



Apparel Mass Customization: Barriers to Strategic Growth

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Mass production (MP), Mass Customization (MC) and Fast Fashion (FF) compete in the market place today for the consumer's purchase decision for apparel. MC is a concept where customer is given the opportunity to participate in the product decision process with regard to its design, fit, fabrication, color and features, in combination of one or many, before the product is purchased. This is a strategic approach for companies in the apparel industry that will continue to offer a competitive advantage (Senanayake & Little, 2010). The economic advantage of MC is the driving factor in a successful MC business that includes increased market share, consumer satisfaction, decreased reverse logistics, and a more sustainable method of producing apparel without having to sacrifice cost of labor, materials and transportation of unsold products (Anderson, 2003, KSA 1997). Further, MC also improves company's brand recognition with product differentiation and personalization. With this said, MC's adoption in the apparel industry is considerably slow in relation to other industries such as automobile and electronics. Authors suggest that the reasons for this slow adoption can be related to limitations in retailing, manufacturing, logistics or consumer acceptance. This research concentrates on the consumer related barriers. By understanding the consumer barriers, manufacturers and retailers can make strategic decisions to overcome such barriers and accomplish their economic objectives through increased sales by better meeting the customization and personalization needs of their customers. Therefore the purpose of this study is to explore the limitations of apparel MC and specifically identify consumer related barriers to its acceptance thus its slow strategic growth. This research has three objectives. First, to investigate hypothesized consumer related barriers to the acceptance of apparel MC, second, to rank these barriers in the order of importance, and third, exploring additional barriers.

Cho and Fiorito (2009) researched the limitations or acceptance of online customization for apparel shopping using the Technology Acceptance Model and found that consumers recognize the benefits when they perceive the website (medium of customizing) to be useful, competent and secure for the information customers provide. Huffman and Kahn (2000) viewed MC as a new business model to confuse consumers with too many options to customize products and overwhelm them by its complex processes. Walsh and Mitchell (2010) researched on three dimensions of confusion; similarity, overload and ambiguity on product choices offered for customers and its impact on trust and customer satisfaction. A similar study titled "consumer confusion in Internet based mass customization: testing a network of antecedents and consequences" by Matzler, Stieger and Fuller (2011) tested their "MC-Consumer Confusion-Usability" model to discover that the product knowledge and usability decrease consumer confusion while the confusion is negatively related to the satisfaction, experiencing fun in product configuration and trust. Senanayake and Little (2010) discovered five points of apparel

customization that can occur before, during and/or after production, that need tremendous coordination, based on what customers desire in a product they help co-design, to improve the apparel MC process. Zipkin (2001) looked at the alternatives and described the limits of MC by listing its capabilities as elicitation, process flexibility, and logistics. In terms of elicitation, Zipkin analyzed the inability of consumers to communicate what it is that they want in products. Lee, et al. (2002) researched the merchandising issues associated with preference for product, process and place in relation to the acceptance of apparel MC. Lee, et. al's research showed the product types, features, customizing process, and places that customers prefer in customizing their apparel products. Fiore, et al. (2004) discovered that consumers are triggered by optimum stimulation level (OSL), which can be due to consumer expectations in goods, services or experiences and MC has the ability to create a positive shopping experience. Ardissono, et al. (2001) found that insufficient use of technology and resources to effectively implement product configuration are barriers to MC.

The literature review contributed to posit ten primary barriers. The hypothesis of this research identifies the following as barriers to apparel MC: Fit (process complexity of achieving fit), Price (price elevation of customized products), Brand (loyalty to brand), Feel (process complexity of evaluating touch), Knowledge (lack of MC knowledge), Technology (ability or readiness of customers), Variety (confusion of products), Time (waiting time), Privacy (trust to purchase online) and Consumer category (followers vs. leaders). It was assumed that the customization is achieved through an online elicitation/co-design process. No previous research models were found testing the relationships of consumer related barriers to MC.

These hypotheses were tested using data collected through an online survey instrument. The survey consisted of close-ended questions investigating the posit barriers inquiring the level of agreement as well as open-ended questions investigating new barriers. In addition, the demographic data were collected to investigate trends. An estimated 416 convenience sample surveys were sent out from which a sample of 127 completed responses was collected (30% response rate). The respondents ranged in age from 18-65 out of which 64% were between the ages of 18 and 24. The sample consisted primarily of female (76%) subjects. 47% of participants in this study had some college education. The data were analyzed using descriptive and inferential statistics (Pearson Chi-Square test) using SPSS statistics software program.

The results show that the tested barriers were significant thus accepting the hypotheses which can be ranked in the order of Fit, Feel, Price, Brand, Knowledge, Technology, Variety, Time, Consumer category and Privacy while Fit, Feel, Price and Brand were discovered as highly significant consumer barriers. Four new barriers; "shipping cost", "return policy", "product presentation ability" (ex: online color visualization) and "lack of opportunity to evaluate quality" were discovered. When the cross correlation between highly significant barriers and demographics were concerned, significant correlations were found between Age vs. Feel ($p=.001$), Age vs. Price ($p=.001$), Income vs. Price ($p=.003$) and Education vs. Price ($p=.022$).

The results of this study provide an understanding of important consumer related barriers to the success of apparel MC where apparel companies can use this information to better design their supply chains. Future research can further investigate the newly found consumer barriers.

Full references will be provided upon request