Assisted Aesthetic Self-Design: Application to Nike Shoe Configurator

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Consumers who choose to self-design the aesthetic features of a product using the product configurator are faced with enormous possible choices. In this research we aim at solving this choice overload problem thereby improving consumers’ aesthetic self-design experience. We develop a product configurator that provides recommendations during their design processes. Based on findings from a pretest, our configurator automatically generates recommendations, based on a database of shoes that are designed by other users, to assist a consumer in her self-design. We propose that this assisted self-design paradigm is superior to a free self-design approach in both design outcome and process.

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SESSION OVERVIEW

“Beauty is a harmonious relation between something in our nature and the quality of the object which delights us.” Blaise Pascal

The objective of this session is to highlight the role of aesthetics in consumer behavior. This session has a diversity of topics that will interest individuals interested in sensory perception, product design, web based shopping and product customization. What is especially appealing about this session is the breadth of the papers included.

Peck and Klatzky investigate the attributes that invite people to reach out and touch. While we know that touch can increase impulse purchase, the feeling of ownership and other measures, we do not know anything about the visual attributes of an object that make touch irresistible.

A natural paper to follow is the Townsend and Shu paper which examines the visual appeal of documents. This research uses the buying and selling of stocks to investigate the aesthetics of document design and the effects on stock valuation and investment behavior. Three studies are completed and reported in this research.

The final two papers (Deng, Hui and Hutchinson and Moreau and Herd) both address the aesthetic choices consumers make in product design. Deng, Hui and Hutchinson, in the context of designing a Nike shoe, are interested in whether assisting consumers in their self design choices is superior than providing no assistance. These researchers have completed a preliminary study with almost three hundred participants in order to determine the point at which they should offer design assistance to consumers. They expect that the assisted self-design group will be more satisfied with their aesthetic design experience than those that are unassisted.

Finally, Moreau and Herd delve into the question of why consumers are willing to pay a premium for self-designed products. The authors have three completed studies that examine a consumer’s social comparison to the professional designers of products. Their third study uses a real online design task in which designs are created, orders are placed and product are produced and delivered to the participants. Aesthetic design is an emerging area in our field. The breath of this special session will likely have great appeal and will stimulate interesting discussion. Each paper will be presented for 15 minutes and the last 15 minutes will be a general discussion.

EXTENDED ABSTRACTS

“Please Touch: Aesthetic Features that Invite Touch”
Joann Peck, University of Wisconsin-Madison, USA
Roberta Klatzky, Carnegie Mellon University, USA

The sense of touch is important in consumer behavior for both instrumental and hedonic purposes. Instrumentally, touch can be thought of as a way to obtain specific product information in order to make a more informed purchase decision. Touch excels at obtaining texture, hardness, temperature and weight information (Klatzky and Lederman 1992, 1993). If a product category varies in a diagnostic way on one of or more of these attributes, also termed material properties, consumers will be more motivated to touch the product prior to purchase (Grohmann, Spangenberg and Sprott 2007; McCabe and Nowlis 2003; Peck and Childers 2003a). For example, books do not vary in a diagnostic manner on one these attributes so touch is relatively unimportant for purchases in this category. However, cell phones likely vary in a diagnostic way on weight which makes this category more likely to encourage touch. More recently in consumer behavior, touch that provides no diagnostic attribute information has also been found to be persuasive (Peck and Shu 2009; Peck and Wiggins 2006). Consumers may be motivated to touch solely for the sensory experience that touch provides. In summary, previous shows that consumers may be motivated to touch an object for both instrumental and/or hedonic reasons.

Being able to touch an object has been shown to increase impulse purchasing (Peck and Childers 2006) and to increase the feelings of ownership of an object (Peck and Barger working paper; Peck and Shu) and also to increase the amount an individual is willing to pay for an object (Peck and Shu). But how do we encourage consumers to reach out and touch an object? More specifically, what aesthetic features of an object encourage touch?

