Can’T See the Forest For the Trees: Increased Local Processing in Mass Customization Systems

Andreas Herrmann, University of St. Gallen, Switzerland
Christian Hildebrand, University of St. Gallen, Switzerland
Emanuel de Bellis, University of St. Gallen, Switzerland
Jill Griffin, University of Evansville, USA
Reto Hofstetter, University of Lugano, Switzerland

Although generally assumed to benefit consumers, mass customization can have unintended consequences. Two studies demonstrate that customizing by-attribute (vs. choosing from pre-specified configurations) increases local processing and decreases mental simulation, leading to lower satisfaction, pride, and purchase intentions. The findings offer novel insight regarding configuration systems in mass customization.

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Emanuel de Bellis, University of St. Gallen, Switzerland
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Christian Hildebrand, University of St. Gallen, Switzerland
Reto Hofstetter, University of Lugano, Switzerland
Andreas Herrmann, University of St. Gallen, Switzerland

EXTENDED ABSTRACT

Consumers never before had the opportunity to customize such a wide variety of products. An increasing number of companies are offering web-based services that allow customers to design their own customized products. Allowing people to express their preferences attribute-by-attribute can benefit consumers and retailers by decreasing the complexity of choice, increasing product satisfaction, and leading to greater purchase likelihood (Huffman and Kahn 1998; Schreier 2006; Valenzuela, Dhar, and Zettelmeyer 2009). However, providing such opportunities for customization may not be uniformly beneficial to all consumers. For example, consumers’ responses to customized offers may be affected by their degree of preference development as well as their insight into their own preferences (Simonson 2005). In this paper, we argue that the type of configuration format predominantly used in mass customization (MC) systems can lead to more local information processing, ultimately leading to decreased purchase intentions and diminished post-choice evaluations of the configured product.

This research builds on prior work demonstrating that information processing styles can easily be triggered by and carried over to other tasks (Förster and Dannenberg 2010). Most MC systems are designed as a bottom-up process where consumers configure their product in multiple sequential steps by choosing feature or style elements attribute-by-attribute. For instance, to configure a car, a consumer would first select the model type, then the exterior color, followed by the type of rims, and so on. Focusing on a sequence of individual attributes rather than the complete product may trigger more local processing, as consumers engage in less mental simulation of the whole configuration. Such sequential processing can increase consumer’s hopes (Mogilner, Shiv, and Iyengar 2013), inadvertently leading to suboptimal choice outcomes. Moreover, focusing on each attribute likely reduces mental simulation which has been shown to impact post-choice evaluations (Escalas 2004). In contrast, choosing from a set of “off the shell” alternatives (by-alternative) likely increases global processing, as consumers can see the product in a more holistic manner and make cross-attribute comparisons simultaneously. This focus on the product as a whole better enables consumers to select a product whose attributes fit well together. Thus, contrary to intuition, customizing a product can make consumers worse off in some circumstances than simply choosing from available alternatives.

In two studies, we examined configuration formats (by-attribute vs. by-alternative customization) utilizing a simulated online car configurator of a European automotive manufacturer. In study 1, the by-attribute condition allowed participants to customize their car attribute-by-attribute, selecting a value (e.g., silver) for each of six attributes (e.g., exterior color). In the by-alternative condition, participants chose from a set of six prespecified alternatives (i.e., completely configured cars), consisting of random selections of the same six attributes. Processing style was measured using the Kimchi similarity task (Kimchi and Palmer 1982) where participants were shown a triangle made up of smaller triangles and had to indicate which of two other figures (e.g., a square made of triangles or a triangle made of squares) was more similar to this target. Results confirmed that consumers in the by-attribute (vs. by-alternative) configuration format engaged in increased local processing as measured by the Kimchi similarity task.

The design of study 1 allowed participants to select from numerous values on each attribute, similar to the way MC systems are usually used by retailers and manufactures. Although higher in external validity, this design allowed for a greater number of possible combinations in the by-attribute condition than in the by-alternative condition. To control for the potentially confounding influence of different amounts of possible option combinations between conditions, study 2 used a reduced configuration set where the total number of prespecified alternatives represented all possible combinations of the same three attributes of the by-attribute condition (2 model types x 3 exterior colors x 2 rims). Measures included choice satisfaction, pride of authorship, purchase intention, and degree of mental simulation of the configured product.

Replicating study 1, the by-attribute (vs. by-alternative) configuration format led participants to process in a more local manner. Moreover, participants in the by-attribute condition indicated lower choice satisfaction and pride of authorship relative to participants assigned to the by-alternative condition. Importantly, the by-attribute configuration format substantially decreased consumers’ purchase intentions. Mediation analyses using three serial multiple mediation models with processing style as first mediator and mental simulation as second mediator indicates that increased local processing stemming from the by-attribute configuration format led to less mental simulation of the product, negatively affecting ultimate choice satisfaction, pride of authorship, and purchase intention.

Together these studies demonstrate that the typical MC format of by-attribute customization can lead to unintended consequences for consumers. Contrary to prior research demonstrating positive effects for allowing consumers to customize products, the results of this research demonstrate that a by-attribute customization format was generally associated with less favorable outcomes than the by-alternative format and that processing style plays a central role within that process. As society places greater emphasis on consumer self-expression, the demand for and availability of individualized and customized products is ever increasing. Surprisingly, little research has examined the effect of various MC systems on consumer choice outcomes. This research highlights that there is further need for examining the impact of configuration system formats. Future research should also examine whether global processing is generally favorable or whether there are conditions where increased local processing can be beneficial.

In summary, the contribution of our research is twofold: We demonstrated that the format of configuration (by-attribute vs. by-alternative) has an impact on individual styles of information processing. Furthermore, we presented evidence that increased local processing and decreased mental simulation stemming from a by-attribute customization format can make a difference to both consumers (by decreasing their product satisfaction and pride) and firms (by diminishing consumers’ intentions to purchase the product).
Table 1: Main Results of Studies 1 and 2

<table>
<thead>
<tr>
<th></th>
<th>By-attribute</th>
<th>By-alternative</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing styles (study 1)</td>
<td>1.75</td>
<td>2.41</td>
<td>1.85*</td>
</tr>
<tr>
<td>Processing styles (study 2)</td>
<td>1.35</td>
<td>2.00</td>
<td>1.74*</td>
</tr>
<tr>
<td>Choice satisfaction</td>
<td>5.40</td>
<td>5.82</td>
<td>1.72*</td>
</tr>
<tr>
<td>Pride of authorship</td>
<td>5.12</td>
<td>5.77</td>
<td>1.90*</td>
</tr>
<tr>
<td>Purchase intention</td>
<td>55</td>
<td>75</td>
<td>2.44**</td>
</tr>
</tbody>
</table>

Note. Whereas study 1 used an extensive configuration set, study 2 used a reduced configuration set. Processing styles ranged between 0 and 3 (higher numbers indicate a global processing style), choice satisfaction and pride of authorship were inquired on a 7-point Likert scale, and purchase intention was measured as a percentage value.

* p < .05; ** p < .01

REFERENCES


