Designed to Learn: How Category Design Influences Consumer Learning, Satisfaction and Choice

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Vast quantities of product information are available in the marketplace, but recent research has demonstrated that too much information can have a deleterious impact on consumer learning. This research demonstrates that category design (grouping products in terms of taxonomic or thematic similarities) offers a novel means of addressing this problem. Two experiments demonstrate that organizing a retail assortment in thematic as opposed to taxonomic groupings increases learning for expert consumers but not for novices. Interestingly, this change in organization, via its impact on perceived effort, also improves experts’ choice quality and increases their shopping satisfaction.

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SESSION OVERVIEW

While the notion of context-dependence has played a dominant role in the study of consumer decision-making, most research on consumer search has focused on internal or external search costs as search determinants (e.g., Urbany 1990), treating context effects mainly as determinants of consumers’ search costs (e.g., Russo 1977). By focusing solely on search costs, past research fails to account for how today’s complex decision environments may influence search strategies and for search in environments where search cost are inherently low (e.g., online). Addressing these gaps, this session presents novel perspectives on determinants of consumer search. The research presented investigates the role of different search contexts in the ways consumers search, ultimately linking search to the choices consumers make and the satisfaction they derive from these choices as well as the search process as a whole.

Findings presented in this session suggest that the context in which consumers search can subtly prompt different search strategies. In particular, more restricted or less expected contexts may cue greater search effort while contexts triggering withdrawal tendencies associated with task-related affect may cue truncated search. Further, this session also suggests that the extent of search consumers engage in may affect satisfaction with the process and the choice itself.

The work by Lin and Levav investigates how the structure of product configuration menus can trigger distinct mindsets and ultimately different search strategies. Encountering menus with relatively fewer options to start with, consumers find themselves in a maximizing mode, searching more exhaustively not only from the initial set but also from subsequent, larger selections. Starting off with consumers lots of options, however, triggers a satisfying mindset associated with more superficial search even among manageable sets. Ultimately deeper search leads to greater satisfaction short-term but not necessarily greater remembered satisfaction.

Relatedly, Poynor and Wood explore how different ways of structuring assortment sets affects information acquisition and choices. They compare grouping familiar products either into more conventional taxonomic sets or into less common thematic sets. Results show that for more knowledgeable consumers, thematic groupings act as newness cues that cause them to expend greater effort when deciding among options. Engaging with the decision context in a more effortful way leads to greater incidental learning among expert but not among novice consumers. Experts also seem to derive greater process satisfaction from the more effortful decision context.

Diehl, Morales, Fitzsimons and Simester investigate how the decision context, specifically purchasing a product that elicits task-related affect, can alter where and how much consumers search for and purchase other, unrelated products. Focusing on products that elicit disgust, an emotion associated with a tendency to pull away from one’s surroundings, they show that in this context consumers truncate their search even for neutral products. Ultimately lack of search leads to smaller shopping baskets and is associated with lower evaluations of the overall experience.

These presentations address this area of research from diverse and novel perspectives but converge on a central theme: External search environments subtly cue different search strategies and ultimately alter product choice. Taken together, this session will provide new insights that should be interesting to a wide range of researchers, for example, those studying context effects, assortment size and structure, or the effects of retail environments.

EXTENDED ABSTRACTS

“When Choice is Motivating: Using Product Configuration Sequence to Evoke Maximization”

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Product configuration is an increasingly common consumer experience; consumers now customize a variety of products (such as shoes, computers, cars and pre-fabricated houses). Yet little is known about one crucial variable for designing the configuration process: the sequencing of choice menus. All else equal, how does the order of choice menus affect people’s choice and satisfaction?

Consistent with research on consumer mindsets, we propose that the order by which people make a sequence of decisions may determine the overall approach they take in making these decisions. A mindset refers to a cognitive process or judgmental criterion that is triggered by a task and persists in subsequent tasks (Xu and Wyer, 2007). For example, once people learn a rule for solving an initial series of problems, they persist in applying this rule to later problems (Luchins & Luchins, 1959). The effect of mindsets has also been demonstrated in consumer settings. For example, in the shopping momentum effect (Dhar, Huber and Khan, 2007), after people make a purchase decision and get into the “which to buy” mindset, they are more likely to make subsequent purchase (Xu and Wyer, 2007). Similarly, in the context of product configuration, we expect that the mindset triggered by initial choice menus may also affect people’s approach to later choice menus.

