

When Social Media Can Be Bad for You: Community Feedback Stifles Consumer Creativity and Reduces Satisfaction with Self-Designed Products

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Enabling consumers to self-design unique products that match their idiosyncratic preferences is the key value driver of modern mass customization systems. These systems are increasingly becoming “social,” allowing for consumer-to-consumer interactions such as commenting on each other’s self-designed products. The present research examines how receiving others’ feedback on initial product configurations affects consumers’ ultimate product designs and their satisfaction with these self-designed products. Evidence from a field study in a European car manufacturer’s brand community and from two follow-up experiments reveals that receiving feedback from other community members on initial self-designs leads to less unique final self-designs, lower satisfaction with self-designed products, lower product usage frequency, and lower monetary product valuations. We provide evidence that the negative influence of feedback on consumers’ satisfaction with self-designed products is mediated by an increase in decision uncertainty and perceived process complexity. The implications of socially enriched mass customization systems for both consumer welfare and seller profitability are discussed.

Key words: mass customization systems; user self-design; product configurators; consumer decision making; social influence; field study; experiment

History: Chris Dellarocas, Senior Editor; Michael Zhang, Associate Editor. This paper was received January 15, 2012, and was with the authors 4 months for 1 revision. Published online in *Articles in Advance* January 14, 2013.

1. Introduction

Many companies in various industries provide mass customization (MC) systems that offer consumers the opportunity to self-design their own products. Past research has shed light on how such systems of co-production through consumers’ interaction with the vendor’s MC system facilitate the creation of products that closely match consumers’ idiosyncratic preferences (e.g., Franke et al. 2010, Dellaert and Stremersch 2005, Randall et al. 2007, Syam et al. 2005). It has been shown that the key driver of customer value is consumers’ opportunity to express their uniqueness and individuality (Franke and Schreier 2008). Such a value increment due to differentiation is consistent with prior work suggesting that the possession of rare products generates increased value to owners (Lynn

1991; see also Thompson and Haytko 1997). Thus, the central benefit for consumers from the use of MC systems is the capability to self-design individualized products by adjusting product features to their own unique preferences (Franke and Schreier 2008), allowing consumers to signal their desired personal identity to their social environment (Snyder and Fromkin 1977, Berger and Heath 2007).

At the same time, consumers increasingly use social media to exchange information about products, and many companies aim to harness social media technologies to foster interactions among consumers when using an MC system (Moreau and Herd 2010). As a result, recent MC research has recognized the importance of social influence processes in the context of self-designable products (Franke et al. 2008,

Moreau and Herd 2010), and the development of community-based MC systems by firms highlights the need for research on socially enriched variants of such systems. For example, companies such as Porsche and Audi have developed community-based MC systems (so-called “color stylers”) that are embedded within the online social network Facebook, and firms such as Lego and Threadless not only offer highly sophisticated toolkits for individual self-designs, but they also encourage consumers to post their own designs, as well as comment on others’ designs, within a company-led community. As a result of the integration of user communities into MC systems, consumers’ creation of self-designed products is transforming from a purely individual activity into an increasingly social one (Moreau and Herd 2010).

At this point, little is known about the consequences of incorporating social interaction into the product self-design process. Moreover, the limited prior research in this area has yielded mixed findings. Although Franke et al. (2008) found that integrating user communities into self-design processes increased user satisfaction, purchase intention, and willingness to pay, Moreau and Herd (2010) showed that social comparisons can lower consumers’ evaluations of their own self-designed products. In addition, work by Kramer et al. (2007) reveals that consumers with an interdependent orientation are inclined to prefer products that reflect the aggregated preferences of other consumers, whereas those with an independent orientation tend to instead rely more on their own preferences.

These sparse prior findings suggest that a fundamental tenet of MC is challenged when social interaction among consumers is incorporated into the product self-design process. Although consumers might value the opportunity to self-design their products to express their individuality and uniqueness, they must strike a balance between achieving an appropriate amount of uniqueness and not deviating excessively from what other consumers deem adequate and/or socially acceptable.

The present research enhances our understanding of the impact of social interaction in a consumer community on the product self-design process by addressing the following key questions: (1) How does community feedback on initial self-designs influence consumers’ ultimate product choices? (2) How does community feedback affect consumers’ post-decisional evaluation and usage of self-designed products? (3) What might be the implications of providing socially enriched MC systems for seller profitability?

In what follows, we develop a set of hypotheses about how community feedback affects important outcomes of the consumer self-design process.

We then present evidence from a field study and two follow-up experiments that we designed to test these hypotheses. The results show that community feedback can reduce consumer creativity as reflected in less unique self-designs; that the convergence toward less unique products as a consequence of receiving feedback from others on initial self-designs leads consumers to be less satisfied with their final product choices; and that receiving community feedback reduces consumers’ actual usage frequency, as well as their monetary valuation, of their self-designed products. In addition, Monte Carlo simulations suggest that the convergence toward less creative (i.e., more “average”) consumer self-designs may increase seller profitability, at least in the short term.

2. Theory and Hypotheses

2.1. Preference Assimilation Toward Community Feedback

We conceptualize the consumer’s product self-design processes in socially enriched MC systems as consisting of the following stages: (1) specifying an initial self-design, (2) receiving feedback on this initial design from another community member, and (3) choosing the final self-designed product. We propose that receiving community feedback plays an important role in the product self-design process.

Individuals generally seek approval from others (Baumeister and Leary 1995). Based on Sherif and Hovland’s (1961) social judgment theory, one might expect that consumers are more likely to be persuaded by feedback that is closer to one’s initial preference (see also Perloff 2008) and that distant feedback from external sources is heavily discounted (Yaniv 2004). Consistent with this theory, prior studies have shown that expert recommendations that are in conflict with a consumer’s initial preference may spark psychological reactance and lead to a clear rejection of recommended alternatives (Fitzsimons and Lehmann 2004).

In contrast, a well-established finding in prior research on social influence is that individuals tend to choose responses or courses of action that are neither exactly in line with nor dramatically different from what others may deem acceptable (Brewer 1991). Indeed, people view conformity (e.g., in opinion or position) as an effective means of gaining the approval (or avoiding the disapproval) of others (Tetlock et al. 1989). Prior work has shown that individuals often adopt socially acceptable positions in order to fit in rather than stand out and that more extreme attitudes by others can lead to more extreme attitude shifts (Tetlock 1992). Moreover, individuals who are judged as deviant may subsequently display greater attitude change and compliance (Freedman

and Doob 1968). In the domain of consumer choice, it has been argued that thinking about the choices of others can increase consumers' tendency to choose a less extreme or "compromise" alternative to minimize the likelihood of criticism from others (Simonson and Nowlis 2000).

Based on early work on social influence, it is unclear whether the principles of conformity and compliance might apply equally to social interactions in computer-mediated environments (see Kiesler et al. 1984). However, more recent research has shown that even in online settings without face-to-face interaction, individuals are very much aware of the presence and influence of others (Spears and Lea 1992), are socially attentive to manage their impressions on others (Schlosser 2009), display high levels of self-awareness (Matheson and Zanna 1989), and are equally affected by classical persuasion techniques (e.g., Guadagno and Cialdini 2005).

We hypothesize that receiving feedback from others during the product self-design process leads consumers to deviate from their initial self-design toward the alternative design proposed by another consumer, resulting in an increase in the probability of choosing more easily justifiable compromise alternatives (Simonson 1989). Moreover, we predict that because of individuals' tendency to avoid extreme positions (e.g., Tetlock 1992; see also Torelli 2006 for an example of increased levels of conformity when expecting to be evaluated by others), this assimilation of consumers' self-designed products toward the community feedback is stronger when initial-self-designs are more extreme.