Evidence has been found for a “visual preview model” which states that vision provides a quick “glance” which results in coarse information about the haptic properties of an object, information that is useful in directing further processing (Klatzky, Lederman and Matula 1993). When encoding properties of some objects, vision may be sufficient because it triggers the retrieval of information about the object’s properties stored in memory, eliminating the need for direct perceptual encoding by touch. However, vision may reveal that more detailed information is desired. For example, a visual glance at a sweater may encourage a consumer to touch for both instrumental reasons (to ascertain how comfortable the material would be to wear) and/or for hedonic reasons (it looks like it would feel good to touch). The goal of our research was to begin to explore which attributes encourage a consumer to reach out and touch.

We also include the individual difference in the preference for touch information (Peck and Childers 2003b) termed the Need for Touch scale (NFT). We expect that aesthetic touch judgments will be greater for those high, as compared to those low in their NFT.

Study 1 Procedure

To examine aesthetic touch, our first study uses a methodology where we show experimental participants various objects on a screen. They then rate whether the objects invite touch. The design is a 3 (shape variations) by 3 (visual texture variations) by 2 (size or graspability of an object) by 2 (object material). After the participant judges the “touchability” of each object, we also measure the individual difference need for touch.

Independent Variables: The objects used are adapted from Cooke, Kannengiesser, Wallraven, and Bulthoff (2006) and are objects in which both the macro geometry (the number of protrusions, or shape) and the micro geometry (the visual texture) of the object are varied systematically. More specifically we use three levels of macro-geometry and three levels of micro-geometry.

We also manipulate the size of the object with two levels either graspable (the size of a ping pong ball or less graspable (the size of a cantaloupe)). Finally, the material is manipulated with participants being told the object is made out of either a smoother material (marble) or a rougher material (concrete). In total each participant makes 36 judgments.

Example of the object list: Nickel, iphone, water bottle, cell phone, pizza, cantaloupe, cantaloupe, apple (one of these is made out of marble), and apple (one of these is made out of concrete).

The final two papers (Deng, Hui and Hutchinson and Moreau and Herd) both address the aesthetic choices consumers make in product design, web based shopping and product customization. What is
Dependent Measures

Aesthetic touch -For each object viewed, a participant completes four seven point scales with endpoints “strong agree” to “strongly disagree” including “this object invites touch,” “this object would feel pleasant,” “this object is aesthetically pleasing,” “I want to touch this object” and “I wouldn’t be able to resist touching this object.” Need for Touch – The 12 item need for touch (Peck and Childers 2003) scale will also be administered.

Thus far, it appears that the more graspable, smoother material objects are more aesthetically pleasing, especially for individuals higher in their need for touch. Fewer protrusions (macro-geometry) seem to encourage touch and a moderate amount of visual texture (micro-geometry) seem to be most attractive to touch. The study will be completed in June and results will be available for the conference.

Study 2

A second study will follow in which physical objects will be constructed for participants to evaluate. The objects will vary in size and material. Participants will evaluate the aesthetic touch appeal of the objects. The objects will be constructed in the summer/fall of 2009 and preliminary results will be available for the conference.

References


“"The Power of Aesthetic Design in Consumer Financial Decisions"”

Claudia Townsend, University California, Los Angeles, USA
Suzanne Shu, University California, Los Angeles, USA

While there has certainly always been an inherent understanding that aesthetics impacts product success in the marketplace, lately the business community’s appreciation for product design and its impact on the bottom line has grown (e.g. Gibney and Lascombe 2005; Postrel 2003; Schmitt and Simonson 1997). And yet our knowledge of the impact of aesthetic design on decision-making behavior is minimal. In an attempt to understand the possible limits of the impact of design, we examine it in an extreme context; we observe the influence of aesthetics on behavior involving financial products—an area where, presumably, design’s impact on decision-making is at its limit as it has absolutely no rational role. In a series of three studies we find that, indeed, in hypothetical investment decisions, such as the buying and selling of stocks, the overall look of a document— even one not associated with the company’s product and for a company that does not do anything design-related—impacts valuation and behavior. Our results suggest that this occurs both through an increased sense of ownership as well as through self-affirmation and, moreover, that the effects spill over into subsequent financial decisions with high design association leading to riskier investment behavior.