We hypothesize that the sequence of choice menus may determine people’s tendency to maximize vs. satisfice, which we conceptualize as a mindset either to search exhaustively through all options in order to identify the best or to stop searching as soon as a satisfactory option is encountered. To test this hypothesis, we choose the number of options of each choice menu as a variable for sequencing the choice menus. Prior research has shown that a large number of options may be demotivating (Iyengar & Lepper, 2000). As a result, we expect that when product configuration begins with a choice menu that includes a relatively large number of options, people may be more likely to resort to a simplifying heuristic like satisficing. In contrast, when product configuration begins with a choice menu that includes a relatively small number of options, people may find it relatively easy to maximize, i.e. search through the options to identify the best one for them. Based on the concept of mindset, we expect that the maximizing or satisficing heuristic mindset that is triggered by the initial choice menu will persist throughout the product configuration process. Further, the maximizing or satisficing mindset may affect people’s satisfaction in a similar pattern observed among chronic maximizers and satisficers (Iyengar, Wells and Schwartz, 2006).

We tested our hypothesis in three experiments. Participants encountered a sequence of choice menus either with an increasing number of options (the increasing-sequence condition) or a decreasing number of options (the decreasing-sequence condition). In
Experiment 1, 49 participants configured a 10-song CD, which they could take home 2 weeks after the study. The 10 songs were chosen from 10 non-overlapping music collections. In the increasing-sequence condition, the number of song options increased from one music collection to the next (5, 10, 15,…, 50), and vice versa in the decreasing-sequence condition. Our results showed that participants in the increasing-sequence condition engaged in a deeper search effort— they sampled about 50% more songs and spent 50% more time in making decision.

In Experiment 2, using a similar task, we measured the degree of self-reported “maximization tendency,” and found that the maximizing measure mediated the effect of sequencing on search. In addition, we ruled out an alternative explanation that participants who encountered a small choice menu first might search more because they mistakenly expected that all subsequent choice menus would have a similarly small number of options. We found that regardless of whether participants were informed of the actual numbers of options in all choice menus in advance, they followed the same search patterns. Apparently the mindset primed by the initial choice menu exerted a strong effect that was not overcome by the information provided to participants.

In Experiment 3, we measured participants’ satisfaction with their choices immediately and again two weeks after the experiment. The immediate satisfaction was measured on a scale of 1 to 7. The delayed satisfaction was operationalized as whether people were more or less likely to follow through on their earlier decisions by coming to claim their CD two weeks later. We found that participants in the increasing-sequence condition, who exhibited stronger maximizing tendencies, were more satisfied immediately yet were less likely to claim their CD gift two weeks later, reflecting lower long-term satisfaction.

Our research shows that the sequence of choice menus can determine people’s mindset for maximizing vs. satisficing. Overall, people spend more effort searching through options when they encounter a sequence of decisions in which the number of options increases from one choice menu to another. Self-reported degree of goal maximization mediates the effect of menu sequence on depth of search. Finally, the maximization vs. satisficing mindset triggered by menu sequence has a downstream effect on satisfaction: temporary maximizers are more satisfied in the short-term but less satisfied in the long-term.

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Given the proliferation of product information in the marketplace, consumers should be well-equipped to acquire knowledge and make good choices. However, due to a host of individual and contextual challenges (Alba and Hutchinson 2000, Camerer and Johnson 1991), even knowledgeable consumers may not learn information they encounter. This research suggests a novel means of improving consumers’ incidental learning, proposing that type of category structure used to group products in the retail environment can be adapted in ways which help consumers acquire more knowledge while shopping.