HYPOTHESIS 1A (H1A). *Receiving community feedback on their initial self-design results in assimilation toward the community feedback when consumers choose their final self-designed products.*

HYPOTHESIS 1B (H1B). *Assimilation toward the community feedback is stronger when consumers' initial self-designs are more extreme.*

Furthermore, we hypothesize that the assimilation of self-designs toward the community feedback (H1A) is moderated by characteristics of the individual who provides the feedback. In line with prior research on source effects in connection with social influence (see Cialdini and Goldstein 2004 for a review), we predict that higher expertise of the feedback provider results in greater assimilation toward the feedback. In particular, it has been shown that such sources of perceived high expertise are considered more trustworthy and associated with higher message quality, resulting in greater influence on attitudes and behavior (Brown et al. 2007, Mayzlin 2006, Sniezek and Van Swol 2001, White 2005).

In addition, based on the well-established notion that individuals' likability is positively related to their ability to influence others (Heider 1958), we hypothesize that the extent of assimilation of self-designs toward the community feedback (H1A) is moderated by the likability of the feedback provider. As shown by Silvia (2005), liking a persuasive agent can lead to a decrease in reactant behavior after a threatening influence attempt and to more effective persuasion. Moreover, Burger et al. (2001) found that inducing liking by leading participants to believe that they share similar personality traits with a requester can increase compliance.

Thus, we predict that the perceived competence and the likability of the feedback provider moderate the extent to which consumers assimilate their final self-designs toward the community feedback and that the nature of these moderating effects is as follows.

HYPOTHESIS 1C (H1C). *The higher the perceived competence of the feedback provider, the greater consumers' assimilation toward the community feedback.*

HYPOTHESIS 1D (H1D). *The higher the liking of the feedback provider, the greater consumers' assimilation toward the community feedback.*

2.2. Community Feedback and Creativity of Self-Designs

The influence of community feedback on individual consumers' final self-designs may also have implications for the *creativity* of these self-designs. One possibility is that the interaction with other consumers could boost the creativity of self-designed products because the exchange of ideas might identify designs not previously considered. For example, Nijstad et al. (2002) provide evidence that having access to others' ideas can lead to an increase in the number of creative ideas generated. Thus, exposure to others' ideas and opinions might increase cognitive stimulation (e.g., Collins and Guetzkow 1964).

However, a large body of research in the domain of creativity has shown that people working separately tend to generate more creative ideas than groups because instead of exploring a more diverse set of ideas individuals often conform to the categories of ideas suggested by other group members (Kohn and Smith 2010, p. 362; see Pinsonneault et al. 1999 for the same result in virtual groups, and Mullen et al. 1991 for a general review). Thus, rather than develop more creative ideas, individuals tend to anchor on the opinions and perspectives of other members (Diehl and Stroebe 1987)—also known as the problem of fixation in idea generation. Similarly, Smith et al. (1993) among others (e.g., Chrysikou and Weisberg 2005), found evidence of conformity effects in idea generation processes such that individuals' ideas conform

to what others have proposed previously (see also Van de Ven and Delbecq 1974). Thus, social interactions can inhibit creative processes, and the fear of negative evaluations by others can also suppress creative outcomes (see Amabile 1979 for a classic example).

Although the appropriate definition and measurement of creativity depends on the specific context and level of analysis (see Hennessey and Amabile 2010), one widely accepted definition ties creativity to the novelty and value of the created output (Amabile 1983). We build on the body of prior work that has viewed creativity as an end result rather than a process (e.g., a particular way of approaching a problem) or a personal characteristic (Hennessey and Amabile 2010) and adopt the common definition of creativity based on the novelty and uniqueness of a consumer's final self-design relative to the set of designs developed by other consumers (Torrance 1988). Accordingly, we operationalize the creativity of self-designed products in terms of the variety of selected product attributes across consumers, and we hypothesize that receiving community feedback on one's initial self-design, via the assimilation toward the feedback, results in less variety in the attributes of self-designed products.

HYPOTHESIS 2 (H2). *Community feedback reduces the variety of self-designed products across consumers.*

2.3. Community Feedback and Consumer Satisfaction with Self-Designed Products

If consumers deviate from their initial self-design after receiving community feedback in connection with it, this may have consequences for their ultimate *satisfaction* with their self-designed product. In particular, having their preferences—as reflected in their initial self-designs—challenged in the form of community feedback might increase consumers' uncertainty with respect to their ultimate self-designed products. Indeed, prior research has shown that seeking feedback tends to increase a decision maker's uncertainty (e.g., Ashford 1988). In turn, such an increase in decision uncertainty can have a negative impact on product satisfaction (e.g., Heitmann et al. 2007).

Receiving community feedback on one's initial self-design may also affect the perceived *complexity* of the self-design process. The study by Dellaert and Stremersch (2005) highlights the importance of perceived complexity in understanding consumers' response to MC systems. Moreover, prior research has shown that dyadic as well as group-based interactions can increase perceived complexity in a decision-making context (e.g., Dennis 1996; see also Tetlock et al. 1989 for an example of how balancing one's own and external thoughts increases decision complexity).

Along similar lines, we propose that being presented with community feedback in the course of the product self-design process increases the perceived complexity of the latter.

Prior work has shown that consumer self-attributions play a key role in product self-design. Franke et al. (2010) found that consumers derive increased utility and greater satisfaction as a result of investing effort in developing their own self-designed product, and they referred to this as the "I designed it myself effect." Similarly, research by Troye and Supphellen (2012) has shown that consumers tend to evaluate a product more favorably if they have participated in its production. This prior work suggests that the attribution of a specific outcome (e.g., a particular product configuration) to one's own choices and actions might have a positive impact on how satisfied an individual is with that outcome.

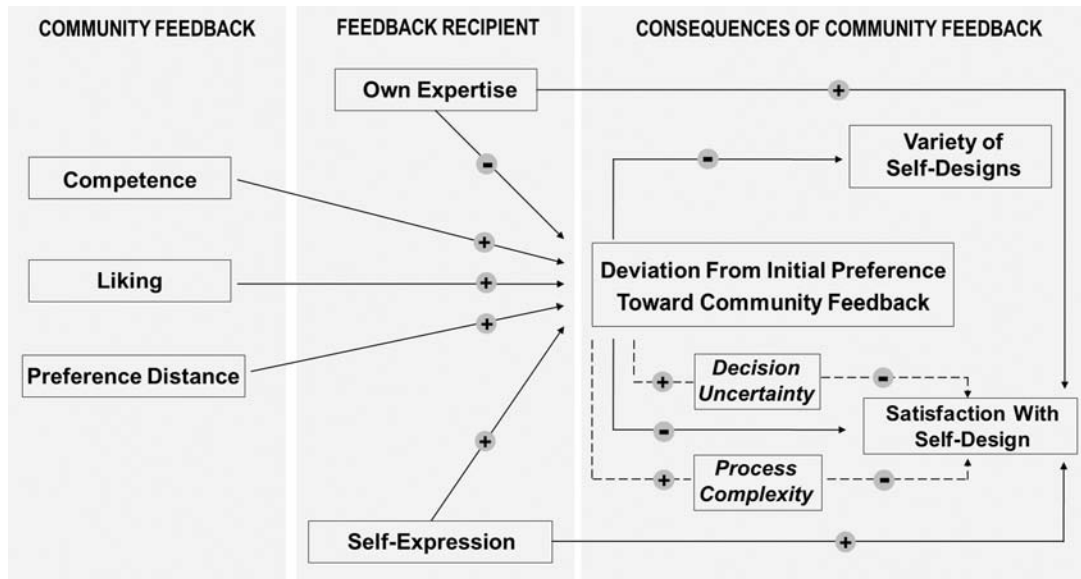
However, such self-attribution is less likely to occur in *social* MC systems, where the outcomes of the self-design process are not entirely attributable to consumers themselves if—as we predict—ultimate self-designs reflect an assimilation toward the community feedback that consumers receive on their initial self-designs. Thus, to the extent that products that are created via a social MC system reflect not only consumers' own preferences but also what others deem acceptable, self-attribution of the outcomes of the self-design process should be diminished.

