Perceptions of Assortment Variety: The Effects of Congruency Between Consumer’s Internal and Retailer’s External Organization

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This project is funded by the Wharton-SMU Research Center of Singapore Management University
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December 2002

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Abstract

This research shows that consumers’ variety perceptions and satisfaction (with the assortment and with actual choices) are dependent upon how the assortment is organized, both internally by the consumer and externally by the retailer. Four laboratory studies examine how congruency between consumers’ internal categorizations and the store’s external layout of an assortment influences variety perceptions and satisfaction. The first two studies show that for familiar product categories, for which consumers have strong, internal categorization schemas, consumers have higher perceptions of variety and are more satisfied with the choices they make from an assortment if the external category layout is displayed congruently with the consumer’s internal structure. However, study 3 shows that if a single, strong, internal categorization schema of the product category is not established, either because the category is unfamiliar or because the category can naturally be organized in different ways, consumers have higher variety perceptions and are more satisfied with the overall assortment when they are provided with an organizing structure via specific goals for shopping. Finally, study 4 shows that in cases where consumers do have specific shopping goals, their variety perceptions and satisfaction with the assortment offering are lower if the category is filtered in a way that is congruent with their goals.
Consumers have always enjoyed browsing through stores or “window shopping” to see what stores have to offer and to find out what products are available. Even while making a purchase, consumers often look around the store to see what else might be available for future consideration. For marketers, this type of window-shopping or browsing is an activity to encourage if it means consumers may come back to the store to purchase something in the future. However, if consumers do not perceive the variety in the assortment effectively, they may not form a strong enough impression or memory of the many possibilities to increase the likelihood of a return-shopping trip.

Clearly, deciding how to present products to consumers is an important issue for retailers. The way product assortments are displayed can influence consumers’ variety perceptions as well as their choices from the assortment. Prior work has shown that display format can make it easier to acquire and use information cues (Bettman, Johnson, and Payne 1990), make certain characteristics of the consideration set salient (Hsee and Leclerc 1998, Simonson, Nowlis, and Lemon 1993), and influence perceptions of brand equity both positively and negatively (Buchanan, Simmons and Bickart 1999).

We add to this previous work in display format and store layout by examining how the internal structure consumers have for product categories inside their heads can influence how they perceive assortment variety in a store. Specifically, we build on categorization theory that suggests that people’s prior category knowledge is used in making evaluations (Sujan 1985). Consumers evaluate the new stimulus (in our case, the assortment display) in terms of their prior knowledge of the category. If there is a match, consumers can process the items more easily, if there is not a match category
expectations may require more extensive processing in order to form evaluations (Fiske and Taylor 1991).

Categorization theory has been shown to be useful in describing many aspects of consumer judgment and decision-making. For example, categorization theory has been used to describe how consumers evaluate new product attributes. Meyers-Levy and Tybout (1989) showed that consumers do not evaluate new products based on the absolute levels or values of attributes of the product, but rather, on the discrepancy between product attributes and consumers’ expectations for the type of product. In explaining how consumers evaluate advertising, Goodstein (1993) showed that an ad’s fit with an evoked category in memory influences the intensity of processing. Finally, categorization theory has been shown to affect brand extension judgments (Keller and Aaker 1992), and information search (Ozanne, Brucks and Grewal 1992). Further, more recent work has shown that the risk associated with the product choice (Campbell and Goodstein 2001) or the goal assigned to the task (Campbell and Goodstein 2002) can moderate the relationship between congruity and satisfaction or preference.

We extend these applications of categorization theory in consumer domains by showing how the congruency between internal categorization schemas and external store organization at the product category level can influence variety perceptions and satisfaction with both choice as well as with the overall assortment offering. The specific research question that we address is: How do you get people to perceive more variety in your assortment either on your website or in a retail environment? In this research, we are not interested in impulse purchasing per se, but rather in increasing the possibility that consumers will perceive the variety in the assortment positively and hence feel more
satisfaction with the diversity of the items available in the assortment and ultimately feel more satisfaction with their final choices. If consumers have higher levels of perceived variety for an assortment this should be positively related to consumers’ attitudes towards retail sites (Arnold, Oum and Tigert 1983, Broniarczyk, Hoyer and McAlister 1998) and lead to higher likelihoods of returning to the store. In addition, when consumers perceive the variety in the assortment to be larger, they may evaluate the product they select from that assortment more highly and be willing to pay more for it (Godek, Yates and Auh 2001). Of course, if the variety becomes overwhelming, it can actually decrease the likelihood of purchase (Huffman and Kahn 1998; Iyengar and Lepper 2000), but we do not consider this boundary condition in this research.

We suggest that the likelihood that consumers will be able to perceive more variety and be more satisfied with the assortment offering is largely dependent on how the assortment is organized, both internally by the consumer and externally by the store. More specifically, we propose that the congruency between a consumer’s internal organization of a product category and the external display organization provided by the store can influence how variety is perceived. Furthermore, whether the congruency leads to higher variety perceptions and higher satisfaction with the assortment and with choice depends on the type of external organization provided by the retailer.