We focus on the effects of organizing an assortment in very familiar taxonomic groupings, where objects are grouped by type, or more abstract thematic groupings, a type of goal-derived structure. Two studies employing foods as our target stimulus show that category structure can impact consumers’ learning of nutritional information. However, the extent of learning generated by each design depends on consumers’ prior knowledge. Whereas low prior knowledge consumers’ incidental learning is low and promoted by the highly fluent context of taxonomic sets (Alba and Hutchinson 1987), for highly knowledgeable consumers thematic category designs operate as a “newness cue” (cf. Poynor and Diehl 2008, Wood and Lynch 2002). For these consumers, thematic category structures prompt more effort during shopping. Increased effort leads to superior product information encoding for experts and raises expert consumers’ satisfaction with their shopping experience. In addition, we find that greater effort among experts is associated with objectively higher choice quality. For less knowledgeable consumers, however, these effects do not hold.

A pretest first identified thematic groupings which were less expected in the marketplace but equally plausible as taxonomic groupings for the same items, consistent with the nature of a “newness cue”. Participants (n=38) saw a menu containing the same 16 items organized either taxonomically (soups, sandwiches, finger foods, salads) or by cuisine theme (American, Chinese, Mexican, Italian.) Participants rated the menus as equally believable, but as expected, felt that the taxonomic groupings were more expected than were the thematic groupings.

Study 1 integrated these categories into a shopping situation to see if the less-expected thematic category structure would impact consumer learning as hypothesized. Participants (n=70) first completed a test of their prior knowledge of the nutritional content in foods. During the experiment, they were asked to imagine that they were working on a class project and decided to order lunch online. They were given the general goal of choosing a “nutritious” food and shopped a website containing 16 items organized either by the taxonomic or thematic structures identified in the pretest. Participants clicked on food names to review their nutritional information. After selecting a single food, participants completed a 10-item “surprise” quiz about the nutritional content of foods on the website, which provided our main dependent measure.

Analysis suggested that the thematic structures did, in fact, operate as newness cues for expert consumers. In the taxonomic structure, higher prior knowledge consumers did not outperform novice consumers on the quiz, consistent with a complacency effect (Wood and Lynch 2002). However, higher prior knowledge consumers showed significantly better recall for nutritional information in the thematic as opposed to the taxonomic sets. Experts also demonstrated significantly better recall in the thematic sets compared to novice participants shopping in the same structure, suggesting that their complacency was overcome. Interestingly, however, the thematic organization also created marginally significant decreases in incidental learning among lower prior knowledge consumers relative to the taxonomic set.

For thematic structures to be aptly characterized as newness cues, it was also important to establish that their effects occur at encoding, by increasing processing effort among experts, rather than at retrieval. Therefore, in study 2, we added an external incentive to process the nutrition information prior to shopping for some participants (n=76). For the remaining participants (n=64), the incentive was given prior to recall but after exposure to the website information. We hypothesized that study 1’s effects would replicate when the incentive was offered after exposure to the information, but not when the incentive occurred before encoding. In addition, we measured participants’ effort, shopping satisfaction, and choice quality.

As expected, study 2 replicated study 1’s findings when consumers had received external incentives after shopping. Once again, experts learned more from the thematic structures than they had in the taxonomic structures. By contrast, novices showed a significant decrease in learning in thematic as opposed to taxo-
nomic sets. Furthermore, the effect of category design on learning was mediated by the amount of effort expert consumers reported investing during search. In addition, the increase in effort seen among expert consumers led to higher, rather than lower shopping satisfaction ratings than in taxonomic sets. Finally, results show that expert participants chose significantly more nutritious foods when selecting from thematic as opposed to taxonomic sets. By contrast, when a processing incentive was received before exposure to the choice set, only prior knowledge predicted participants’ learning and choice quality.

Data from a third study will be available for discussion at ACR 2008. Thus far, we have tested taxonomic categories which are more expected than thematic structures. However, thematic categories are becoming increasingly popular in the marketplace. Thus, our third study explores the question, what happens when taxonomic structures are unexpected, or when thematic structures become expected?

