Exploring online consumer reviews regarding customized apparel products
through the eyes of expectation-confirmation theory

Eonyou Shin[1], Doris H. Kincade[1], & Jinhee Han[2]
[1]Virginia Tech, [2]Independent Researcher

Background and significances. To accommodate customers' diverse needs in fit and style, apparel companies have integrated mass customization services into the product development process (Sohn et al., 2020). Mass customized products increase consumers' satisfaction by meeting their needs while giving manufacturers the benefits of mass production (e.g., Yang et al., 2015). During the past two decades, three-dimensional (3D) technologies (e.g., 3D body scanning) have become available for use in the apparel mass customization process (Wang et al., 2011). Product developers and designers use measurement information from customers and customers' 3D virtual models to create garment patterns for mass customization (Sohn et al., 2020). For consumers, 3D virtual models created based on their own measurements can give them an opportunity to try on garments virtually before purchasing. Previously, apparel companies have used mass customization services allowing customers to select options for styles and body sizes without the use of 3D body scanning. In the past decade, apparel companies have adopted online mass customization offerings using virtual try on (VTO) technology with integrated 3D body scanning. Limited research is available about consumers' experiences with these new services and customized products.

The expectation-confirmation theory (ECT) was used as a theoretical lens to explore consumers' evaluations of products and services in online consumer reviews (OCRs). The ECT explains antecedents (i.e., *expectation, perceived performance, dis/confirmation*) and the consequence (i.e., *repurchase intention*) of consumers' *satisfaction* (Oliver, 1977, 1980). According to the ECT, consumers' satisfaction is derived from a comparison between pre-purchase expectation and post-purchase evaluations of products and services (Oliver, 1977, 1980). Analysis of online OCRs is one option for exploring consumers' opinions about their experiences with products and services involving VTO technology and 3D body scanning. This data collection approach is appropriate to mine the wealth of information about consumers' customization and consumption experiences available online (Lang et al., 2020). OCRs were used in previous research to explore consumers' use of evaluative criteria for apparel products and e-services (e.g., Abraham-Murali & Littrell, 1995; Eckman et al., 1990; McKinney & Shin, 2016; Santos, 2003). Thus, the purpose of this study was to explore consumers' experiences with custom-fit apparel products and services using the ECT.

Method. OCRs (n=297) from consumers who used the Amazon's *Made for You* site were collected. The *Made for You* app offers mass customization services to create custom fit T-shirts. In the app, customers take two head-to-toe photos (i.e., one front and one side). Then, they enter their height, weight, and body type to create a 3D avatar. Once the 3D avatar is available online, they can virtually try on T-shirts with various style and fit options before ordering.

Qualitative content analysis was used to analyze the available OCRs. This technique is appropriate to determine systematically the meanings within qualitative data (Schreier, 2012). We used line-by-line analysis to apply open, axial, and selective coding to the OCRs. A coding scheme was developed based upon a priori and inductive codes. The ECT was used to set up a priori codes as well as evaluative criteria in previous studies (e.g., Abraham-Murali & Littrell, 1995; Eckman et al., 1990; Santos, 2003). In addition, several inductive codes were developed. Inter-coder reliability for the 297 OCRs was approximately 96%.

Findings and Discussions. The OCRs from the *Made for You* website had average star ratings of 3.93 (of 5), and the mean score for helpful counts was 5.95. From our analysis, we identified the expected themes from ECT, including *expectation, confirmation, perceived performance, satisfaction*, and potential consequences of dis/satisfaction. These themes are consistent in part with the ECT as described by Oliver (1977, 1980). Consumers who provided reviews for the OCRs described their pre-existing *expectations* of the product and customization service to be working well or not. *Confirmation* was defined for coding as the congruence between expectation and the products and service's actual performance. For *perceived performance*, the following themes were found in this study as well as previous studies: *perceived ease of use, fit accuracy/reliability, privacy concerns* (Santos, 2003), *delivery* (Lee & Moon, 2015), and *fit adjustment service.* For products used by the consumers, OCRs coded content was consistent with previous studies on evaluative criteria (Abraham-Murali & Littrell, 1995; Eckman et al., 1990) and the Functional, Expressive and Aesthetic (FEA) needs model (Lamb & Kallal, 1992) and included the following themes: functional (i.e., *fit, care, fabric feel, quality, comfort, workmanship*), expressive (i.e., *matching, social feedback, usage situation, uniqueness*), aesthetic (i.e., *appearance, weight, color*), and extrinsic criteria (i.e., *price, country of origins*). Consumers often mentioned *dis/satisfaction* with the product and service in terms of the degree of affect. As consequences of satisfaction, they indicated *compliments* ("This is the future and as always Amazon is on it!!!!" [R154]"), *recommendations (word-of-mouth) to others* ("I highly recommend them!!" [R36])*, and repurchase intention/behavior* ("I will order more colors and types." [R264])*. Consequences of dissatisfaction were also mentioned, including *suggestions to improve the services* ("I wish there were more custom fit things that I could buy with this new Amazon service [R131]")*, complaint* ("I called to see if they could use the measurements and photo and replace it with one shorter" [R272])*, regret* ("I should have selected the short version…" [R190])*, return intention/behavior* ("Ended up returning it" [R213]), and *product disposal behavior* ("…and have already had to toss 3" [R52]). In addition, consumers provided descriptive information on *order details, body characteristics and usual size, previous experiences with other custom companies or/and fit/sizing issues in general or from other regular apparel companies,* and *trial-and-error in the online mass customization process*.

Conclusions and Implications. The findings of this study showed that consumers tended to have expectations of customized apparel products and services using VTO technology with 3D body scanning in the pre-purchase stage (e.g., "I was skeptical" [R139]). At the post-purchase stage, dis/confirmation appeared to be generated depending upon the level of discrepancy between their existing expectations and the products and service's perceived performance. Consumers tended to indicate dis/satisfaction and its

consequences as behavioral intentions and actual behavior in OCRs. This study contributes theoretically to studies on OCRs by identifying content through the lens of the ECT, in that the consumers evaluated their experiences with products and services often based upon the status of dis/satisfaction, antecedents, and consequences of dis/satisfaction. This study also contributes to OCRs studies on services' perceived performance, which supports previous work on e-service quality, and on customized apparel products, which supports the consumers' FEA model at the evaluation stage and evaluative criteria. The study also provides insights for e-tailers into what consumers anticipate and which criteria they use to evaluate the online mass customization process while customizing a garment using VTO technology. Thus, e-tailers in online mass customization can improve their product and service quality based upon the evaluative criteria of products and services mentioned in OCRs.

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