In this paper, we define two kinds of external structure: the layout or organization of the assortment and the filtering or screening method that the retailer provides for examination of the assortment. By layout, we mean the classification system by which a product category is literally displayed in the store or on a computer screen. For instance, cereal can be arranged either by brand, with all the Kellogg’s cereals together and all the
Nabisco cereals together, or it can be arranged by type of cereal, with all the children’s cereals together and all of the healthy cereals together. By filtering, we are referring to how much of the assortment is viewed. For instance, the entire assortment can be presented all at once where every product is visible at once (no filter), or it can be filtered and presented in sections, where ultimately the whole assortment need not be viewed. For example, on a Website the assortment might be filtered by links, where a consumer clicks on specific hyperlinks and then views only those sub-sections of the assortment. In a physical retail store, the overall assortment might be filtered by guided maps or clerks that lead consumers directly to items of interest (as opposed to store layouts, e.g., escalator routes or elevator locations or shelving configurations, that force consumers to view more of the assortment). We hypothesize that a match between a consumer’s internal organization of an assortment and the external layout of an assortment will result in higher variety perceptions, while a match between a consumer’s internal organization and the external filter of an assortment will result in lower variety perceptions.

Although the external organization of an assortment is solely determined by the retailer, consumers have many bases for their internal category structures, or the schema of the product category that a consumer has in his or her head (Alba and Hutchinson 1987). Early work in categorization focused primarily on taxonomic categories, suggesting that consumers organized products into their naturally defined categories (Rosch 1975). For instance, since an apple is a type of fruit it is categorized internally as “fruit.” However, later work has shown that consumers may also have goal-based categories (Barsalou 1985). For example, instead of being categorized only as “fruit,” an apple might also be placed in the category of “afternoon snack.” These internal goal-
based categories then become more established in memory with increased frequency of use (Barsalou 1985; Ratneshwar and Shocker 1991). Likewise, internal structure can also be created by directly providing the consumer with a specific shopping goal (Huffman and Houston 1993, Huffman and Kahn 1998). For instance, telling consumers to look for a blue tie will indirectly lead them to organize the category into blue ties or not blue ties---items that match the goal and items that do not. In this research, we examine two types of internal structure: product category schemas and goal-based schemas.

Based on the results of four experiments, we conclude that for familiar product categories, where consumers have strong, internal categorization schemas, consumers are more likely to perceive more variety and be more satisfied with their choices from the assortment if the external category layout is displayed congruently with the internal structure. However, if a single, strong, internal categorization scheme of the product category is not established, either because the category is unfamiliar or because the category can naturally be organized in different ways, we find that consumers perceive more variety in the assortment and are more satisfied with the offering when they are provided organizing structure via specific goals for shopping. Finally, we find that in cases where consumers do have specific shopping goals, they actually perceive less variety in the assortment if the category is filtered in a way that is congruent with their goals. In this case, the consumer can go directly to what s/he wants to purchase without observing anything else, and both perceptions of variety and overall satisfaction with the assortment are low.

Across these four studies we sought to maximize the generalizability of our results in order to increase the managerial relevance. We did this in several ways. First,
in each of our four studies, we examine a different product category, and we vary the shopping task in each case. Further, since perceptions of variety is a multi-faceted construct (see Hoch, Bradlow and Wasink (1999); Kahn and Wansink (2002)), we measured consumers’ perceptions of variety using similar, but not exactly the same, scales in the various studies (See Appendix). Finally, we also considered two sources of shopping satisfaction that have been found to be relevant (Fitzsimons 2000): satisfaction with the assortment and satisfaction with the final choices. Studies 1 and 2 look at satisfaction with choices and Studies 3 and 4 look at satisfaction with the assortment. While these numerous differences among the studies lessen some of the internal control, we believe we benefit from the added generalizability. That we find a consistent story across all of these different scenarios suggests the robustness of our results and we believe increases the scope of our findings.

CONGRUENCY OF EXTERNAL ASSORTMENT LAYOUT WITH INTERNAL STRUCTURE

Prior studies have shown that if retailers organize their assortments differently, consumer choice can be influenced (Johnson and Payne 1985). For example, Simonson and Winer (1992) found that yogurt purchases were influenced by whether the assortment was arranged by brands or by flavors. If yogurts were arranged by brands then consumers tended to purchase fewer brands and more flavors than if yogurts were arranged by flavor. We suggest that these display organization differences affect the consumer’s evaluation of the assortment, and that evaluation is a function of both the external organization and the consumer’s internal structure of the category.

In order to keep track of the complicated knowledge involved with learning about a product class, consumers form simplified categorizations or schemas (Alba and
Hutchinson 1987), and then they process new information they receive about the product category according to these schemas (Chase and Simon 1973, Chi, Glaser, and Rees 1982; Chiesi, Spilich, and Voss 1979; Larkin et al. 1980). When the external organization of the product assortment is congruent with the consumer’s internal schema, consumers are able to perceive the variety of the assortment more easily. Since the way products are arranged in the store matches the way they are categorized internally, consumers can quickly do a perceptual match with the entire display and then zoom in on the section of the shelf of interest. This quick perceptual match allows consumers to more easily distinguish between all of the SKU’s offered in the assortment, as well as find acceptable options more easily. This congruency between internal and external structure should also lead to more positive affect (Stayman, Alden and Smith 1992) and satisfaction with assortment because of the ease of processing, and this should lead to more satisfaction with choice.

