

Mirror, mirror, how do I look in the outfit? Exploring consumers' preferences of using a magic mirror in apparel shopping

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The fashion industry is continuously evolving in every aspect of design, manufacturing, distribution, and consumption due to the use of technology. Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR) have been widely used in both manufacturing and retailing (Sayed, 2019), which created a unique digital shopping experience for consumers (Grewala, Roggeveena, & Nordfältb, 2017). Recent interactive tools such as in-store displays, magic mirror, and the virtual salesperson have been introduced in the retailing industry (Jin, 2009; Pantano & Servidio, 2012). Among these technologies, the magic mirror as an augmented reality tool for shoppers to virtually “try on” clothing or cosmetics, has become increasingly popular (Marr, 2019).

The use of magic mirror allows consumers to try different clothing items in front of a mirror outfitted with sensors enabling a motion-triggered virtual change of clothing (Kipper & Rampolla, 2012), which is able to reduce shopping time for consumers (Holden, 2018) and make the shopping experience more interesting. In addition, the smart technology like the magic mirror can automatically collect consumer data, manage and process to help retailers (Wood & Reynolds, 2013), which lay the foundation to create a partnership in between retailer and customer (Grewala et al., 2017). The collected data can be used to determine consumer preference level and efficiently forecast the market trend with great detail (Campbell, Maglio, & Davis, 2011; Grewala et al., 2017).

Although many retailers are optimistic about this technology, some of them are still unconvinced about the true benefit of this technology and are trying to understand how it influences consumers' purchase behavior (Inman & Nikolova, 2017). Very few research has been focused on the concept of smart technology in order to enhance retailing (Priporas, Stylos, & Fotiadis, 2017). Clearly, the adoption of new technologies will dominate the fashion retail industry in the forthcoming days (Jiang, 2017), therefore, empirical research on consumers' behavioral intention to use of magic mirror is needed to explore.

Therefore, the purpose of this study is expected to fill this research gap to identify consumers' preferences of the use of magic mirror; and to determine the factors that influence consumers' intention to use the magic mirror. Technology Acceptance Model (TAM) (Davis, 1985) was adopted as the theoretical foundation in this study. TAM has been widely used to assess consumers' acceptance of technology (Moon & Kim, 2001), online shopping (Vijayasarathy, 2004). In addition, some external variables, such as perceived enjoyment (Venkatesh, 2000) and privacy risk (Dinev & Hart, 2006), were also incorporated into the

original TAM in order to investigate the interrelationships of the variables. The results of this research will provide managerial insights for the promotion of swap events.

Research method: Data were collected through an online data collection website, Qualtrics. Participants were recruited by sending the survey link to potential participants through email. Additionally, social media such as Facebook and Instagram was also used to invite participants to conduct the research survey. In order to better illustrate the features of the magic mirror and how the magic mirror works, a video introducing the magic mirror was downloaded from a website and then was edited to be less than two minutes long. After shown the video introducing the magic mirror, participants were requested to indicate their perceptions, attitude to, and acceptance intention of using magic mirror in their future apparel shopping. A total of 195 usable responses were collected and used in the main analysis. Demographically, 90.3% of participants were younger than 35 years old; 63.6% were Asian and 20.5% were Caucasian. There were about 53.3 % of participants were male and about half of them reported having a college degree or higher. Multi-item scales were used to evaluate the variables, utilizing a 5-point Likert scale with “1=strongly disagree, to 5 = strongly agree.” *Usefulness* ($\alpha = .835$) was measured by five items. *Ease of use* ($\alpha = .869$) was measured by two items. Both *perceived enjoyment* ($\alpha = .803$) and *attitude* ($\alpha = .819$) were measured by four items. Five items were adopted to measure *privacy risk* ($\alpha = .789$). *The intention* ($\alpha = .852$) was measured by three items.