Taken together, our research suggests that a relatively subtle change in the retail environment can create positive outcomes in terms of consumer well-being and retailer success. However, findings also suggest caution: what operates as a “newness cue” for experts appeared to impede novices’ encoding. Thus, retailers considering thematic structures should remain cognizant of consumers’ knowledge level before adopting wholesale changes in assortment layout.

“Does One Bad Apple Spoil the Barrel? Carry-over Effects of Buying Disgusting Products on Consumer Search and Shopping Basket Decisions”

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Trash bags, diapers, dog food, and cat litter – any one of these products is likely to be on a consumer’s shopping list. Now imagine two consumers in a supermarket: X needs to buy trash bags while Y needs to buy sandwich bags. Would you expect these consumers to behave differently during the remainder of the shopping trip? Our research suggests that a difference in the decision context as subtle as having to buy trash versus sandwich bags can alter how much time consumers spend in a store, the types of products they buy, and their evaluations of the shopping experience as a whole. What would drive such effects? We suggest that buying products such as trash bags, diapers, dog food, etc. that elicit feelings of disgust (Morales and Fitzsimons 2007) can influence search behavior and purchase decisions not just for these disgust inducing products but, more importantly, for other products purchased on the same occasion.

As a first step we partnered with a national chain of convenience stores to gather actual shopping basket information. The resulting sample captured items purchased in more than 27 million baskets. We combine this data with survey measures of perceived disgust for the top 45 non-food product categories. Focusing on the 11 million baskets that included at least one item from these 45 categories we used the perceived disgust measures to categorize transactions according to the “most disgusting” item in each basket. For each category we then calculated the average percentage of food items in each basket. The findings reveal a clear relationship: baskets that contain items that are more disgusting tend to contain a smaller percentage of food items.

This data documents the relationship between purchases of disgusting items and the composition of the shopping basket. However, it yields limited insight on why exactly this might happen and how the presence of disgusting items can lead to these findings. Disgust is associated with an appraisal of being too close to an offensive object (Lazarus 1991) and triggers an implicit distancing reaction disgust triggers. We also expect distancing tendencies to carry over to how consumers search in other, unrelated product categories and the store as a whole. We further test these predictions in two experiments and also rule out that it is simply negative affect that leads to these results.

In study 2 participants were given a list of ten product categories typically found in a drugstore and were asked to “purchase” one product from each category at one of two computerized stores. Lists differed only with respect to the first category on the list. This category was either a product prone to elicit feelings of disgust (diarrhea medicine) or a neutral product (ballpoint pens). In a third condition (disgust-branded) participants saw the same shopping list as in the disgust conditions but brand names rather than more generic category labels were used (i.e. Immodium A-D instead of diarrhea medicine).

As expected, participants in the disgust condition spent less time in the target category than those in the neutral condition. Interestingly, compared to the neutral condition, those in the disgust-branded condition also spent less time searching the target category. More importantly, purchasing a disgusting or a disgust-branded product also reduced time spent searching other, unrelated product categories and spent less time in the store as a whole.

We find that buying a disgusting product has pronounced effects on search behavior across unrelated product categories. As such our field results may not just be driven by consumers planning separate trips for disgusting items but may actually be due to differences in search within the same trip. In study 3 we rule out that our findings are driven merely by negative affect in general as opposed to the avoidance tendencies specifically triggered by disgust.

Study 3 varied the target product to be either disgusting (diarrhea medicine), neutral (Vitamin C supplement) or sad (sympathy card), holding all other products on the list constant. We replicate our prior findings that search in the target category as well as other categories during that trip is significantly lower for those buying a disgusting product compared to those buying a neutral product. In contrast, we find that participants purchasing a sad product spent significantly more time in the target category than those in the neutral condition, supporting the notion that it is the specific appraisals triggered by the target purchase, and not just the valence, that leads to these effects on search. Further, replicating findings from the field, we also show that participants who purchased a disgusting product were significantly less likely to buy a food item on the same trip than participants in the sad or neutral condition. A mediation analysis shows that purchase reductions are indeed driven by decreased search, further evidence that changes in
the search context can systematically alter purchase decisions across categories.

**BIBLIOGRAPHY**