However, if the external layout of the product assortment on a web page or in a retail store is not congruent with the consumer’s internal schema, then the reverse will occur. Consumers will be confused by what they observe and will have to expend additional processing effort (Bettman and Zins 1979, Biehal and Chakravarti 1982, 1986) to recognize and categorize the various items in the assortment. Consumers may decide not to expend this additional effort, or even if they expend some cognitive effort, it may not be enough to understand the differences among the objects (Bettman, Johnson and Payne 1990; Hayes-Roth 1977; Payne, Bettman and Johnson 1990; Thorndyke and Hayes-Roth 1979) and therefore consumers will not be able to fully perceive the variety of the assortment. Furthermore, if consumers are confused and have lower perceptions of
variety, they will be less satisfied with the assortment available. This lower satisfaction with the assortment will lower satisfaction with choice for two reasons. First, the confusion and lower satisfaction is likely to lower consumers’ affective reactions to their choices and further the lower perceptions of variety will decrease the assumed likelihood of a match between the retailer’s assortment and the consumer’s need (Baumol and Ide 1956; Kahn and Lehman 1991).

Development of Internal Structure for a Product Class—Familiar Categories

In a recent study analyzing the variety of an assortment, Hoch, Bradlow and Wansink (1999) found that participants perceived greater variety when the items in the assortment were displayed randomly rather than organized. The “organized” assortments in this study refer to assortments with more similar objects displayed closer to one another. In thinking about how this research relates to the current work, it is important to note that the assortments in this previous study consisted only of hypothetical objects for which consumers did not have an established internal structure. Due to this lack of internal structure, consumers’ responses to the external layout of the assortment were a result of the perceptual cues provided by the colors, shapes, and names of the items in the assortment. We argue in this research that when assortments consist of real products for which consumers have existing internal structures, the congruency between the external layout and internal structure becomes important and influences how the variety of the assortment is processed. In these cases, consumers will perceive more variety in assortments that provide a match between their internal categorization of the product category and the external layout provided by the store.
Although we suggest above that congruency between external layout and internal structure can lead to increased perceptions of assortment variety, this effect is not unconditional. Rather, it is dependent on the strength of the internal category schema. The stronger the internal category structure, greater is the need for congruency with the external layout. Thus, if retailers want to ensure that consumers perceive the full amount of variety they offer in their assortments, they need to be aware of the strength of the internal structure that consumers have for their product categories. The lingering question then is what determines the strength of the internal structure?

Put simply, the internal structure of a product class is likely to depend upon the familiarity that consumers have with the category. If the category is very familiar, the existing knowledge of the category is likely to be well established in memory either by brand or by attribute (Johnson and Russo 1984). Prior research has shown that consumers who are more familiar with a product category and who have higher product category knowledge are likely to have better developed schemas (Sujan and Bettman 1989). Thus, the more familiar consumers are with a category, the more salient the internal structure for the category will be.

The salience of the internal structure for familiar categories is further reinforced by external displays provided by retailers. Prior work suggests that upon frequent exposure, consumers may internalize the external display structures they observe in stores (Hutchinson, Raman, and Mantrala 1994; Buchanan, Simmons, and Bickart 1999). This suggests that internal structures will be even stronger for categories that consumers frequently encounter displayed in the same manner. As a result, consumers will come to
expect assortments such as these to be displayed in stores or on websites in a manner congruent with their internal structure and will be dissatisfied when they are not.

Thus, for familiar categories, we hypothesize:

**H1**: For familiar categories, for which consumers have a strong internal structure, congruency between the internal structure of a category (e.g., by brand or by attribute) and the retailer’s layout of the assortment will result in higher perceptions of variety and higher satisfaction with the assortment offering and choices from the assortment.

**Development of Internal Structure for a Product Class – Unfamiliar Categories**

The first hypothesis suggests that when consumers have strong internal schemas for product categories, they will perceive more variety in assortments when the internal schema matches the external layout. But what about cases where there is no internal schema? How can retailers get consumers to perceive more variety for assortments that are less familiar or for which there is more than one acceptable way to display the category? In these cases, displaying the products in a manner congruent with the internal schema is not possible because there is not one perceived “correct” layout. As a result, the external layout may seem somewhat ad hoc to the consumer and may be difficult to parse. In this case, the consumer is not motivated to process the external structure and providing a goal or motivation to do so may be necessary to increase the perceived variety.

In addition, prior research has shown that internal structure can actually be created through consumers’ shopping goals (Barsalou 1983, Loken and Ward 1990). More specifically, consumers have been shown to take in the assortments they observe based on their goals and organize their learning around those goals (Huffman and Houston 1993). When consumers have specific shopping goals, their perceptions of the
variety in an assortment will be based on the items that are congruent or are not congruent with those goals (Broniarczyk, Hoyer, and McAlister 1998). In these cases, the goal serves two purposes: (1) to motivate the consumer to process the variety in the assortment, and (2) to serve as a lens through which the consumer will view the assortment. Consumers will process items by determining whether or not each item in the assortment matches or does not match the goal. Goal-directed search in catalog layouts has been found to make information gathering more efficient and less time consuming (Janiszewski 1998). Thus the goal serves both as motivation and also as a framework for understanding and remembering the available items. We therefore hypothesize:

**H2:** For unfamiliar categories, or categories without a single internal categorization, consumers will have higher perceptions of variety, and higher satisfaction with the assortment and with their choices from the assortment if they have a specific goal-driven shopping task rather than a general one (e.g., browse).