The concept of self-attribution is critical because prior research on the drivers of customer satisfaction has revealed that failing to make self-attributions can negatively affect consumers' satisfaction (Szymanski and Hearnard 2001). As Oliver and DeSarbo (1988) noted, self-attributions are a key antecedent of consumer satisfaction. Pham et al. (2010) have shown that consumers end up less satisfied with a product if they cannot attribute the final outcome to themselves (see also Weiner 1985 for a discussion on this effect). In line with this, we hypothesize that in the context of social MC systems where consumers can revise their product configurations upon receiving community feedback, greater deviations from initial self-designs, which more strongly undermine self-attribution, result in lower consumer satisfaction with self-designed products. Moreover, we predict that this effect is mediated both by decision uncertainty and by the perceived complexity of the self-design process.

HYPOTHESIS 3A (H3A). *The greater consumers' deviations from their initial self-designs as a result of community feedback, the lower their satisfaction with self-designed products.*

HYPOTHESIS 3B (H3B). *The negative impact of the magnitude of deviations from consumers' initial self-designs on satisfaction with the final product is mediated by decision uncertainty.*

Figure 1 Research Model



HYPOTHESIS 3C (H3C). *The negative impact of the magnitude of deviations from consumers' initial self-designs on satisfaction with the final product is mediated by the perceived complexity of the self-design process.*

In addition to the hypothesized effects discussed above, we expect that some characteristics of the recipients of community feedback affect how these consumers respond to the feedback they get on their initial self-designs. Specifically, prior research suggests that individual characteristics such as expertise and self-expression tendency may moderate social influence processes (see, e.g., Cialdini and Goldstein 2004). In line with this, we propose that consumer with greater expertise in the product domain are less influenced by community feedback when making their ultimate product choice, and that a stronger tendency to express oneself results in greater impact of community feedback on consumer product choice. Finally, we expect both expertise and self-expression tendency to have a positive effect on consumers' satisfaction with self-designed products. Figure 1 provides an overview of our research model and the proposed relationships among the variables of interest.

3. Field Study

3.1. Context and Data Collection

To test our hypotheses regarding the assimilation of consumers' self-designs toward the community feedback they receive (H1A, H1B) and the impact of this feedback on the variety of self-designed products across consumers (H2), we conducted a field study in collaboration with a large European car manufacturer. We obtained data on 149 consumers

who self-designed a vehicle using the manufacturer's Web-based MC interface with community feedback. These consumers first created their initial self-design, then solicited feedback on this design (e.g., comments and suggested modifications) from another individual of their choice, and ultimately selected their final self-design after reviewing that individual's feedback. In addition, we have a control sample of 684 consumers who configured their car using the same interface, creating both an initial and a final self-design, but who received *no* community feedback.

The MC interface allowed consumers to specify car features in each of 14 attribute categories (e.g., light system, interior decor, safety systems, seats, chassis, etc.), with an average of 8 attributes per category (SD = 4.8). Our data set contains the attributes selected by each of these consumers for their initial and final self-designs as well as the attributes of any alternative designs suggested in the form of community feedback. Because of privacy reasons, we were unable to obtain personal information about the consumers (e.g., gender, age, duration of community membership, etc.) or the messages that were exchanged as part of the community feedback process.

3.2. Measurement and Method of Analysis

To quantify consumers' deviation from their initial self-designs, we applied a weighted Euclidean distance metric (Shocker and Srinivasan 1974) and standard preference modeling procedures. Our objective was to capture (1) positive and negative attribute deviations from the initial self-design (e.g., choosing an attribute of higher or lower value compared to the initial design) and (2) the inter-individual heterogeneity in attribute importance. Thus, our

algorithm estimated the Euclidean distance between a consumer’s initial and final self-designs, and it weighted this difference using a weighting parameter that reflects the relative importance of the attribute categories to a given consumer.¹ All weights sum to one. We refer to this measure as the aggregate deviation index (ADI):

$$ADI_i = \sum_c \sqrt{(\tau_{ic}(t_1) - \tau_{ic}(t_2))^2} \times \omega_{ic} \quad (1)$$

This measure reflects the choice of attribute τ by individual i in category c , both at time t_1 and time t_2 , and the importance ω of category c to consumer i . To allow for heterogeneity in the importance of attribute categories across consumers, the importance of a category is captured by the amount of money consumers spent on it, reflecting the relative utility obtained from that category under a budget constraint (e.g., Hauser and Urban 1986). Thus, we model the weighting parameter ω based on the difference between initial and final self-designs in a consumer’s budget allocation to an attribute category and on the maximum possible allocation to that category.

$$\omega_{ic} = \frac{\sqrt{(\text{Price } \tau_{ic}(t_1) - \text{Price } \tau_{ic}(t_2))^2}}{\max(\text{Price } \tau_c)} \quad (2)$$

To test H1A—i.e., that receiving community feedback leads to the assimilation of consumers’ initial self-designs toward that feedback—we regressed consumers’ ADI on the distance of the received community feedback with $ADI_i = \alpha + \beta \times \text{Pref}\Delta_{ij} + \varepsilon_i$. In this regression model, $\text{Pref}\Delta_{ij}$ represents the summed Euclidean distances between consumer i ’s initially selected attribute in category c and the attribute (in the same category) suggested by feedback provider j over all categories.

To test H2—i.e., that community feedback reduces the variety of self-designed products across consumers—we used equality of variances tests on the category data. Attribute variety was operationalized based on how frequently each of the attributes in a category was selected by consumers. To test our predictions about the variety of self-designed products, we applied Mood’s test for differences in scale parameters (Mood 1954; see also Gibbons and Chakraborti 2003).

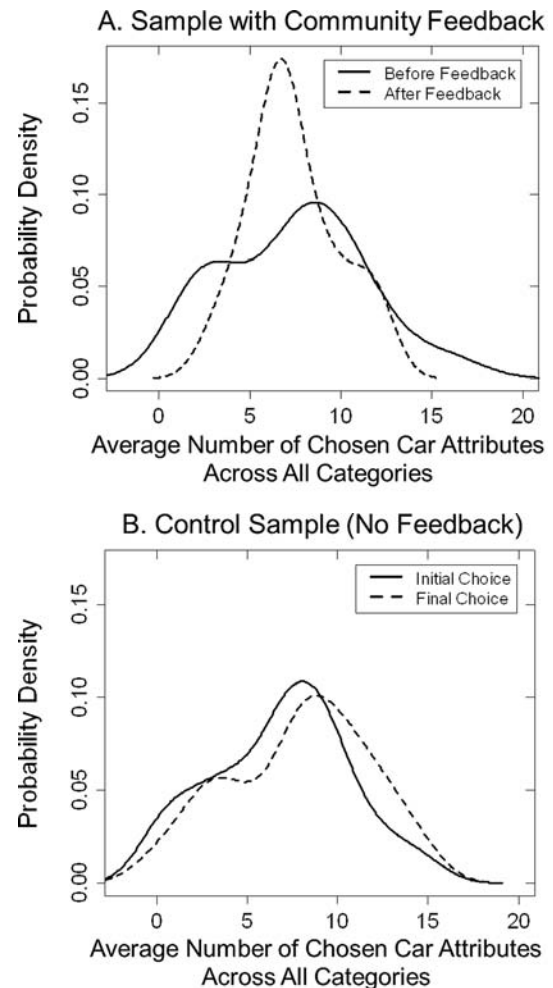
3.3. Results

In support of our prediction, the linear regression model revealed that receiving more distant

community feedback led to greater assimilation of ultimate self-designs toward the feedback ($\text{Pref}\Delta = 0.04$, $t = 13.491$, $p < 0.001$, $R^2 = 0.55$). Furthermore, and also as predicted, consumers with more extreme initial self-designs, reflected by initial attribute choices in the upper quartile of a category, deviated more strongly than those who had made more intermediate initial choices ($M_{ADI_Extreme_Choices} = 0.065$, $M_{ADI_Intermediate_Choices} = 0.015$, $t = 6.484$, $p < 0.05$), and they also received more distant feedback than did consumers with more intermediate initial choices ($M_{ADI_Extreme_Choices} = 0.107$, $M_{ADI_Intermediate_Choices} = 0.033$, $t = 6.095$, $p < 0.05$). Thus, H1A and H1B are supported.

