Optimizing Variety in Mass Customization: a Theoretical Perspective

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The growing use of mass customization necessitates understanding consumer decision making in such contexts. For the purpose, we categorize product attributes as universal (having a common, widely accepted evaluation scheme) or variable (having a more consumer-specific evaluation scheme) and propose that consumers would differentially process information concerning the two attribute types. Results from three experiments demonstrate support for this assertion and show that the effect of options offered by variables attributes on satisfaction is moderated by consumer knowledge and knowledge function of attitudes.

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EXTENDED ABSTRACT
Markets today are fragmenting with individual needs and wants increasingly prone to shifts and changes (Hart 1995) necessitating products that are mass customized and customerized (Simonson 2005; Wind and Rangaswamy 2001). Although considerable literature has examined mass customization from a production perspective (e.g., Papathanasiou 2004, Jiao, Ma, and Tseng 2003), it is only recently that marketing scholars have begun to examine this phenomenon (e.g., Murthy and Sarkar 2003; Simonson 2005; Wind and Rangaswamy 2001).

Typically, in mass customization, customers are provided varying options of a product’s attributes to select and thus “build” their product. A major managerial challenge in such cases is to determine the optimal variety of options to offer (Simonson 2005). Too many options would be expensive, and confusing to customers, while too few options may annoy the customers who may be unable to configure the product based on their true preferences (e.g., Huffman and Kahn 1998).

We build on the work of Sherman et al. (1984) on human qualities to classify product attributes as universally or variably evaluated. According to Sherman et al. (1984), for universally-evaluated qualities, there is consensus in a population about whether a particular level is good or bad, regardless of individuals’ preference for the level. For example, people would agree that being honest is good and being dishonest is bad whether they themselves are honest or not. In contrast, there is more variability and person-specificity in variably-evaluated qualities. For example, opponents of abortion may think of a pro-choice political candidate as undesirable ("low quality") whereas pro-choice individuals may find that candidate very appealing. Thus, for universally-evaluated qualities there exists a widely accepted evaluation basis, whereas for variably-evaluated qualities, the evaluation schemes are more individual-specific.

Similarly, in a consumption context, universally-evaluated product attributes (universal attributes), such as battery life in cell phones, would have a common and widely accepted evaluation, whereas the evaluation schemes for variable attributes, such as exterior color of cell phones, would be more consumer-specific. In laptops, consumers would generally agree that 40 Gigabytes (GB) of hard disk space (a universal attribute) is better than 20GB of hard disk space. In contrast, the color kit options in laptops (a variable attribute) are likely to be evaluated based on personal preferences—‘Charcoal Leather’ maybe evaluated positively by one while another consumer may prefer ‘Mediterranean Blue.’

We suggest that this difference in evaluation schemes would result in consumers using different strategies for evaluating the two types of attributes. Specifically, we suggest that, since consumers’ knowledge of the product category would influence how they search and utilize attribute information, consumer knowledge would affect the processing of information related to variable attributes. In particular, we examine the moderating effects of two constructs related to consumer knowledge, i.e., (1) objective knowledge, (Alba and Hutchinson 1987), and (2) knowledge function of attitudes, (Katz 1960, Grewal, Mehta, and Kardes 2004), for the influence of the levels of universal and variable attributes on consumer satisfaction with mass customization platforms. Objective knowledge refers to how knowledge with respect to the object (e.g. cell phones) may influence attribute processing. The knowledge function of attitudes pertains to the most basic function of attitudes that enables individuals to make better sense of their world (Shavitt 1989). While the former refers to the use of knowledge with respect to the object (e.g. cell phone), the latter refers to the use of the object (cell phone) as a means of knowledge. Thus these two knowledge related constructs represent two sides of a coin concerning consumer knowledge. We suggest that, since a variable attribute is more personal and more likely to serve as a peripheral cue than a universal attribute (Huffman and Houston 1993; Park and Lessig 1981), variable attributes would be more important for novices than for experts such that the positive effect of increasing variable attribute options on satisfaction with the customization platform would be stronger for novices than for experts. Further, we posit that if a product serves the knowledge function of attitudes (Katz 1960; Locander and Spivey 1978), consumers are likely to have a stronger personal relationship with the product, thereby increasing the importance of variable attributes such that the positive effect of increasing variable attribute options on satisfaction with the customization platform would be stronger when the product serves the product knowledge than when it does not.

We test these propositions with two experiments set in the context of customizing cell phones. In the first experiment, we examine the moderating role of objective knowledge and find that variable attributes are more important for novices as opposed to experts. In the second experiment, we study the moderating role of the knowledge function of attitudes towards cell phones and find that variable attributes are likely to generate higher satisfaction with the mass customization platform if cell phones perform the knowledge function of attitudes than if the cell phones do not perform the knowledge function of attitudes. The results of the two experiments also suggest, as hypothesized, that objective knowledge and knowledge function of attitudes do not influence the evaluation of universal attributes.

There are several important theoretical implications of this research. We distinguish between universal and variable attributes and show their differential effects on consumer evaluation of a mass customization platform. Future research might study the criticality of this categorization in other consumption contexts, such as evaluation of competing offerings of durable goods. It would be also worthwhile to examine how this attribute classification influences satisfaction with the product or service. Additionally, we have identified important moderators (objective knowledge and knowledge function of attitudes) in consumers’ assessment of universal and variable attributes. From a managerial standpoint, our

1Customization platform represents an interface where the product options are presented as attributes and options of those attributes are also listed. For example, a hypothetical customization platform can have two attributes—color and quality, with three options for color—red, green, and blue, and two options for quality—high and medium.
results should help marketers in deciding the number of attribute options that would provide the optimal variety in customization platforms. Also, the moderators we have identified, (namely, objective knowledge and knowledge function of attitudes), offer insights for segmenting the customers for design of mass customization platforms.

REFERENCES