**EXTERNAL FILTERS CAN RESTRICT APPRECIATION OF VARIETY**

External filters imposed by the retailer that limit how much of the assortment can be viewed at once, or at all, can also affect consumers’ perceptions of the total variety of an assortment. As we have argued above, one criterion that influences the processing of assortments is whether the internal structure matches the external layout. However, Web retailers can choose not only the manner in which the assortment is organized but also how much of the assortment is viewed. For example, although a highly filtered presentation of an assortment may allow consumers to find exactly what they need very quickly and may decrease their frustration and search time, a filtered assortment may also decrease consumers’ perceptions of how much variety is available. In supermarkets, retailers often place high penetration, high frequency items such as milk in the back of
the store to force consumers to be exposed to more of the store assortment (Kahn and McAlister 1997); similarly websites can either make it easy to find what a consumer wants (in a filtered approach) or force them to go deeper into the website to find what they want.

Earlier we argued, that if a consumer has a goal it serves as a lens through which the assortment can be viewed and categorized, which in turn leads to higher levels of variety. However, if the consumer’s shopping goal is completely aligned with the retailer’s filtering mechanism the consumer will likely avoid large parts of the assortment by going directly to the item(s) that match the goal. Rather than scanning through the entire assortment and coding all of the available products as one that either meets their shopping goals or not, as a result of the filter, consumers will immediately be led to a small subset of the assortment that meets their goal. In cases such as these, where the filtering mechanism leads consumers to observe only a few items in the assortment, clearly perceptions of variety will be lower. Thus, we hypothesize:

**H3**: If the external filtering mechanism of the assortment matches a consumer’s shopping goal and allows the consumer to avoid observing items in the assortment, consumers will have lower perceptions of variety and lower satisfaction with the assortment offering and choices from the assortment.

Thus, H3 suggests that although filters may lead to efficiencies for the consumer, they may also bring about a cost to the retailer by allowing the consumer to have a less positive assessment of the overall assortment variety. It is our goal here to measure the costs associated with a filtering approach and we do so in situations where the exposure to more of the assortment is not overwhelming. There are clearly boundary conditions where consumers may resent the inefficiencies of not being able to get to exactly where
they want as efficiently as possible, but we do not consider those boundary conditions in this research.

**EXPERIMENTS**

We conducted four experiments to test our hypotheses. In each experiment, college undergraduate students are asked to go through the various assortments and think about particular purchasing situations. In Experiment 1, we use a familiar category with an established internal structure, The Body Shop, and show that when the external layout of the assortment is congruent with participants’ internal categorizations, they perceive more variety and are more satisfied with their final choices than when the external layout is at odds with the internal categorization. In Experiment 2, we use another familiar category, microwavable popcorn, and individually tailor the external layout to be consistent with each person’s internal structure. Again we show that the participants who are very familiar with the category perceive more variety and are more satisfied with their final choices when the external layout is congruent with their internal structures. For participants less familiar with the product category (i.e., those with weak internal structures), we show that the match between internal and external structure does not influence assortment perceptions.

In experiments 3 and 4, we focus on less familiar categories for which participants do not have strong internal categorization structures: ties and luggage. In these studies, we create a viable internal structure of the categories by providing participants with specific shopping goals. In addition, rather than measuring satisfaction with their final choices from the assortment, we measure satisfaction with the overall assortment offering. Experiment 3 shows that participants’ perceptions of variety and satisfaction
with an assortment increase when they are given a specific shopping goal (i.e., buy a blue tie), than when they are just given a vague shopping goal (i.e., just buy “something”).

Finally in experiment 4, using a luggage/carrying bag site, we show that consumers actually perceive less variety and are less satisfied with the assortment offering when their shopping goals match the external filtering mechanism provided by the site. In this experiment we find that because participants could go directly to the type of bag that matched their shopping goal when the external filtering mechanism was congruent with their goal, they perceived less variety than participants who had to search through a large display of bags until they got to the one they wanted. Thus, in this last experiment, congruency between the internal schema and external filtering structure resulted in lower perceptions of assortment variety.

**Experiment 1: Congruency of Internal Categorization with External Layout**

Experiment 1 was designed to test whether the congruency between internal categorization and external layout would affect perceptions of variety and satisfaction with choices from the assortment (H1). We used a category, The Body Shop (a bath and beauty retailer) that was very familiar to the students to ensure the existence of a strong, internal category structure. Based on pre-test data, we knew that all of our participants were familiar with this category and that the majority of them organized the category internally by “form” (i.e., lotions, shampoos, shower gels etc) rather than by “fragrance” (i.e., mint, fruit, floral). Specifically in an open-ended pre-test we asked 73 participants to indicate how they chose products in this category; 54 (74%) indicated that they categorized the product category by form and 19 (26%) indicated that they categorized it by fragrance.
The simulated website we designed was based on the actual Bodyshop website. Based on our pre-test data, we knew that this was a category in which students would have strong prior categorization structures, however, we implemented a learning manipulation to test how strong these internal structures were. Thus, experiment 1 was a 3 (Learning Manipulation) X 2 (External Layout) between-subjects group design. The first factor, the “learning” manipulation, consisted of a prime for a particular internal categorization of the product category. This manipulation had three levels, (1) a fragrance-based categorization, (2) a form-based categorization, and (3) a control condition (information about the history and mission of the company). The second factor was a manipulation of how the assortment was laid out on the screen, either by fragrance or form. One-hundred and thirty-nine undergraduate students at a large northeastern university participated in the experiment for course credit; 77 were male and 62 were female.