Our first study establishes that design does, indeed, impact hypothetical financial decisions. We find that the aesthetics of a symbolic document given at the time of purchase of company stock (e.g., a stock certificate) impacts respondents’ selling price for the stock. In particular, respondents assign a higher selling price to the stock when the stock certificate is highly aesthetic versus when the stock certificate is not highly aesthetic (M_high aesthetics=$38.95, M_low aesthetics=$33.22, t=-2.06, p=.04). Moreover, this effect exists regardless of whether or not the decision-maker actually is to keep the stock certificate in his/her possession, thus, ruling out a “rational” explanation for this behavior based on higher utility from being able to display the aesthetically appealing certificate.

Our second study shows consistent findings but with a different document, a company’s annual report which, while related to the company, is not related to its product. Again we find that respondents both rate and evaluate a company higher when the annual report is highly aesthetic versus when the annual report is not highly aesthetic. This occurs both in a context where aesthetics is evidently intrinsic to company success (e.g. for a vase manufacturer) and where aesthetics is not evidently essential to success (e.g. for a bubble wrap manufacturer). We find that a sense of ownership partially mediates the impact of aesthetics on company judgment; high aesthetics leads to a greater sense of ownership of the company than low aesthetics and this, in turn, leads to higher company valuation. This confirms the more emotion-based and less rational explanation for this impact of design.

In our third and final study we look more closely at the psychological impact of design on decision-makers and how this affects investment-related behavior. Previous research (Townsend Sood working paper) suggests that the choice of a high design option is self-affirming; in particular, they find that the choice of a high design option has the same impact on subsequent behavior (in particular, openness to counter-attitudinal arguments) as does a self-affirmation manipulation. Given that the authors found these results using a hypothetical choice context, we hypothesized that similar effects might be found by simply creating a strong association between the decision-maker and high design, even without actual choice. Using the prior literature as a starting point, in this
study test whether providing the consumer with a simple personal association with high design (versus high function) impacts financial decision-making. If association with high design is self-affirming, and impacts subsequent openness to arguments, it might also impact openness to investment in a risky opportunity. Indeed, we find that association with high design (hypothetical ownership in a design-related company) leads to subsequent riskier investment activity and less risk aversion as measured through willingness to accept a risky gamble. No such effect occurs after association with high function.

Thus, the learnings from this research are two-fold. First, that aesthetic attributes impact behavior in the context of financial decisions reveals just how robust the role of aesthetics is in evaluation and decision-making. Second, we understand more about how this occurs—both through sense of ownership’s partial mediation as well as through self-affirmation. Further research is needed to understand how and why respondents feel a greater sense of ownership for something that is better looking. This effect seems to imply an inherent personal connection to good looks and may be related to the illusionary superiority effect (Alicke, 1985, Kruger and Dunning 1999, Sedikides and Gregg 2003). The finding that mere association with high design leads to riskier investment activity, again, speaks to the power of aesthetics and merits further investigation and likely has implications in both consumer behavior and finance.

References

“Assisted Aesthetic Self-Design: Application to Nike Shoe Configurator”
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Self-design is a form of mass customization in which consumers partly design a product by specifying certain product attributes in the product configurator provided by manufacturers. For mass customization to create real value, those attributes should be ones on which consumers’ preferences differ sharply and that consumers can easily manipulate and evaluate with the configurator (Zipkin 2001). Aesthetic self-design, a particular form of self-design in which consumers choose only the product’s aesthetic specifications, meets these two conditions. “Beauty is in the eyes of the beholder.” While inferring functional benefits from technical specifications often requires a high level of consumer expertise (e.g., Randall, Terrwisch, and Ulrich 2007), aesthetics is in most cases subjective, making consumers into de facto experts about what they personally find attractive. A brief examination of over 500 web-based configurators (www.configurator-database.com) reveals that about 50% are from fashion industries (e.g., apparel, footwear).

