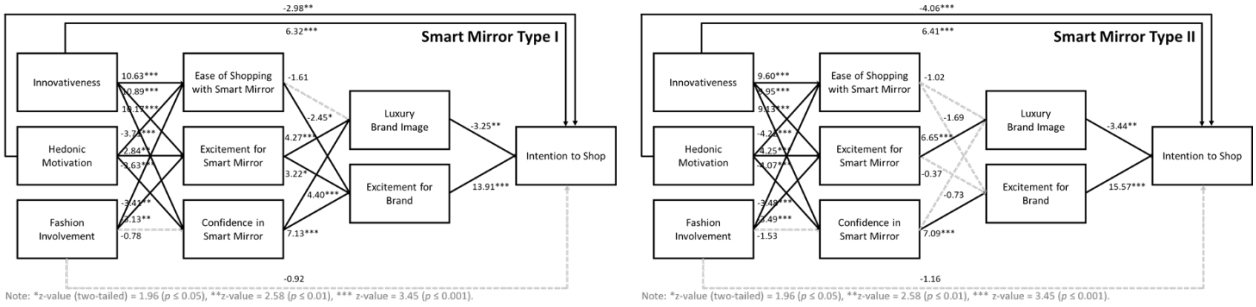

Figure 1. The path diagrams for smart mirror types I and II.

Discussion and Implications: As speculated, consumers' personal characteristics influenced the perception about the smart mirror and intention to shop for the brand using these mirrors. Especially, innovativeness was a crucial factor for consumers feel positive about the technology, which is similar to the finding of Ju and Lee (2021). Furthermore, in accord with the balance theory, consumer's evaluation about the brand was built upon their perception about another object, smart mirrors. The key different finding between two mirror types is that more paths were significant for the mirror type I. That is, the simplicity and availability of the mirror type I might create more connection between the technology and the brand. Even though the luxury brand image was higher for the brand using the mirror type II, this image negatively impacted the intention to shop. That is, the luxury brand image created by the technology adoption might not be related to the holistic brand image what the consumers want to view. Future research should explore the moderating effects of personal characteristics and demographic factors (e.g., hedonic motivation, gender).

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