Procedure
As participants entered the experimental lab, they were randomly assigned to cells and led to a personal computer. Participants were told to assume that they had won a free shopping spree to a well-known store, specializing in personal care products. Before actually making their choices, however, they were asked to learn some information about the store to help them with their selection. They were instructed to pay close attention to the information presented in preparation for a recall task at a later time.

Participants were then exposed to one of the three learning conditions. Participants were presented with (1) descriptions of nine types of fragrances of products (fragrance condition), (2) descriptions of nine types of products sold at the store (e.g., body lotion, shampoo) (form condition), or (3) nine tenets of the store’s mission.
statement (control). As a manipulation check, the computer screen immediately following the learning condition asked participants to recall and type in as much of the information they had just read as possible.

Participants were then exposed to the products in a simulated online shopping environment. They viewed the products organized by either fragrance or by form (the external store layout factor) and were shown nine “aisles” of products, each labeled with a particular type of product form (e.g., shampoo, body lotion, etc.) or fragrance (e.g., vanilla-scented, fruit-scented, etc.) depending upon the condition. The names of these nine aisles were the same as the nine categories of fragrances or forms described in the learning conditions. When participants selected a certain aisle, they were then shown eight products belonging to that aisle category (see Figure 1). The two external layouts were carefully matched so that participants saw all the same products and always saw nine aisles and eight products within each aisle. The only difference between the two conditions was the way the products were organized on the screen and presented to the participants. The aisle display format in this first study allowed us to put an external organization on a very large assortment that would not fit on a single screen. In this experiment, however, we do not allow any filtering (an aspect we will investigate in Study 4); participants are forced to view the whole assortment.

Participants were asked to browse through the store and indicate which products and how many of each they would like. As mentioned above, participants visited each aisle in the store, but there was no pre-set order in which they had to view the aisles. As an incentive to take the task seriously, they were told to choose products they would
really like to have because one of the respondents would be chosen by lottery to receive a gift basket containing some of the products they selected.

After participants indicated that they were done browsing through the product aisles, they were asked to respond to a series of questions dealing with their overall perceptions of variety and satisfaction with the choices they had made. The measure of perceived variety was adapted from Broniarczyk, Hoyer, and McAlister (1998) and the measure of satisfaction with choices was adapted from Fitzsimons (2000). See Appendix for a listing of the measures. In order to control for any possible differences in responses, participants were also asked to indicate their gender.

**Results**

The results of experiment 1 indicate no significant learning effects. This, however, cannot be attributed to a lack of processing because the recall task reveals that participants both read and processed the information provided in the learning manipulations. Rather, consistent with our pretest data, the lack of significant learning effects provides support for the prior internal structure of this category being strong and not prone to shift as the result of external cues.

The results of experiment 1 also reveal a significant main effect of external layout on perceptions of variety ($F(1,129) = 6.33, p < .01$). Participants indicated higher perceptions of variety when the assortment was organized by form ($M = 7.2$), rather than fragrance ($M = 6.1$). Since the pretest data indicates that the majority of participants have an internal structure for this category based on form, as opposed to fragrance, these results can also be interpreted with regard to the congruency between internal and external structure. Specifically, perceptions of variety are found to be higher when the
assortment is organized externally in a manner that is consistent with the internal, form-based structure of the category.

The results indicate a similar pattern for satisfaction with choices. Participants indicated higher satisfaction with the choices they made when the assortment was organized by form ($M = 6.7$), rather than fragrance ($M = 6.4$; $F(1,129) = 2.78$, $p < .10$). Again, higher satisfaction is found when the external layout is congruent with the participants’ internal structure of the category.

There were no significant gender effects on the learning manipulation, perceptions of variety, or satisfaction. In addition, gender did not interact with any of the dependent variables.

Discussion
The results of experiment 1 show that the external layout of an assortment can affect how consumers process the assortment. More specifically, it demonstrates that the

![Graph showing Variety and Satisfaction with Form and Fragrance]

- Variety: Form = 7.18, Fragrance = 6.12
- Satisfaction: Form = 6.68, Fragrance = 6.42
congruency between internal structure and external layout can lead to differing perceptions of variety and satisfaction. When the internal structure of a product category in the consumer’s head matches the external layout of the products in the store, processing of the product information is facilitated (Bettman and Zins 1979, Biehal and Chakravarti 1982) and consequently, assortment perceptions are increased. However, when the internal structure does not match the external layout, the inconsistency hinders encoding a detailed perceptual representation of the product display. This, in turn, leads consumers to have lower perceptions of the variety offered in the assortment and lower satisfaction with their choices.

The above argument rests on the assumption that one can manipulate whether the internal structure is congruent or incongruent with the external layout of the assortment. In this first experiment, we manipulated congruency by organizing the store consistently or inconsistently with the dominant internal organization participants have for the category, as reported in the pre-test. However, since not all participants have the same internal structure, this manipulation of congruency did not necessarily result in the proper match or mismatch for all participants. While this does make the congruency manipulation less straight forward, it is a problem that would work against our hypotheses, since only 75% of the participants would have been placed in a congruency condition where perceptions of variety are expected to be higher. Experiment 1 is therefore a conservative test of our predictions and one would expect results to be even larger if all participants could be placed in a congruency condition. In the next study, we address this issue by manipulating congruency at the individual rather than the aggregate level.
In addition, the next study also addresses the issue of familiarity with the product category. Just as consumers do not all have the same type of internal structure; they also do not have the same strength of internal structure. The first experiment assumed the same type and strength of internal structure for all participants. In the next experiment, in addition to manipulating the type of internal structure at the individual level, we also measure familiarity with the product category for each participant as a way of determining the strength of the internal structure.

