Exploring Customer Judgment and Decision Making in the Context of Mass Customization

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Marketing researchers have been debating on whether mass customization decreases or increases the uncertainties and risks faced by customers when they taking on the role of co-designer to configure their own products. On one hand, as the core of mass customization, a customer co-design process integrates customers into value creation by transferring their needs and wants into a concrete product specification, a process that usually operates in an interactive online environment with a fixed solution space, providing a dynamic flow of customized products that exactly meet the needs of individual customers. The value created by customers is twofold: other than a product that better fits their needs than the best standard product attainable (Piller 2003), the co-design process per se can give rise to intrinsic rewards such as flow experience (Novak, Hoffman, and Yung 2000) and pride of authorship (Franke and Piller 2004). On the other hand, although finite, the solution space within which a mass customization offering is able to satisfy an individual customer's need is still overwhelmingly large. For instance, the design task carried out in our studies involved 60,374,160 different possible designs. Orthogonal to the size of choice set, customers are not always clear about their own preferences. Together, these two factors might transform mass customization into "mass confusion" (Huffman and Kahn 1998). Building upon the previous research, this paper addresses some fundamental issues of mass customization: Given a fixed yet flexible solution space provided by manufacturers, will customers' "true" ideal point (product) be better matched by their own design, a representative customized design, a random customized design, or a professional standard design? Will this match change over time? Will the mere fact that being the designer of a product influence the customer-designer's preference for that product and, if yes, how? We set out to answer these questions in three online empirical studies (one completed, one in process, and one planned).

Study One

The main purpose of study one is to collect customized designs. We directed participants to a pre-selected webpage at www.nike.com, where they were able to "co-design" a sports shoe of a pre-decided model for themselves. They could either start with one of four existing styles (created by Nike's professional designers), modifying it into a new style or, alternatively, start with a blank shoe model, creating their own style from scratch. Their co-design activity involved choosing color for a variety of shoe components (i.e., base, secondary, swoosh, accent, lace, lining, and "shox") and choosing a "Nike iD" as their "designer signature." Upon finished designing the shoe, they were required to record their shoe design in an itemized "order sheet," save it in an online "locker," and e-mail it to our study account. A brief survey regarding their online co-design experience ended the study. Our preliminary analysis showed that 156 unique shoe designs were generated by 156 participants. K-means cluster analyses confirmed that this high level of preference heterogeneity was not due to minor variations. Five cluster centroids

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accounted for only 30% of design variation, and even 25 clusters accounted for only 63% of design variation. This level of variation seems to argue for the role of mass customization in shoe industry because the larger the heterogeneity of all customers' preferences, the larger they can gain from customization the increment of utility of a product.

Study Two

Study two will be conducted on the same group of participants approximately one month after they participated in study one, when their memories for details of their own design should largely fade. The purpose of the delay is to induce a relatively objective perspective in participants and then measure their preference for their own design, their peers' customized designs, and professional standard designs. From the pool of 156 shoe designs obtained in study one, we selected three sets of 25 designs as stimuli to be used in study two. The first set of 25 designs (named "star designs" thereafter) resulted from cluster analyses, each representing the ideal point (shoe) of a constellation of customers who share similar tastes. The second set of 25 designs (named "expert picks" thereafter) was picked by two experienced retailer buyers. The third set of 25 designs (named "random designs" thereafter) was randomly chosen. Cares were taken to make sure that no overlap exists among the three sets of designs.

Participants will be invited via e-mail to visit our study site to participate in the follow-up study. They will be randomly assigned into one of the three conditions, wherein they will be presented with the set of "start designs," "expert picks," or "random designs," respectively. Other than the set of 25 designs, participants will be shown 5 more designs: the 4 "professional designs" they encountered in study one plus their "own design." Cares will be taken to make sure that, of the 30 designs shown to an individual respondent, one and only one is his/her own design.

Study two will consist of three phrases. In the first phrase, participants will look through the 30 designs, one at a time, and decide whether they like it or not based on gut reaction. In the second phrase, they will look at the 30 designs more carefully, one at a time, and rate its design quality on a 100-point online scale. In the third phrase, all 30 designs, along with their corresponding ratings, will be ranked in a descending order and presented to participants on a single webpage, where they will be instructed to review and, if necessary, change their ratings to break ties and reflect their changed mind. Participants will be allowed to repeat this review process as many times as they want. When they feel that an accurate ranking has emerged, they can just click a button to terminate the process.

Our key dependent measure is the final ranking participants give to their own design among the 30 designs. If, at an aggregated level, a customer's own design is always ranked among the highest few by its author, comparing to professional designs, we should be able to remark that mass customization indeed affords customers the best-fit product unattainable in the traditional standardization model. Analyses conducted by condition should shed more light on the rationale of mass customization and provide more insights for its practice. In the "star designs" condition, if customers consistently rank the start design representing the cluster they belong to higher than their own design and professional designs, it thus indicates that manufacturers should implement more precise market segmentation and offer larger assortments based on preferences elicited from representative customers from each fragmented segments. In the "expert picks" condition, if customers rank their own design and professional designs lower than expert picks, it thus suggests that manufactures should hire "cool hunters" to carve out design and innovation opportunities among their customer population. In the "random designs" condition, if certain random designs dominate the ranking, it thus motivates manufactures to hold

"design competitions" among their existing customers and adopt award-winning designs as their new models.

Study Three

Study three will be conducted on a different group of participants. It will be a combination of study one and study two but without any delay between the two. Its main purpose is to test a hypothesized "mere designer effect." In this study, participants will be asked to do the same design task as in study one. However, immediately after their co-design activity, we will ask them to evaluate a set of 30 designs consisting of the design they just completed (i.e., their own design), the 4 professional designs and one of the three sets of 25 designs used in study two. The evaluation task will be the same as in study two. Our prediction is that, having fresh memory in mind with respect to their own design, participants will consistently rank it among the highest no matter which condition they were in. This is because, wearing the hat of "designer," participants are prone to over-evaluate their own design but not others' design. An "mere designer effect" will be detected if significant difference found in the rankings that participants give to their own design when they are in a "hot state" (study three—no delay between design task and evaluation task) and basked in the pride of "being a designer" and when they are in a "cold state" (study two—delay) and detach themselves from the role of designer either voluntarily or involuntarily (i.e., in the case of forgetting).

Wes Hutchinson

Signature of the Primary Faculty Member/Advisor

Budget of Estimated Expenses

1. Conference presentation related expenses including conference registration fee, air-tickets, hotel and food: about $1,000;
2. We might conduct field studies in the future collaborating with a specific manufacturer who practices mass customization. This will incur expenses similar to participating a conference: about $1,000;
3. Purchase of related books or materials: about $500.

Current Research Funding from Marketing Department

Each doctoral student is granted $2,000 for academic conferences and other research-related activities during the 5 years' program.