



## Predicting Consumer Adoption of QR Code Stores for Apparels across Times of Use Experience

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### Introduction

A paradigm of retail channels is rapidly changed by fading a boundary between “physical places” and “virtual space.” QR code stores refer to retailers offering products or services with QR codes on a screen so that shoppers can purchase products with their smartphones. Since QR code store “Homeplus” had opened on a subway platform in Korea, at the first over the world, the QR code technology is viewed as a tool for retail stores to develop creative interaction with customers in a proactive way. Yet, QR code stores had not grown as much as might be expected due to complexity or reluctance of new technology in the Korean apparel market (Kim & Lee, 2013). Although it is skeptical that consumers evolve to use QR code stores over time, there are numerous potentials in creative uses for strategic retailing in the fashion industry.

QR code attributes such as ubiquity, location-based information and mobile transaction were identified to be essential attributes for improving perceived values in the shopping context (Kim & Lee, 2013; Shin et al., 2012). Unified Theory of Acceptance and Use of Technology (UTAUT) suggested four core determinants (i.e., performance expectancy, effort expectancy, social influence, and facilitating condition) of behavioral intention to use technology. The literature also provided an insight of how determinants of intention and behavior evolve over time (Venkatesh et al., 2003). In the apparel specific context, the study examines how the effects of QR code attributes on perceived values, determining behavioral intention change over time.

### Methods

A longitudinal field study was conducted at the selected QR code apparel stores in Korea. A total of 206 pooled data were obtained from volunteers who participated in two different points in time: initial experience ( $n=103$  for Time1) and one month after first experience ( $n=103$  for Time2). Participants were asked to visit to a QR code store (randomly assigned) and take a shopping task per each time. The sample represents more females ( $n=70$ , 68%) than males ( $n=33$ , 32%), aging from 19 to 29 years (mean=21.58 years). Data analyses were conducted via Mplus Version 6.1. Based on literatures, a self-administered questionnaire mainly consisted of QR code attributes (9 items), four factor of perceived value (14 items) and behavioral intention to use the QR code virtual stores (4 items).

### Results

Preliminarily, validity and reliability of measures were assessed by the confirmatory factor analysis. Measurement models were within acceptable range for each time (CFI=.945, TLI=.935, RMSEA=.052 for Time1; CFI=.956, TLI=.947, RMSEA=.049 for Time2). All factor loadings of Time1 and Time2 exceeded the threshold of 0.50, and composite reliability scores were over the threshold of 0.70 (ranging 0.741-0.941). Average variance extracted (AVE) showed satisfactory results in Time1 and Time2 except social influence in Time1 which was

slightly below the threshold of 0.50, overall supporting the convergent validity. All possible correlations between constructs were smaller than the threshold of 0.85 (Kenny, 2011), supporting the existence of discriminant validity.

Testing measurement invariance indicated equality of the factor structure (i.e., configural invariance) and factor loadings (i.e., metric invariance) across different time points. Overall fit indices of the structural models of Time1 and Time2 were within the acceptance ranges (CFI=.924, TLI=.912, RMSEA=.061 for Time1; CFI=.921, TLI=.908, RMSEA=.064 for Time2). With respect to QR code attributes, ubiquity (UBQ) solely turned out to be a significant predictor of performance expectancy (PE) ( $\beta=.918$ ,  $p<.001$ ), effort expectancy (EE) ( $\beta=.621$ ,  $p<.001$ ), social influence (SI) ( $\beta=.968$ ,  $p<.001$ ) and facilitating condition (FC) ( $\beta=.322$ ,  $p<.05$ ). In Time2, mobile commerce (MC) was a significant predictor of PE ( $\beta=.593$ ,  $p<.001$ ), EE ( $\beta=.587$ ,  $p<.001$ ), SI ( $\beta=.430$ ,  $p<.001$ ), and FC ( $\beta=.332$ ,  $p<.01$ ), whereas UBQ only affected FC ( $\beta=.287$ ,  $p<.01$ ). Of those value factors, performance expectancy and social influence subsequently increased intention to use the QR code virtual store in Time1 and Time2. Due to remarkable changes in effects of QR code attributes on perceived value factors, the study tested moderating effects of time on relationships between QR code attributes and perceived values by multi-group analyses. The results demonstrated that the time significantly moderated the following paths: the effect of UBQ on PE ( $\Delta\chi^2_d(1)=6.774$ ,  $p<.01$ ), the effect of MC on PE ( $\Delta\chi^2_d(1)=21.314$ ,  $p<.001$ ), and the effect of MC on SI ( $\Delta\chi^2_d(1)=4.956$ ,  $p<.01$ ).

### Discussion and Implications

This study supports technology adoption theory in the context of QR code apparel stores. Of QR code attributes, ubiquity and mobile commerce encourage consumers to perceive that QR code technology is valuable, which leads to intention to adopt and actually use it. The results also imply that fashion retailers should consider the specifications of technological attribute levels over times (i.e., from consumers' initial experience to reuse experience) to attract consumers into QR code stores. Especially for initial users, fashion retailers need to promote the ubiquity function when initially offering the QR code store for apparel. In growing stages over time, retailers can enhance the transactional attribute in diverse ways such as smooth and fast transactional processes, detailed and clear order confirmations, and accurate and real-time order tracking. The findings of this study should be interpreted with caution due to a selected country in a specific QR code store context. The study can be replicated with a large random sample to better represent the population of QR code apparel shoppers.

### References

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