Knowing the strength of the internal structure is important because it will determine the degree to which participants are affected by the congruency between internal structure and external layout. The more familiar participants are with a product category, the stronger their internal organization of the category and the more important it is for the store layout to match the organization in their heads. For these participants, processing of the product assortment is done with guidance from their internal schema so it is critical that the internal and external layout be congruent in order to heighten perceptions of variety. When the external layout is congruent, more familiar participants can quickly scan the options and locate the subsection of the shelf containing their desired products. Within this subsection, participants will be exposed to the other product attributes arranged in a format to facilitate encoding. However, when the display is incongruent, the inconsistency between the internal structure and the product layout will hinder encoding a detailed perceptual representation. Thus, assortment judgments based on initial perceptual representations should be higher for more familiar participants in the congruent than in the incongruent shelf display condition.
On the other hand, since less familiar participants have a weak internal structure of a product category (if any), matching the internal structure with the external layout is not critical. Due to their limited knowledge structure, less familiar participants will engage in minimal processing of the product display without the guidance of their internal schema. Thus, for less familiar participants the congruency of the product display and their internal structure is not predicted to impact assortment perceptions. We test the effects of familiarity in the next study.

Experiment 2: Testing the Role of Familiarity

Experiment 2 was designed to replicate the results of experiment 1 that showed higher perceptions of variety and higher satisfaction with choices for assortments that have a congruency between the participants’ internal categorization and the external layout. In addition to extending the results to a retail setting rather than an online environment, this second study provided a stronger manipulation of the congruency between internal categorization and external layout. Whereas the first experiment used the same two external layouts for all participants, either by form or by fragrance, the second experiment gave each person an external layout based on their own internal categorization. Each person’s internal organization was first determined through the use of attribute importance weights, and then the external layout was custom tailored to be either congruent or incongruent with each participant’s internal organization of the category. This process ensured that the results of experiment 2 could indeed be attributed to a match between internal schema and external layout, since it was manipulated at the individual level.
For this second experiment we used another category that was very familiar to the participants, microwavable popcorn. As an additional test of H1, we took familiarity ratings of the product category to help determine the strength of the internal structure. Whereas more familiar participants were predicted to have strong internal structures, making the congruency between internal structure and external layout very important for assortment perceptions, less familiar participants were predicted to have weak internal structures, making the congruency between internal structure and external layout negligible with regard to assortment perceptions. We predicted variety perceptions and satisfaction with choices would be higher for the more familiar participants when internal structure matched the external layout, while there would be no difference in variety perceptions or satisfaction with choices across the two external layout conditions for the less familiar participants.

Stimuli, and Procedure

Study 2 was a 2 (External Layout) X 2 (Familiarity) between-subjects group design. The first factor, external layout, was manipulated by organizing the shelf display so that it was either congruent or incongruent with a participant's internal structure of the product category. The congruence between a participant's internal structure and external layout was manipulated on an individual basis using the rank order of their attribute importance weights for 4 microwavable popcorn attributes (brand, flavor, size, price). The second factor, familiarity, had two levels. More familiar participants used microwavable popcorn at least once a month, whereas less familiar participants reported eating microwavable popcorn less than 4 times a year.

In order to manipulate the congruency of internal structure and external layout at the individual level, pretest data on individual participant importance weights for
microwavable popcorn attributes were collected one month prior to the actual study (Green, Goldberg, and Montemayor 1981). The pretest was imbedded in a series of tasks collected during class and debriefing revealed that participants did not connect the pretest to the actual experiment. In addition, a frequency of microwavable popcorn use question was completed during the pretest to measure familiarity with the product category, as well as an 18-item need for cognition scale (Cacioppo, Petty, Chuan 1984).

Using the importance weights from the pretest, the external layout of the assortment was custom tailored to be either congruent or incongruent with each participant’s internal organization of the category. Based on prior research in memory (e.g., Hutchinson 1983), we hypothesized that participants’ internal organization of the category would be related to the importance of specific product attributes. Therefore, in the congruent layout condition, the products were arranged first by a participant's most important attribute, followed in sequence by his or her second, third, and least important attribute. Likewise in the incongruent layout condition, products were arranged first by a participant’s least important attribute, followed in sequence by his or her third, second, and most important attribute. There was considerable heterogeneity in attribute importance with 15 different importance orderings expressed by participants. Of the 15 orders, there were 5 main attribute importance orders (> 80% of participants): (1) Brand, flavor, price, size; (2) flavor, brand, price, size; (3) flavor, price, size, brand; (4) flavor, price, brand, size and (5) price, flavor, size brand. There was no obvious relationship between attribute importance and frequency of use.

Seventy-three undergraduate students participated in experiment 2 for extra credit. Participants were run in groups of 1-6 and seated in front of a computer terminal. Each
participant had a unique computer disk corresponding to their own individual internal structure of the category, as well as the congruency manipulation of the external layout.