The configurators offered by manufacturers in these industries (e.g., Adidas, Converse, Lands’ End, Nike, Ralph Lauren, Reebok, Timberland) are characterized by providing different color palettes for different product components and a variety of color options in each palette. For example, a consumer can use Nike’s shoe configurator (www.nikeID.com) to design a Nike shoe by selecting a color from a platter of 6-12 colors for each of the 7 shoe components (e.g., base, secondary, swoosh, accent, lace, lining, and shox). Presumably the consumer wants to create an aesthetically pleasing color combination for the shoe.

Given that a consumer can select any color combinations for the 7 components, the choice space from which she can pick her most-favorite shoe is huge; a consumer can pick from more than 5 million different shoe designs (Deng and Hutchinson 2009). From a theoretical perspective, the consumer is faced with a high-dimensional optimization problem that involves numerous alternatives, which is made even more difficult because colors “interact” with each other (e.g., Matsuda 1995); for example, red may look great with green, but not with purple, and so on. We expect that consumers may become cognitively overloaded due to the huge number of possible choices (e.g., Schwartz 2004), and thus may not be able to optimally select the shoe that she likes best.

Our main goal in this research is to improve consumers’ aesthetic self-design experience. Our proposed solution to the “choice overload” problem is an “assisted aesthetic self-design” paradigm. Instead of only allowing consumers free and unrestricted choice, we assist them by providing recommendations during their design processes. That is, using an algorithm similar to collaborative filtering (Bodapati 2008), we recommend completed shoes to the consumer while she is still designing her own shoes. For instance, after the consumer selects a “red” base color, we offer a few recommendations (based on how other consumers design their shoes), which also has a red base color and other colors already configured. At any time, the consumer is allowed to switch to any of the recommended design and continue her design process from there. Our hypothesis is that this assisted mode of self-design is superior to the free mode of self-design (which is used by Nike and other manufacturers) in terms of both design outcome and process.

We first conducted a pretest to determine the optimal level of prior information that we should elicit from a consumer before offering her recommendations. That is, should we recommend shoe designs after the consumer makes the 1st, 2nd … or 7th color decision? 294 participants were asked to self-design a Nike shoe (in phase 1) and later evaluate their self-designed shoe along with recommended shoes (in phase 2). The recommendations shown in phase 2 were drawn from the self-designed shoes collected in phase 1. For each participant, around 20 recommendations were made using 1-6 component colors in her self-designed shoe as anchor(s). For example, recommended shoes anchoring on the 1st color choice would have the same base color as the self-designed shoe; recommended shoes anchoring on the 1st and 2nd color choices would have the same base and secondary colors as the self-designed shoe,
and so on. During the study, participants were unaware of the fact that their self-designed shoe was embedded in the set of recommended shoes. The result indicates an inverted-U relationship between preference and the number of anchor (p-value for the quadratic contrast<.05). Recommendations anchoring on 3-5 component colors of a self-designed shoe were rated higher in preference than were the self-designed shoe and other recommended shoes (p<.05). This pattern suggests that recommendations should be made using the moderate level of color preference information from consumers.

To test our hypothesis that assisted self-design via the recommendation system is better than free self-design, in our main study we will ask participants to self-design a Nike shoe using either the NIKEiD configurator (free mode) or the configurator providing recommendations (assisted mode). The later configurator has been developed by us specifically for this study. Based on the pretest result, our configurator is designed to automatically generate a few recommendations after a consumer makes the first 3, 4, and 5 color choices, respectively. Our goal is to demonstrate that the assisted self-design group has higher satisfaction, a more positive experience, and a higher purchase probability than the free self-design group.

References


“To Each His Own? How Comparisons to Others Influence Consumer Self-Design” C. Page Moreau, University of Colorado, Boulder

Kelly Herd, University of Colorado, Boulder

In product categories ranging from running shoes, to pet beds, to ceiling fans, consumers are becoming the designers of their own products, picking aesthetic components such as colors and images, creating designs that reflect their unique preferences. Research shows that consumers are willing to pay a substantial premium for these self-designed products compared to comparable manufacturer-designed alternatives (Franke and Piller 2004), yet limited research explores why they are willing to pay this premium.