To examine the effect of community feedback on the variety of ultimate self-design choices, Figure 2 provides evidence that the distribution of all chosen car extras (as the mean of all categories—e.g., rims, seats, media systems, etc.) differs between consumers who received community feedback and those who did not. Although the location parameter of the distribution of

Figure 2 Effect of Community Feedback on the Variety of Chosen Car Attributes



¹ We also used nonweighted measures as well as simple squared distances as alternative measures. The substantive results are not sensitive to the specific measure used.

car extras is identical, the variety of final self-designs after receiving community feedback is significantly lower than the initial distribution (Mood's scale test: $z = 1.794$, $p < 0.05$; see Panel A). Thus, community feedback reduced the variety of self-designed products, supporting H2. For example, the car manufacturer offers about 10 different seat versions (a basic model, one with electronic adjustment, another with memory function, and several others with additional functions). In line with our prediction, the variety of chosen car seats was significantly lower after customers received community feedback compared to the initial distribution of seat choices (Mood's scale test: $z = 1.692$, $p < 0.05$).

To pinpoint community feedback as the driver of these effects, we examined whether any changes occurred between initial and final self-designs in the control sample of consumers who received no community feedback. As expected, attribute variety did not differ between initial and final designs for these consumers (Mood's scale test: $z = 0.790$, $p > 0.78$; see Panel B). Moreover, the extent to which consumers' final self-designs deviated from their initial ones was significantly lower in the control sample than among those consumers who received community feedback on their initial designs ($M_{\text{ADI_Control}} = 0.014$, $M_{\text{ADI_Feedback}} = 0.032$, $t = 4.942$, $p < 0.05$). This suggests that these observed effects are caused by the community feedback that consumers received and are *not* the result of the partitioning of the self-design process into an initial and a final stage or some (unobserved) difference between the two stages.

Thus, whereas MC systems in which consumers configure their self-designed products in isolation appear to allow customers to express their idiosyncratic preferences reasonably well (as evidenced by our finding that the changes that occurred during the self-design process were small in our control sample), the evidence from this field study indicates that socially enriched MC systems can systematically influence consumers' choices in line with our hypotheses—resulting in assimilation toward the community feedback and reduced variety of self-designs across consumers.

3.4. Discussion

The results of the field study demonstrate the strong impact of community feedback on consumers' product choices in a self-design setting. As hypothesized, receiving feedback from others on their initial self-designs leads consumers to ultimately select less unique products and reduces the overall variety of chosen self-designs across consumers. These findings are based on both intertemporal (before versus after receiving feedback) and cross-sectional (consumers who did versus did not receive feedback) comparisons.

Although this field study provided an opportunity to examine the effects of community feedback on consumers' self-designed products in a naturalistic setting, it did not afford the rigor of an experiment. In particular, the field setting did not allow us to rule out the possibility of self-selection effects because consumers were not randomly assigned to either receive community feedback or not. Moreover, the nature of the community feedback may not have been independent of consumers' initial self-designs in the field study—e.g., more extreme initial designs may have led to more radically different suggested alternatives.

In Experiment 1, we will rule out potential confounds and manipulate the magnitude of community feedback independently of individuals' initial self-designs. Moreover, we will examine whether the influence of community feedback is moderated by characteristics of the feedback provider (competence or liking) as we have predicted. Critically, Experiment 1 will also allow us to test our hypotheses about the consequences of receiving community feedback for how satisfied consumers are with their self-designed products.

4. Experiment 1

4.1. Overall Procedure and Experimental Environment

This experiment was designed to test the robustness of the key findings of the field study (e.g., reduced variety in self-designs and strong deviations from initial self-designs as a result of receiving community feedback) and to examine important post-decisional outcomes such as consumers' perceived complexity of the self-design process, decision uncertainty, and their ultimate satisfaction with the self-designed product. To conduct the experiment, we developed a Web-based community platform as well as an online product customizer. Using our own community platform enabled us to manipulate the nature of the feedback and the characteristics of the feedback provider.

One of the objectives of this experiment was to examine the generalizability of our findings across product domains. Thus, instead of automobiles, we used jewelry products and created a product customizer for self-designable earrings. Like automobiles, jewelry products are also highly socially visible (Amaldoss and Jain 2005), which makes a suitable domain for examining the role of community feedback.

A total of 1,092 female members of an online consumer panel ($M_{\text{Age}} = 35$, $SD = 10.1$) participated in the experiment in exchange for monetary compensation by a market research company. To provide an incentive for participants to complete the experimental task thoughtfully and reveal their preferences truthfully,

they were entered into a raffle to win their self-designed earring. (Ten participants, selected at random, received their product.) Participants were asked to join a Web-based jewelry community platform and log in to the member area. This area introduced participants to the study and presented the interface that participants would use to design a pair of earrings for themselves. Figure 3 provides a sample screenshot of the experimental interface and the product customizer. All earrings consisted of four modules (analogous to the attribute categories of the field study): (1) an ear clip or hook, (2) a small stone, (3) a middle piece, and (4) a large stone. To self-design an earring, a participant had to select exactly one of a number of available options (analogous to specific attributes in the field study) for each of these four modules. The order of presentation of the options for a module was based on the results of a pretest (see below).