Results: Exploratory factor analysis (EFA) with principal component analysis was first conducted to purify and confirm the scale dimensionality, utilizing the Varimax rotation. The factor loading of each item for EFA was from .549 to .836. Then, confirmatory factor analysis (CFA) was conducted to test the measurement model. The result of the measurement model exhibited an acceptable model fit ($\chi^2_{(df=160)}=317.088$, $p=0.000$, $\chi^2/df=1.98$; RMSEA=0.071; CFI=0.903; TLI=0.905; SRMR=0.057) (Kline, 2010). Next, construct validity was also confirmed by assessing the convergent validity and discriminant validity. All CFA loadings were higher than 0.5, which provided evidence for convergent validity; and the average variance extracted (AVE) for each construct was greater than 0.5 (Anderson and Gerbing, 1988), suggesting that each construct is well represented by its own indicators.

A structural equation model (SEM) was then conducted to examine the proposed hypotheses (Kline, 2010). The statistic results revealed an acceptable model fit ($\chi^2_{(df=215)}=412.401$, $p < 0.000$, $\chi^2/df=1.92$; RMSEA = 0.069; CFI = 0.901; TLI = 0.895; SRMR = 0.056). As predicted, perceived usefulness ($\beta=0.248$, $p<0.004$), perceived ease of use ($\beta=0.179$, $p<0.019$), and perceived enjoyment ($\beta=0.232$, $p<0.019$) were all positively associated with the attitude toward the use of a magic mirror in the shopping of apparel products. However, the negative relationship between perceived privacy risk ($\beta=-0.130$, $p<0.088$) and attitude was not significant.

Furthermore, the statistic results also indicated that perceived usefulness ($\beta=0.280$, $p<0.005$), perceived enjoyment ($\beta=0.308$, $p<0.006$), and attitude ($\beta=0.475$, $p<0.000$) were all positively related to the intention to use the magic mirror in future shopping; however, no significant relationships were found between perceived ease of use ($\beta=0.118$, $p<0.056$) and perceived

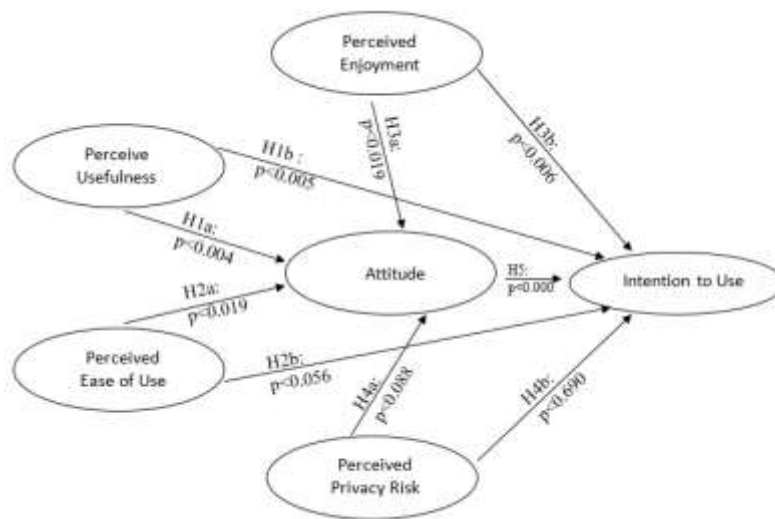


Figure1. The extended Technology Acceptance Model
 privacy risk ($\beta=-0.034$, $p<0.690$) with the intention. In addition, the indirect relationship between perceived ease of use and the intention mediated by attitude ($\beta=0.085$, $p<0.051$) was also found not significant.

Discussion: The results point out that perceived usefulness, perceived enjoyment, and attitude all positively impact the intention to use a magic mirror during apparel shopping. The strong significance of perceived enjoyment exhibits consumers' immense willingness to use a magic mirror that meets utilitarian needs besides giving pleasure. Predominantly, a large number of the participants were young who perceive interaction with a magic mirror both useful and fun. The developer of the magic mirror should focus on the integrating option like sharing a photo on social media to meet the needs of tech-savvy young people. Perceived ease of use and perceived privacy risk, on the other hand, were not significantly associated with behavioral intention. However, retailers should ensure the security of consumer personal information and photos that would alleviate consumers' anxiety and tension-free use of the device. The research was conducted by showing a video presentation to the participants, however, real-life interaction experience may change consumer behavioral intention. Therefore, future research can be conducted on consumers who have used the magic mirror to better understand the real scenario of the behavioral intention to use.

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