Augmented Reality Mobile Apps in Fashion Retail: Expectancy-Value Judgments

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Keywords: Apps, augmented reality

Significance. Augmented reality (AR) refers to a form of digital content that integrates real imagery along with virtual 3D digital graphics (Fox, 2012). An increasing number of major fashion companies are utilizing AR technology and AR apps to enrich their customers' experiences, increase sales, and build brand loyalty (Williams, 2016). The AR apps, called Sampler mobile app, from Converse allows shoppers to try on a pair of shoes by pointing their iPhone camera at their legs and then taking a real image of how the shoes would look through their mobile phones. It also allows shoppers to take a photo to share on social media and then purchase a pair directly from the AR app (Cosco, 2016). Gap Inc.'s AR app enables shoppers to select body size, such as height and weight, and then try on clothes with a virtual 3D model and purchase them (Alvarez, 2017). As mobile apps using AR are recently utilized in a plethora of mobile applications (Kim & Hyun, 2016), fashion retailers need to understand consumers' expectancy-value judgments that affect their trust in and usage intention toward AR apps. The purpose of this study was to examine (1) whether aspects of expectancy-value judgments of uses and gratifications including (a) novelty, (b) fashion/status, (c) sociability, and (d) relaxation were related to trust in AR apps (H1-H4), (2) whether trust in AR apps was related to usage intention toward AR apps and online/offline store patronage intention (H5ab), (3) whether usage intention toward AR apps was related to online/offline store patronage intention (H6), and (4) whether consumer self-determination moderated the link between trust in and usage intention toward AR apps and the link between trust in AR apps and online/offline store patronage intention (H7ab).

Theoretical Framework. This study conceptualized and tested an integrative model by linking the expectancy-value judgments (EVJ) model of uses and gratifications (Babrow & Swanson, 1988) with the expectation-confirmation model (Bhattacherjee, 2001). The EVJ model suggests that media usage behavior is directly influenced by expectancy-value judgments and behavioral intention (Babrow & Swanson, 1988). The expectation–confirmation paradigm demonstrates that consumers form an initial expectation of a specific service from a firm prior to using the service (Bhattacherjee, 2001). The consumer's initial expectation of the service as well as discrepancies between expectation and service performance affect consumer's satisfaction with the service (Thong et al., 2006). In this study, EVJs were operationalized as four exogenous constructs: (a) novelty (e.g., "I would engage in AR apps to try out something new"); (b) fashion/status (e.g., "I would engage in AR apps to have it as a status symbol"); (c) sociability (e.g., "I would engage in AR apps to keep my friends informed"); and (d) relaxation (e.g., "I would engage in AR apps to enjoy myself").

Method. Mobile users ($n = 630$) from a U.S. consumer panel watched a video indicating the use of recent AR apps and then completed an online self-administered survey. Structural equation modeling and two-way ANOVA were used for data analysis. Participant Characteristics. Participants were female (67.1%) and male (32.9%) online apparel shoppers. Participants' ages ranged from 18 to 67 years ($M = 39.64$). With respect to ethnicity, 83.8% were Caucasian, followed by Asian/Pacific Islander (8.1%).

Results. To test the convergent and discriminant validity and composite reliability of the set of measures, confirmatory factor analysis was performed. A structural analysis was conducted using the

maximum likelihood estimation method. The structural model had a good fit to the data (χ^2 = 1064.41 with 249 *df*, χ^2/df = 4.26, CFI = .95, NNFI = .93, IFI = .95, RMSEA = .071, and SRMR = .079). For H1-H4, novelty (β = .51, *t* = 6.73, *p* < .001) and fashion/status (β = .35, *t* = 5.73, *p* < .001) were positively related to trust in AR apps. Sociability (β = -.12, *t* = -2.77, *p* < .01) was negatively related to trust in AR apps. Relaxation (β = -.02, *t* = -.35, *p* > .05) was not related to trust in AR apps. Regarding H5ab-H6, trust in AR apps was positively related to usage intention toward AR apps (β = .78, *t* = 21.27, *p* < .001) and online/offline store patronage intention (β = .19, *t* = 6.84, *p* < .001). Usage intention toward AR apps was positively related to online/offline store patronage intention (β = .81, *t* = 26.59, *p* < .001). For H7ab, two-way ANOVA was used to test a moderator. There was a significant interaction between consumer self-determination (CSD) and trust in AR apps on usage intention toward AR apps, *F* (1, 626) = 10.49, *p* = .001. There was a significant interaction between CSD and trust in AR apps on online/offline store patronage intention, *F* (1, 626) = 11.27, *p* = .001.

Figure 1. Final model

Conclusions and Implications. This study found that trust in and usage intention toward AR apps were determinants of online/offline store patronage intention. The relationship between CSD and trust in AR apps on usage intention toward AR apps and online/offline store patronage intention was greater for mobile users who prefer to select products based on their own experience and knowledge (i.e., *consumer self-determination*). Interestingly, *sociability* for EVJs of uses and gratifications negatively affected trust in AR apps. This result indicates that users may not expect AR apps as a social sharing purpose. Furthermore, to satisfy *novelty* and *fashion/status* for EVJs of uses and gratifications, retailers need to integrate advanced engagement technologies with standout AR functions. For instance, they could employ iBeacon inside stores to send highly tailored notifications regarding new offers and targeted promotions based on customers' online/mobile browsing history. They could also connect in-store shelf spaces to their AR app with additional product information, real-time reviews, and promotional videos.

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