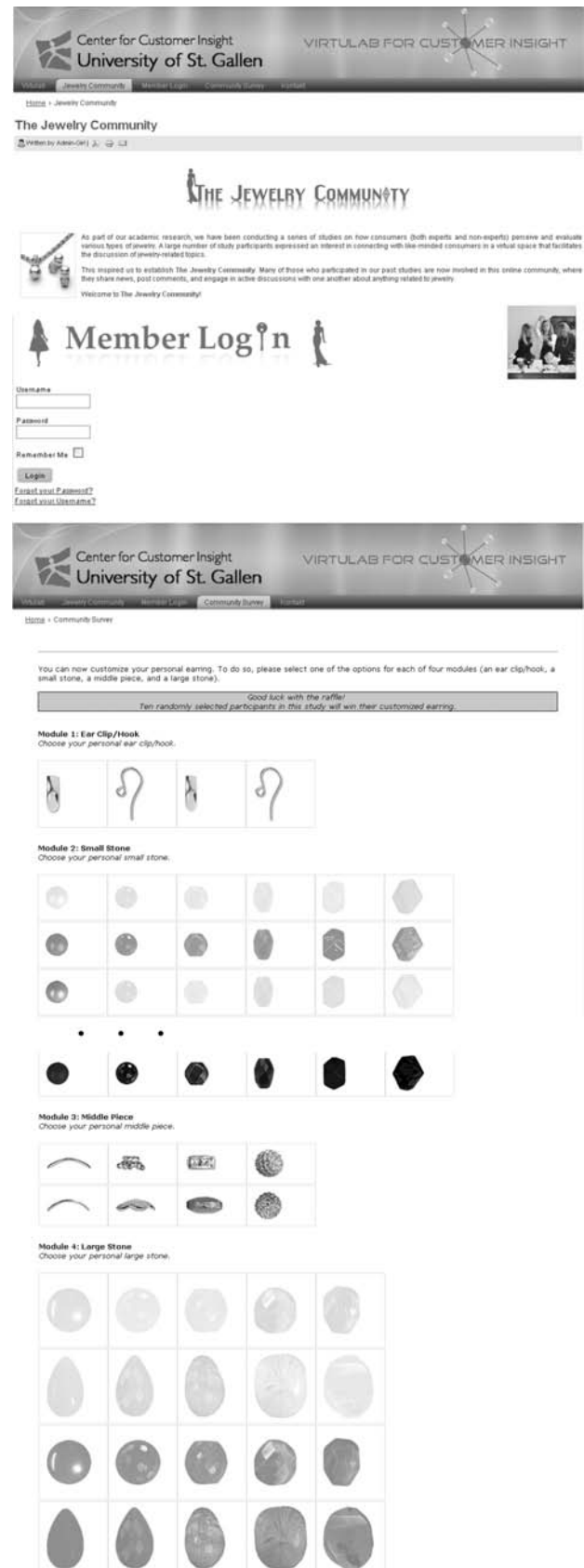
4.2. Development of Stimuli

The measurement of participants' preferences for more versus less extreme self-designs in the main experiment required a scaling of the options for each earring module in terms of how extreme versus common they are perceived to be. To that end, we conducted a pretest with 32 participants that we recruited from an online consumer panel. These participants rated each of the options for each of the four earring modules based on Orth and Malkewitz's (2008) scale for measuring consumers' visual perception of objects (a semantic differential scale with a total of 10 items such as common versus unique, harmonic versus discordant, traditional versus novel, etc.). An exploratory factor analysis revealed that all items of this scale are adequately represented by two underlying factors: *perceived novelty* (example items: common versus unique, traditional versus novel, monotonous versus interesting; mean values across all options: $M_\alpha = 0.88$; $M_{\text{ExplainedVariance}} = 81\%$) and *visual conspicuousness* (example items: smooth versus textured, small versus large, harmonic versus discordant; $M_\alpha = 0.83$; $M_{\text{ExplainedVariance}} = 69\%$). The final order of presentation of the options for a module (see Figure 4 for an example) was based on their rank order on these two (positively correlated) latent dimensions. Specifically, the options increased in perceived novelty and visual conspicuousness from left to right. This ordering allows us to measure consumers' preference for more common versus more extreme options—which served as a basis for computing the ADI in Experiments 1 and 2.

4.3. Experimental Design and Procedure

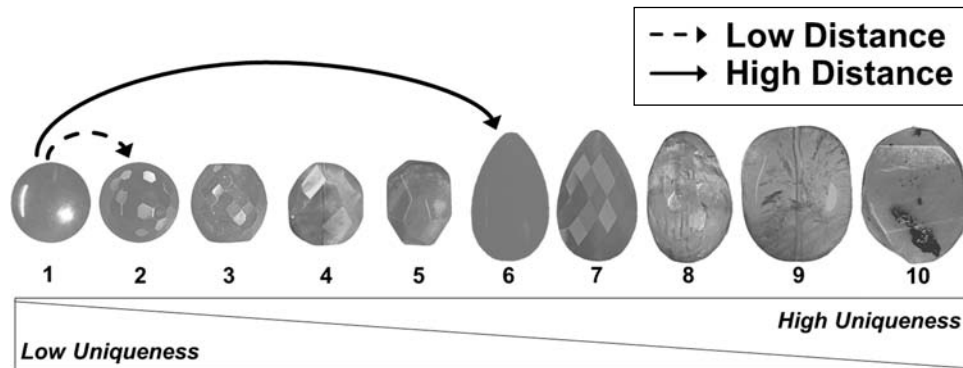
At the beginning of the experiment, participants entered the community platform and were given the opportunity to design an earring for themselves.

Figure 3 Jewelry Community Platform and Product Customizer



Note. Translated from German.

Figure 4 Example of Ordering of Items (Based on Pretest) and Feedback Distance Manipulation



Notes. The arrows indicate which item was used for the community feedback as a function of a participant's initial selection. For example, when a participant initially chose jewelry item 1, the feedback entailed item 2 in the low-distance condition and item 6 in the high-distance condition.

To do so, they selected one option for each of the four earring modules (an ear clip/hook, a small stone, a middle piece, and a large stone). Once they had completed this task, participants were led to believe that their (initial) self-designed earring would be passed to another community member who might provide feedback on it. Participants were informed that they would be contacted again in about 48 hours, at which point they would have the opportunity to redesign their earring if they wished. Upon returning to the community platform, participants first received a (manipulated) feedback message that included an alternative design that was suggested by the feedback provider. They then had the opportunity to modify their initial self-design. Three aspects of the feedback were manipulated: (1) the degree of competence of the feedback provider, (2) the participant's liking of the feedback provider, and (3) the distance of the community feedback from the participant's initial self-design.

To manipulate competence, the feedback provider identified herself either as a professional jewelry designer or as an employee of a retail store (unrelated to jewelry). The manipulation of likability was implemented as follows. In the high-liking condition, the feedback provider was of similar age as the participant (2 years older), had a first name with the same first letter (based on the finding that shared initial letters in first names lead to positive affect toward another person; see Wentura et al. 2005), and used favorable emoticons (smileys) in her feedback. By contrast, in the low-liking condition, the feedback provider was 15 years older, did not provide her name, and did not use any emoticons in her feedback.

Finally, feedback distance was manipulated such that the alternative design suggested by the feedback provided by the other community member differed either only slightly (low distance) or substantially (high distance) from the participant's initial self-design. Within each of the four earring modules, each

available option had a unique index value corresponding to its order position (see above), and the manipulation of feedback distance was implemented by applying an algorithm that generated the community feedback automatically by departing from the participant's initial design by either one (low distance) or multiple (high distance) order positions (the specific number varied by earring module; see Figure 4 for an illustration of this manipulation). For example, if a participant had selected item 1 from the 10 options for the large jewelry module, the alternative design suggested in the community feedback entailed either item 2 (low distance) or item 6 (high distance).

Thus, a 2 (competence: low versus high) \times 2 (liking: low versus high) \times 2 (distance of community feedback: low versus high) between-subjects design was used in this experiment.

4.4. Measurement

Before any of the experimental manipulations occurred, participants rated their own expertise in connection with earrings using a seven-item scale (Flynn and Goldsmith 1999; $\alpha = 0.88$) and their self-expression tendency in social situations using a seven-item scale (Feningstein et al. 1975; $\alpha = 0.75$). Moreover, to quantify the influence of community feedback on consumers' self-designs, we applied the same measure of deviation (ADI) as in the field study. In this experiment, the weighting parameter ω was measured directly by asking each participant to rate the importance of each of the four earring modules to her (using a 100-point constant-sum scale).

The following measures were obtained at the end of the experiment. Participants indicated their overall satisfaction with their final self-designed product using a seven-item scale (following Homburg et al. 2005) that was captured by a single factor ($\alpha = 0.91$) and confirmed by a confirmatory factor analysis (CFA) (CFI = 0.98; AVE = 0.73). Participants also

rated their subjective uncertainty about having made the right decision using a seven-item scale (following Argo et al. 2005) with high reliability ($\alpha = 0.94$) and good CFA results (CFI = 1.00; AVE = 0.85). In addition, they rated the perceived complexity of the self-design process using a seven-item scale (following Dellaert and Stremersch 2005 and Arnold and Reynolds 2003) with moderate scale reliability and CFA results ($\alpha = 0.69$ and AVE = 0.48).

4.5. Manipulation Checks

As expected, participants in the high (versus low) competence condition perceived the feedback provider as significantly more competent ($M_{\text{HighCompetence}} = 0.32$, $M_{\text{LowCompetence}} = -0.35$; $t = 11.79$, $p < 0.01$) (“I perceived the feedback giver as ... (1) competent, (2) professional in her advice, (3) a person who knows very well what she is talking about”). Those in the high (versus low) liking condition perceived the feedback provider as significantly more likable ($M_{\text{HighLiking}} = 0.18$, $M_{\text{LowLiking}} = -0.19$; $t = 6.08$, $p < 0.01$) (“I perceived the feedback giver as ... (1) friendly, (2) sympathetic, (3) offish (reverse coded)”). Finally, participants in the high (versus low) preference distance condition perceived the design suggested in the community feedback as significantly more different from their initial design ($M_{\text{HighPreference}\Delta} = 0.10$, $M_{\text{LowPreference}\Delta} = -0.10$; $t = 3.29$, $p < 0.01$) (“The feedback I received was (1) identical, (2) slightly different, (3) highly different compared to my previous self-design”). Thus, each of the manipulations was effective.

