



## Consumers' Virtual Product Experiences and Risk Perceptions of Product Performance in the Online Co-Design Practice: A Case of NIKEiD

Ui-Jeen Yu, Illinois State University, Normal, IL, USA  
Juyeon Park, Colorado State University, Fort Collins, CO, USA

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**Introduction** Consumers tend to perceive product performance risk—the uncertainty and consequences of a product not functioning at some expected level—about visual, tactile, and trial attributes of apparel products such as style, fabric, color, touch, weight, fit, or comfort in apparel shopping (Yu, Lee, & Damhorst, 2012). Online consumers might perceive higher levels of visual, tactile, and trial risks of product performance, based on the evaluation of product attributes through virtual product experience (Yu et al., 2012). In particular, mass customized apparel or footwear could engender a greater risk of product performance. Online co-design platforms provide a new generation of mass customization, where public creativity can be turned into products (Wu, 2010). Online apparel or footwear retailers, such as Nike, Lands' End, and Adidas, offer co-design opportunities to enable customers to create and customize products to meet their aesthetic and functional needs. Although this is an emerging trend where consumers often create and examine products through co-design practices online, little has been attempted to investigate how consumers perceive virtual product experience and product performance risk in the co-design process. Utilizing the technology acceptance model (David, 1989), the purpose of this study was to examine how online consumers perceive usefulness, ease of use, and enjoyment of virtual product experience through co-design practices, and how their virtual product experiences relate to their visual, tactile, and trial risks of product performance, attitude toward product, and purchase intention online.

**Methods** A web-based survey was conducted by recruiting female college students at a large Midwestern university through convenience sampling. A co-design site on the Nike website, called NIKEiD, was selected as the stimulus site. NIKEiD allows consumers to personalize a product by choosing colors and materials for each part of the product; the customizable parts include the overlay, upper tongue, lining, lace, midsole, outer sole, and decorative details. Of the 293 female college students, 137 female students responded, yielding a usable response rate of 46.76%. After removing missing or incomplete data, a total of 126 responses were acceptable for data analysis. The mean age of the respondents was 21.43 years ( $SD = 3.14$ ). A majority of the respondents were European American (87.3%). Participants were asked to browse various styles of NIKEiD shoes for five minutes by attempting co-designing—selecting different colors and materials for various parts of the products. After co-designing, they were asked to indicate their perceptions of usefulness, ease of use, and enjoyment of co-designing, visual, tactile, and trial risks of product performance, attitude toward product, and purchase intention online. Established or modified scales were utilized to measure key variables. For example, Davis' (1989) usefulness scale was utilized to assess consumers' perceived usefulness of the co-designing experience. The internal reliability for each variable showed

Cronbach's *alpha* coefficients were over .70. Simple regressions were conducted for data analysis, using SPSS 20.0 version.

**Results** The results indicate perceived usefulness and enjoyment of co-designing negatively influenced only visual risk ( $\beta = -.23, t = -2.47, p < .05$ ;  $\beta = -.38, t = -5.43, p < .001$ , respectively); whereas, perceived ease of use of co-designing negatively influenced visual, tactile, and trial risks ( $\beta = -.41, t = -4.82, p < .001$ ;  $\beta = -.23, t = -2.61, p = .01$ ;  $\beta = -.23, t = -2.53, p < .05$ , respectively). Attitude toward product was positively influenced by perceived usefulness, ease of use, and enjoyment of co-designing ( $\beta = .34, t = 4.00, p < .001$ ;  $\beta = .47, t = 5.86, p < .001$ ;  $\beta = .53, t = 6.75, p < .001$ , respectively). Purchase intention online was also positively influenced by perceived usefulness, ease of use, and enjoyment of co-designing ( $\beta = .32, t = 3.64, p < .001$ ;  $\beta = .37, t = 4.36, p < .001$ ;  $\beta = .33, t = 3.73, p < .001$ , respectively). However, attitude toward product was negatively influenced by perceived visual, tactile, and trial risks ( $\beta = -.58, t = -7.57, p < .001$ ;  $\beta = -.37, t = -4.32, p < .001$ ;  $\beta = -.36, t = -4.28, p < .001$ , respectively). Purchase intention online was also negatively influenced by perceived visual, tactile, and trial risks ( $\beta = -.43, t = -5.07, p < .001$ ;  $\beta = -.34, t = -3.87, p < .001$ ;  $\beta = -.39, t = -4.65, p < .001$ , respectively). Results show a stronger effect of perceived ease of use of co-designing on risk reduction of visual, tactile, and trial attributes of customized NIKEiD shoes in online shopping; whereas, perceived usefulness and enjoyment of co-designing effectively reduced only visual risk. Consumers, who perceived greater ease of use of co-designing, seemed to utilize more virtual product experience tools for customization and perceived less visual, tactile, and trial risks. Virtual product experience through co-designing could positively influence attitude toward product and purchase intention online, while alleviating consumers' risk perceptions to visual, tactile, and trial risks of product performance.

**Conclusion** This study illuminates the importance of consumers' perception of ease of use in utilizing the co-design tools, which can help online consumers perceive less visual, tactile, and trial risks of product performance. This study suggests online apparel marketers and retailers develop easy-to-use tools for co-design to facilitate more frequent uses of the co-design space for product customization as a means to alleviate potential risks of product performance. The findings from this study might be limited because of the convenience samples with predominantly European American female college students and the use of a well-known brand, which can influence consumers' virtual product experience and risk perception. Future research should examine the possible effects of prior brand knowledge or experience on virtual product experience for and the co-designing and risk perception of product performance.

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