After they were seated at the computer terminal, participants first answered a series of questions concerning their grocery shopping habits and opinions about local grocers. They were then shown sample lists of 25 products in each of six categories and asked to make their selections with reaction times recorded. The other five categories (i.e., not including the category of interest, microwavable popcorn) were organized, but the attribute for organization differed across categories. As in the first study, to motivate realistic choices, participants were told that they would receive one of the six products as a free gift. The microwavable popcorn category was the fourth category and the external layout of the products was manipulated on an individual basis.

After completing the six choices, participants answered questions concerning their perceptions of variety and satisfaction levels with their choices. In addition, participants were asked to recall as much microwavable popcorn information as they could regarding the different types available for each attribute on the product list.

Results
The data for Experiment 2 were analyzed using ANCOVA with Congruency and Familiarity as between-subjects factors and need for cognition as a covariate. Twenty-seven participants were classified as familiar microwavable popcorn users and 46 as unfamiliar users.

Manipulation Check. To check that we successfully manipulated the congruency of the external layout with the internal structures we had a measure of “ease of use” where 1 was very difficult and 5 was very easy. We found that the mean on this scale
was 3.68 for the congruent condition and 3.45 for the incongruent condition. This difference was significant at the .058 level (F(1,68) = 3.71).

**Hypothesis Testing.** H1 predicted that for familiar categories assortment perceptions would be higher when the external structure was congruent with consumers’ internal organization of the product category. Rather than assuming a category to be familiar or unfamiliar for a population as a whole, in experiment 2, we measured category familiarity at the individual level and expect H1 to hold for familiar users but not unfamiliar. As predicted, the interaction between External Layout and Familiarity was significant (F(1,68) = 4.63, p<.05). Familiar users reported higher perceptions of assortment when the external layout was congruent [M = 3.78] than incongruent [M = 3.17], (F(1,25) = 4.65, p < .05). External layout did not affect the assortment perceptions of unfamiliar users [M = 3.59 vs. M = 3.74, congruent and incongruent, respectively, F<1].

Additional analyses were conducted to gain insight into the process of assortment perceptions. Based on the results of experiment 2, different mechanisms appear to be driving assortment perceptions in the congruent and incongruent conditions. To explore the mechanisms driving assortment perceptions, an ANCOVA analysis was conducted only on the familiar users. In this analysis, we examined assortment variety perceptions as a function of congruency of external layout, response time, and satisfaction (R²=0.66). As reported above the results showed a significant main effect of External Layout.

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1 Note mean levels of variety perceptions suggest that familiar users report an overall lower mean of assortment variety for our selections than do less familiar users. This is reasonable as familiar users would likely have been exposed to more variety in their personal consumption. Our chief interest here though is not in the absolute levels, but rather in the difference between congruent and incongruent displays.
[F(1,20)=4.13, p< .05]², but in addition we found significant interactions of External Layout with Response Time [F(1,20)=6.20, p< .05] and External Layout with Satisfaction [F(1,20)=6.07, p<.05]. The main effect for congruence of external layout, i.e., that participants in the congruent condition reported higher assortment variety (M = 3.80) than did participants in the incongruent condition (M = 3.17), is consistent with familiar participants making an instant perceptual judgment on the assortment such that if the layout is congruent with their internal structures, high familiarity users register a wider range of product offerings and report higher assortment variety perceptions. The significant interactions noted suggest that this initial holistic perception of assortment is modified as consumers proceed to a deeper level of processing where they attend to specific product information. For familiar participants exposed to congruent layouts, the longer time they took to make a decision, the more information they processed and the higher the variety perception [F(1,13)=8.65, p<.05]. This relationship did not hold for familiar participants exposed to incongruent layouts. For these participants, the high amount of processing required to make their choice resulted in higher recall (M = 8.75) as opposed to the recall for familiar participants in the congruent condition (M = 7.87) but did not directly affect their variety perceptions [F(1,10)=2.61, p>.10]. However, incongruent participants’ lower satisfaction due to the required effort did result in a lowering of assortment variety perceptions [F(1,10)=28.33, p<.001), whereas choice satisfaction did not affect assortment variety perceptions of the familiar subjects in the congruent conditions (F < 1).

Discussion

² The F-statistics and means are slightly different in this analysis than in the one reported above because some participants had missing data on either response time or satisfaction.
The results of experiment 2 show that familiar participants have more well-defined internal structures, making the congruency between internal structure and external layout critical for perceptions of assortments. When consumers are very familiar with a product category, if products are laid out in a manner congruent with their internal structure of the category, they can quickly do a perceptual match with the entire display and then zoom in on one section for deeper processing. This leads to higher perceptions of variety and satisfaction with choices from the assortment. The flipside is that when the products are displayed in a manner incongruent with their internal organization, more familiar consumers will become confused and frustrated with the assortment. Although in this case familiar consumers may spend more time looking at the display, the incongruency does not positively affect variety perceptions and instead induces negative affect.

This same pattern, however, does not hold true for consumers who are less familiar with the product category. As demonstrated by the results of experiment 2, for unfamiliar consumers congruency between external layout and internal structure does not affect assortment perceptions. Since unfamiliar consumers do not have established internal structures, there is no interference with the external organization and internal structure.

While external layout is one way to provide organization of the product category for unfamiliar consumers, it is not the only option. As we show in the next experiment, another way of helping unfamiliar consumers to think about an assortment is to give them a specific shopping goal. The shopping goal provides participants who do not have an established internal structure of the category with a way of thinking about the product
assortment. Rather than being overwhelmed by the large assortment of products, when unfamiliar participants have a specific goal for their shopping trip, they are better able to process the variety being offered to them. This results in higher perceptions of variety and satisfaction with the overall assortment offering.