4.6. Results

To test our hypotheses about the effects of feedback-provider characteristics on participants’ deviation from their initial self-designs, we conducted a three-way ANOVA with the ADI metric as the dependent

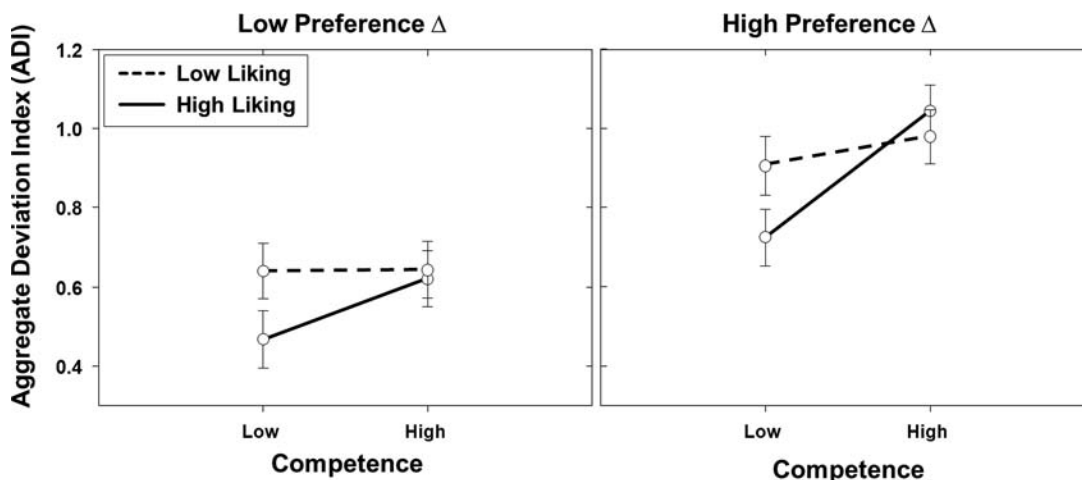
variable. First, the three-way interaction was not significant ($F(1, 1,082) = 0.23$, $p > 0.63$); hence, we can focus on the lower-order effects. We found a significant two-way interaction between competence and liking ($F(1, 1,082) = 3.95$, $p < 0.05$) with follow-up contrasts indicating that, somewhat surprisingly, feedback from others of low competence led to stronger deviations from initial self-designs when the feedback provider was less likable ($M_{\text{LowLiking, LowCompetence}} = 0.77$, $M_{\text{HighLiking, LowCompetence}} = 0.60$; $t = 1.95$, $p = 0.05$).

We now turn to the hypothesized main effects. First, the results reveal that more distant community feedback caused participants to depart more from their initial self-designs ($M_{\text{LowPreference}\Delta} = 0.59$, $M_{\text{HighPreference}\Delta} = 0.91$; $F(1, 1,082) = 41.17$, $p < 0.01$). This supports H1A, replicating the findings of the field study. Moreover, greater competence of the feedback provider led to greater deviation from initial self-designs ($M_{\text{LowCompetence}} = 0.68$, $M_{\text{HighCompetence}} = 0.82$; $F(1, 1,082) = 7.62$, $p < 0.01$), which provides support for H1C, although this is qualified by the interaction between competence and liking (see above). The main effect feedback provider likability (H1D) was not significant ($M_{\text{LowLiking}} = 0.79$, $M_{\text{HighLiking}} = 0.71$; $F(1, 1,082) = 2.42$, $p = 0.12$). Figure 5 illustrates the influence of the three manipulated factors on the extent to which participants deviated from their initial self-designs.

Participants’ self-expression tendency had a positive effect on the amount of deviation ($\text{Beta}_{\text{Self-Expression}} = 0.06$; $t = 2.279$, $p < 0.05$), but the latter was not affected by participants’ expertise ($\text{Beta}_{\text{Expertise}} = 0.02$; $t = 0.724$, $p = 0.47$).

As in the field study, we also tested the hypothesized reduction in the variety of self-designs after receiving community feedback. As predicted (H2), and consistent with the findings of the field study, we found that receiving community feedback led to

Figure 5 Influence of Feedback Provider’s Preference Distance, Competence, and Liking on Deviation from Initial Self-Designs



a significant reduction in attribute variety (Mood's scale test (small stone): $z = 3.148$, $p < 0.05$; Mood's scale test (large stone): $z = 4.020$, $p < 0.05$). We also ran a control condition with 48 female consumers ($M_{\text{Age}} = 34.5$, $SD = 10.5$), recruited from the same consumer panel, who received no feedback but still had the opportunity to modify their self-design 48 hours later. We observed no change in attribute variety between participants' initial and final self-designs in this condition (Mood's scale test (small stone): $z = 0.1083$, $p > 0.45$; Mood's scale test (large stone): $z = -3.358$, $p > 0.63$). This suggests that our findings hinge on consumers receiving community feedback (see Figure 6).

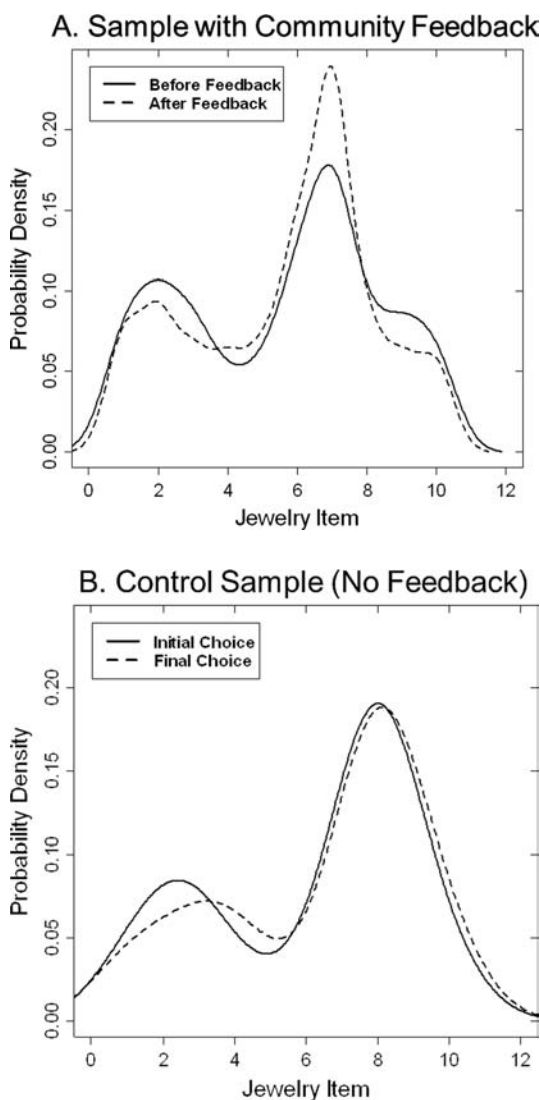
Next, we examine the impact of consumers' deviations from their initial self-design on their satisfaction with the final self-designed product. Specifically, to test whether, as hypothesized, the magnitude of these deviations influenced consumers' product satisfaction

via decision uncertainty and perceived process complexity, we estimated a multiple mediation model (Preacher and Hayes 2008). The results revealed that consumers' deviations had negative effects on all three variables. As predicted, larger deviations from initial self-designs had a negative influence on consumers' satisfaction with self-designed products ($\text{Beta}_{\text{ADI}} = -0.19$; $t = -5.372$, $p < 0.05$). This provides support for H3A. Moreover, larger deviations from consumers' initial self-designs led to an increase in decision uncertainty ($\text{Beta}_{\text{ADI}} = 0.173$; $t = 4.867$, $p < 0.05$) as well as perceived process complexity ($\text{Beta}_{\text{ADI}} = 0.071$; $t = 1.984$, $p < 0.05$), and both of these candidate mediators had a significant effect on satisfaction ($\text{Beta}_{\text{ProcessComplexity}} = -0.14$, $t = -6.680$, $p < 0.05$; $\text{Beta}_{\text{DecisionUncertainty}} = -0.75$, $t = -35.756$, $p < 0.05$). When controlling for the proposed mediational effects of decision uncertainty and process complexity, the effect of self-design deviations was reduced in magnitude although still significant ($\text{Beta}_{\text{ADI}|\text{Complexity, Uncertainty}} = -0.05$, $t = -2.662$, $p < 0.05$). Critically, however, the overall mediation model was significant ($z = 4.633$, $p < 0.05$), providing support for H3B and H3C. Finally, contrasts between the two mediators revealed that the mediational effect of decision uncertainty was stronger than that of the perceived complexity of the decision process ($z = 4.931$, $p < 0.05$).