In this paper, three studies demonstrate that consumers’ social comparisons to the designers of comparable products influence evaluations of their own creations, their behavior following the self-design experience, and their product satisfaction. Since professionally-designed, “off-the-rack” alternatives often serve as a basis of comparison for one’s own designs, the first two experiments examine how social comparisons with the designers of these products influence consumers’ self-evaluations. These experiments also identify two key moderators useful in overcoming the negative effects of an upward comparison to a professional designer. A third study examines how social comparisons to other self-designers influence evaluations and behavior during and after a self-design experience. This study does so by using a real online design task in which designs are created, orders are placed, and products produced and delivered to the participants.

In the first two studies, we examine the influence of social comparison by holding constant the default reference product (an LL Bean backpack) but varying whom the participants thought was its designer (a professional at LL Bean vs. an amateur who won an LL Bean-sponsored design contest). Process measures and preferences for the customized backpack were the dependent measures in all studies.

In Study 1, we manipulated both the designer of the default backpack (professional vs. amateur) and the amount of guidance provided in the self-task design (present vs. absent). The results showed that attitudes toward the self-designed product were higher when participants thought that the default backpack was designed by another consumer rather than by a professional (Professional=36.2 vs. Amateur=39.5, p<.05). In addition, the factors interacted such that when no guidance was provided, participants rated the self-designed backpack significantly higher when the default was designed by another amateur (No Guidance, Amateur=40.0 vs. No Guidance, Professional=34.3, p<.01); no such differences emerged in the presence of guidance. Participants appeared to process upward social comparison information non-defensively.

Study 2 provides further evidence that social comparison processing occurs in self-design situations by testing for derogation. In this study, we manipulate the order in which participants are told they will be allowed to customize their backpack (before vs. after they evaluate the default backpack). Participants who knew about the customization opportunity before they evaluated the default backpack rated it lower when the designer was a professional as compared to an amateur (Professional=24.1 vs. Amateur=27.6, F(1, 145)=4.58, p<.05). Participants who had no knowledge of the customization opportunity when they rated the default showed no difference in their evaluations (Professional=27.2 vs. Amateur=24.7, F(1, 145)=2.04, p>.10). Evaluations of the self-designed backpacks are also consistent with the social comparison account. For participants who had the chance to derogate the default, no differences emerged in their self-evaluations (Professional=35.2 vs. Amateur=34.8, F(1, 119)=2.09, NS). However, of the participants who did not have the chance to derogate the default, those facing an upward comparison incorporated the negative comparison information into their self-evaluations in a manner consistent with non-defensive processing (Professional=31.8 vs. Amateur=38.1, F(1, 119)=6.88, p<.01).

In study 3, we introduce a design contest as another means for repairing threatened self-regard, manipulating the timing of the contest announcement. In this study, all participants designed customize skins for an electronic device. The results show that when a contest provides a means for repairing threatened self-regard (i.e., is announced prior to a design task), upward comparison targets (i.e., professional designers) yield higher contest participation rates than comparisons to more equivalent targets (i.e., amateur designers). When a contest does not provide a means for repairing threatened self-regard (i.e., is announced after a design task), participation rates were unaffected by type of comparison target. This decision to enter the contest lead to differences in evaluations of the self-designed skins, evaluations of perceived fit of the design, willingness to pay, time spent on design, product satisfaction, and ratings from independent judges.

The first two studies indicate that upward comparisons to professionals tend to be processed non-defensively, resulting in lower evaluations of self-designed products. Providing guidance and prompting defensive processing are both effective ways to diminish the influence of the negative information generated by these upward comparisons. The third study demonstrates that when defensive processing is prompted (e.g., by an explicit competition),...
the upward comparison can enhance evaluations of self-designed products when accompanied by an opportunity to repair self-regard. It does so by increasing participation in the repair opportunity, which subsequently leads to higher evaluations of self-designed products, greater willingness to pay, and higher long-run satisfaction. Ratings from independent judges confirmed these effects.

References