4.7. Discussion

The results of this experiment corroborate the key findings of the field study—receiving community feedback on their initial self-designs systematically influences consumers' final self-designs, and this ultimately results in reduced variety in self-designed products. Although we found strong support for the influence of the distance of community feedback and of competence of the feedback provider in line with our predictions, the effect of likability was counter to what we had expected. However, it is worth noting that our results regarding source likability are in line with recent research showing that low liking can lead to the counterintuitive effect of increased levels of influence by threatening the decision maker's self (e.g., Johnson et al. 2008, Silvia 2006). In addition, the Web-based setting we used in this experiment may have induced behavior that differs from that observed in traditional face-to-face situations, and our effects are indeed in line with Chaiken and Eagly's (1983) finding of greater attitude change when an influence agent was less likable and the communication entailed written as opposed to video-based messages. However, further research is needed to better understand when likability has a negative effect in this context and what the psychological mechanism is that underlies this paradoxical effect.

Figure 6 Effect of Community Feedback on Attribute Variety



From both a theoretical and a practical perspective, it is important to understand what types of consumers might benefit more from using social MC systems than others. To that end, we conducted a follow-up analysis to characterize consumers (among those who deviated from their initial configuration—i.e., $ADI > 0$) who ended up particularly high (low) in satisfaction—i.e., more than half a standard deviation above (below) the mean. We conjectured that if consumers are high in their need for self-expression and have high expertise, they might tend to attribute the deviation from their initial self-design to themselves, leading to greater satisfaction with their ultimate self-designed product. A logistic regression model with high (vs. low) satisfaction as the binary dependent variable provided support for this prediction. It revealed a significant interaction between self-expression and domain expertise ($\text{Beta}_{\text{Self-Expression} \times \text{Expertise}} = 0.38$; $z = 2.027$, $p < 0.05$) as well as a significant main effect for self-expression ($\text{Beta}_{\text{Self-Expression}} = 0.59$; $z = 3.233$, $p < 0.05$). Thus, consumers with both high expertise and a strong need to express themselves toward others tend to benefit most from the use of social MC systems. The implications of this finding for companies—e.g., whether the option to receive community feedback on self-designed products should be offered to all customers—are addressed in the General Discussion section.

However, a critical question is yet to be answered: Although consumers may assimilate their self-designs toward the community feedback they receive and, as a result, feel less satisfied with their self-designed products, does this have any downstream consequences beyond the time of purchase? In particular, does the inclusion of community feedback during the self-design process have longer-term effects on how frequently consumers use their self-designed products? And does this have a systematic influence on consumers' (monetary) valuations of self-designed products that they own? Experiment 2 was designed to examine these questions in a naturalistic setting involving actual product use.

5. Experiment 2

5.1. Experimental Design, Procedure, and Measurement

This experiment was conducted on the same jewelry community platform and using the same task and stimuli as Experiment 1. A total of 46 female students at a major Swiss university ($M_{\text{Age}} = 23.33$, $SD = 2.22$) completed the experiment in exchange for receiving a self-designed earring.

Participants were randomly assigned to one of two experimental conditions—a community feedback condition and a control condition. The *feedback* condition resembled the strongest condition of Experiment 1—participants received distant feedback on the initial self-design of their earring from an individual high in competence (a professional jewelry designer) and high in likability. By contrast, participants in the control condition did not receive any feedback on their initial self-design.

All participants first created an initial self-design of their earring, and then had the opportunity to modify their initial design about 24 hours later. In addition, participants in the community feedback condition received a message that included an alternative design that was suggested by the feedback provider. Once they had chosen their final self-designs, all participants picked up their earring at a university laboratory the next day. At that point, they were asked to complete a short survey containing the same measures of satisfaction with their final self-designed product ($\alpha = 0.88$), subjective uncertainty about having made the right decision ($\alpha = 0.86$), and perceived complexity of the self-design process ($\alpha = 0.74$), as in Experiment 1.

Three weeks later, research assistants who were blind to experimental condition called each participant by phone and informed her that because of supply difficulties, the researchers were interested in buying her self-designed earring back from her. The participant was then asked to indicate at what price she would be willing to sell the earring. The participant's stated "willingness to accept" (e.g., Horowitz and McConnell 2003), measured in Swiss francs (CHF), was used as the measure of her monetary valuation of her self-designed product at that time. In addition, the participant was asked to indicate the number of times that she had worn her self-designed earring since she obtained it—i.e., during the past three weeks.

5.2. Results

Consistent with our previous results, receiving community feedback caused consumers to deviate more from their initial self-designs ($M_{\text{no_feedback}} = 0.109$, $M_{\text{feedback}} = 0.674$; $t = 2.013$, $p < 0.05$), and it also reduced the overall variety of self-designs across consumers (Mood's scale test: $z = 1.825$, $p < 0.05$). Moreover, participants' increased deviations from their initial self-designs led to a significant reduction how satisfied they were with their ultimate self-designs ($\text{Beta}_{\text{ADI}} = -0.37$, $t = 2.449$, $p < 0.05$), and this effect was mediated by both participants' decision uncertainty ($\text{Beta}_{\text{DecisionUncertainty}} = -0.61$, $t = -5.175$, $p < 0.001$) and the perceived complexity of the self-design process ($\text{Beta}_{\text{ProcessComplexity}} = -0.37$, $t = -3.551$, $p < 0.01$) ($z = 3.224$, $p < 0.05$).

Critically, receiving community feedback during the self-design process had significant long-term effects. First, participants who had received feedback on their initial self-designs wore their self-designed earring less often during the three weeks after obtaining it than did those in the no-feedback control condition ($M_{\text{no_feedback}} = 3.39$, $M_{\text{feedback}} = 1.67$; $t = 2.875$, $p < 0.01$; see Figure 7, Panel A). Moreover, consumers' monetary valuations of their earring were much lower as a consequence of having received community feedback on their initial self-design, compared to those who did not receive such feedback ($M_{\text{no_feedback}} = \text{CHF } 40.28$, $M_{\text{feedback}} = \text{CHF } 13.94$; $t = 4.121$, $p < 0.001$; see Figure 7, Panel B).

Finally, consistent with the findings regarding usage frequency and monetary valuations, 5 of the 20 participants in the (no feedback) control condition indicated that they definitely did not want to sell their self-designed earrings, whereas only 1 of the 26 participants in the community feedback condition expressed such a reluctance to sell ($\chi^2(1, N = 46) = 4.333$, $p < 0.05$).

5.3. Discussion

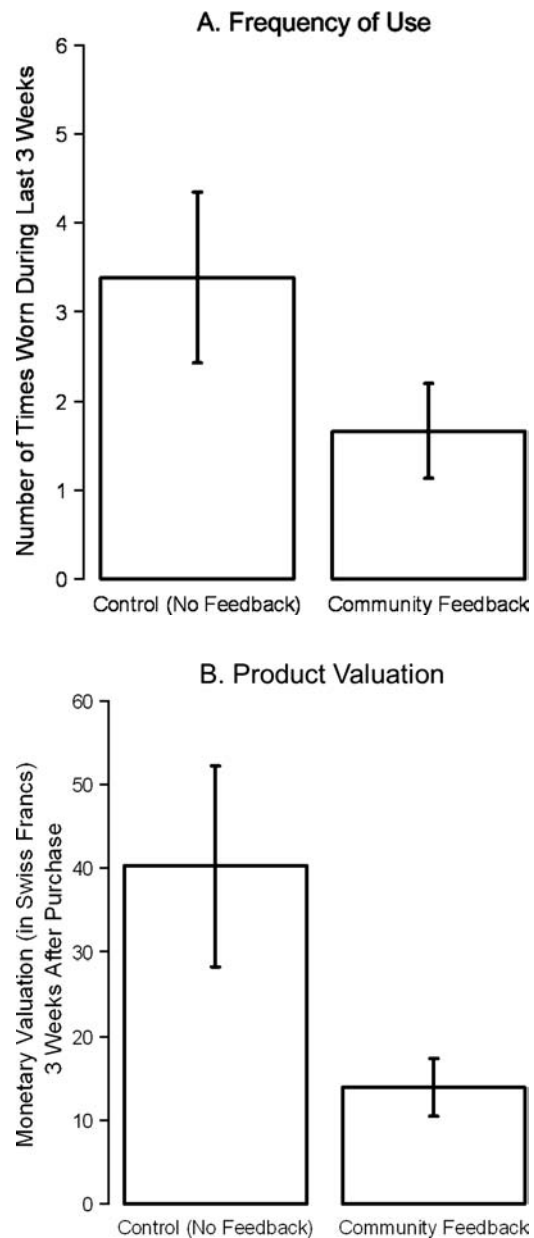
The results of Experiment 2 not only corroborate our earlier findings about the negative impact of community feedback on the creativity of consumers' ultimate self-designed products and on their satisfaction with these products, but they also provide important additional insights. In particular, this experiment demonstrates the considerable behavioral (product use over time) and economic (monetary product valuations) consequences of receiving community feedback in the self-design process.

6. General Discussion

6.1. Theoretical Contributions

Evidence from the three studies presented in this article shows that receiving community feedback on initial self-designs systematically dampens consumer creativity, as manifested by the reduced variety of self-designed products. Thus, although prior research has advanced our understanding of why consumers use MC systems and may value self-designable products more highly than off-the-shelf alternatives, the present research shows that the inclusion of consumer-to-consumer interactions significantly alters the previously isolated decision processes of consumers in a product customization context. In particular, we found that receiving community feedback leads consumers to avoid more extreme self-designs and that the probability mass of attribute distributions significantly shifts toward intermediate designs that are less ostentatious and only moderate in their self-expression value. Although consumers tend to integrate community feedback into their final self-designed products,

Figure 7 Effect of Community Feedback on Ultimate Product Use and Valuation



we have shown that the resulting shift toward less extreme product configurations leads to a decrease in consumers' satisfaction with their self-designed products.

The present research also provides strong evidence that these effects are manifest when consumers make consequential product choices in naturalistic settings and that they have important behavioral and economic consequences—such as decreased product use over time and lower monetary product valuations. Thus, our results highlight that the value of self-designable products in socially enriched MC systems may not only be a function of the choice and combination of unique attributes, and of the effort that a

consumer has put into the self-design process (Franke et al. 2010), but that it is also strongly influenced by the feedback that other individuals provide on a consumer's self-design. The key theoretical contribution of the present article is that it introduces and tests a theoretical framework for understanding how receiving community feedback in the product self-design process influences what products consumers ultimately choose and how satisfied they are with these products.

6.2. Managerial Implications

From a managerial perspective, our results offer three important implications for MC business practice. First, we provide ample evidence that only a small fraction of consumers—those with both high expertise in the product domain and a strong need for self-expression—actually benefits from socially enriched MC systems in that their satisfaction with self-designed products increases as a result of receiving community feedback. By contrast, a large fraction of consumers tends to deviate from their initial self-designs toward the community feedback, which tends to reduce their satisfaction with the products they ultimately choose; with the negative downstream consequence that they tend to use these products less over time and place a lower economic value on them. As a result, it will be important to design social MC systems that allow consumers with strong self-expression needs to seek community feedback on their self-designs because those interactions tend to provide additional utility beyond isolated self-design processes while offering other consumers the opportunity to (or perhaps even recommend that they) use standard MC systems without feedback capabilities.

A second practical implication is that it is important for companies to not only design effective social MC systems but also to *manage* them effectively over time. In particular, firms often focus on maintaining the technical functionalities of their systems. However, it is also critical for companies to establish cross-departmental teams who (1) track consumers' self-design behavior and conduct quantitative analyses of MC system data, merged with data from customer relationship management (CRM) and business intelligence systems where possible, and (2) conduct qualitative analyses—e.g., using netnographic approaches (e.g., Kozinets 2002)—to monitor how the culture of seeking community feedback, the nature of the feedback provided, and the way in which consumers interact with each other in social MC systems evolve over time.

Finally, our findings have implications for the profitability of manufacturers who are offering, or are considering the implementation of, socially enriched MC systems. A priori, one might expect a reduction in seller profitability as a consequence of the

shift toward less extreme self-designs (as a result of community feedback) that we have shown. However, Monte Carlo simulations and sensitivity analyses based on financial data (such as contribution margins of options, sales volume, and option-related fixed costs) provided by the car manufacturer involved in the field study reveal that more extreme options are associated with disproportionately high costs. Thus, our simulations indicate that seller profit is not necessarily reduced by demand shifts toward lower-end products (see the online appendix, available at <http://dx.doi.org/10.1287/isre.1120.0455>, for details). These results hold even for high price elasticities of demand, and they are based on conservative assumptions. For instance, we did not model the additional loss in complexity costs such as complex production planning, coordination costs in production and logistics, capital lockup, or storage costs for a large number of variants. Thus, lower consumer creativity, in the form of less variety in self-designed products, resulting from community feedback may have surprisingly positive implications for manufacturers by reducing the costs associated with managing complex assortments in MC systems, at least in the short term.

6.3. Limitations and Directions for Future Research

An inherent limitation of our field study is that it does not allow us to rule out potential self-selection effects. Indeed, consumers who received community feedback in that study may differ from those who did not in ways unknown to us. However, self-selection was not possible in Experiments 1 and 2, where participants were randomly assigned to conditions. Because the findings of the field study were strongly corroborated by the evidence from the controlled experiments suggests that self-selection, to the extent that it occurred, did not cloud the substantive insights gained from the field study.

All studies reported in this article used socially visible products. We are pleased to note that our findings for automobiles and those for jewelry items are highly convergent. Thus, we are quite confident that the effects we observed generalize to product categories that are similar in the sense that they entail consumption in public settings (e.g., apparel or consumer electronics). However, further investigation would be needed to better understand the role of community feedback in the self-design of products that are less socially visible (e.g., financial services or personal care products).

We hope to see future research that builds on the foundation we have laid by shedding some initial light on the role of community feedback during consumer product self-design. One interesting avenue would be to examine how encouraging consumers to

justify their self-designs might shield them against the negative consequences of community influence. Recent work has investigated how different types of choice justification can lead to more unconventional choices (Kramer et al. 2012) and how public commitments may increase resistance to persuasion (Gopinath and Nyer 2009). Based on our findings, it would be worth investigating, for instance, how justification strategies might diminish the maladaptive effects revealed in the present studies.

Finally, another promising direction for future research would be to examine how sequences of different types of community feedback (e.g., confirming versus disconfirming) might affect ultimate self-design decisions. For instance, a sequence consisting of initial confirming feedback followed by subsequent disconfirming feedback may lead to stronger deviations from initial self-designs than initial disconfirming feedback followed by confirming feedback—because of a greater likelihood of consumer reactance (Fitzsimons and Lehmann 2004) in the latter case. Thus, further research on how sequences of feedback affect consumers' self-design decisions has the potential to significantly advance our understanding of the dynamics of social interactions and preference formation.

Electronic Companion

An electronic companion to this paper is available as part of the online version at <http://dx.doi.org/10.1287/isre.1120.0455>.

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