Experiment 3: Effects of Internal Shopping Goals in an Unfamiliar Category

The purpose of experiment 3 was to examine the effects of shopping goals on perceived variety and satisfaction with the assortment offering. Specifically we wanted to test H2 in which we hypothesized that specific shopping goals would increase perceptions of variety and satisfaction with the assortment offering for unfamiliar categories for which strong internal schemas do not exist. Since participants do not have an established way of thinking about unfamiliar product categories, the shopping goals are predicted to serve as a guiding force in participants’ product selection, thereby making processing of the assortment easier. This, in turn, will serve to increase the overall appreciation of the assortment by increasing perceptions of variety and satisfaction with the assortment offering.

Stimuli, and Procedure

In this experiment we set up a website in which respondents could choose among ties. Based on various pre-tests in this category, we determined that there was not a consistent internal structure for organizing ties. Even anecdotally, investigating several tie websites showed no consistent patterns. To completely negate the effects of external layout we organized the ties two ways (by color and by designer) and counterbalanced the presentations in the experiment. Further tests indicated no effects of external layout in this category, so results were aggregated across external layout conditions.
Experiment 3 was a 2 (goal: specific vs. general) X 2 (shopping task: choice vs. consideration set) between subjects design. Three-hundred and forty-two undergraduates at a northeastern university completed the experiment for course credit on individual personal computers in a laboratory. Participants were told they would be reviewing a simulated web site selling men’s ties. There were 27 ties in the assortment and they were shown all at once on one computer screen (see Figure 2).

Before entering the tie website, participants were given one of two different goals. Half of the participants were told to consider a specific goal (focus on blue ties) while shopping, and the other half were given a more general goal (look over ties in general). Participants were also given one of two different shopping tasks. They were instructed either to make a final choice from the assortment of ties or to select a consideration set of ties they would consider buying. Since participants in the choice condition make a final selection of one tie while participants in the consideration set condition choose a number of ties, one might expect perceptions of variety to be higher for participants in the consideration set condition, as the nature of the task directs them to focus on multiple ties. However, our prediction is that for either task, having a specific goal in mind when shopping will increase perceptions of variety and satisfaction with the overall assortment, because it provides a way for participants to think about the product category. The shopping task only directs behavior but does not provide an internal structure for the category, whereas the specific goal gives participants a way of structuring the category in their heads, thereby facilitating processing of the assortment.
After participants completed their assigned shopping task, they responded to questions dealing with their perceptions of variety and their satisfaction with the assortment offering (see Appendix).

Results

The results of experiment 3 indicate a main effect of goal on both perceptions of variety and satisfaction with the assortment. Across both types of shopping tasks, participants in the specific goal condition indicated significantly higher perceptions of variety (\(M = 51.1\)) than participants in the general goal condition (\(M = 41.9\); \(F(1,331) = 19.26, p < .0001\)). Similarly, participants in the specific goal condition also indicated significantly higher levels of satisfaction with the assortment (\(M = 38.5\)) than participants in the general goal condition (\(M = 33.9\); \(F(1,331) = 4.32, p < .05\)).

With regard to shopping task, the results show no effect on perceptions of variety or satisfaction with the assortment. In addition, there were no interactions between goal condition and shopping task on any of the dependent variables.

Discussion

The results of experiment 3 provide support for hypothesis 2 by demonstrating that for an unfamiliar category, consumers have higher perceptions of variety and higher satisfaction with the assortment offering when they are given a specific shopping goal as compared to a general goal.

Specific goals and external layout did not interact in experiment 3 in increasing perceptions of variety or satisfaction with the assortment, even though one of the external layouts (by color) was congruent with the specific goal. We argued that since there was no strong a priori internal structure for the category, the external layout would have had no significant effect on variety perceptions or satisfaction with the assortment. However,
it is somewhat surprising that an external layout that is congruent with the specific goal did not interact in affecting either one of these dependent variables. Perhaps the external layout did not influence perceptions of variety or satisfaction with the assortment in this particular case because prior work on visual perception has shown that color is a dominant cue for organizing aesthetic product assortments (Solomon 2002). Thus, the respondents, regardless of the external layout, easily recognized the color cue. In any event, for either external layout, the specificity of the goal significantly increased perceptions of variety and satisfaction with the assortment offering as predicted.

In experiment 4, we examine whether the same is true for external filtering, where retailers allow participants to view only part of the assortment rather than the whole assortment. More specifically, we look at how a match between the shopping goal and this external filtering mechanism influences appreciation of the assortment for an unfamiliar category. When participants are presented with an external filtering scheme that matches their shopping goal, they are able to go directly to their desired item without having to examine the entire assortment (although they certainly can browse the site if they are so inclined). This suggests that a match between external filter and shopping goal will lead to reduced perceptions of variety and satisfaction with the assortment offering.

Experiment 4: Congruent External Filtering Can Reduce Variety Processing

In this experiment, we again used an unfamiliar category, carrying bags/briefcases/knapsacks. This is a category for which our respondents were unfamiliar and thus had no established internal structure, but in addition, an investigation of these types of Websites indicated no consistent classification pattern. Across all conditions of
the experiment, the bags were organized in the same format, but we manipulated the
degree of external filtering.

In the first condition (no filtering) all of the products were viewed by the
participants. In the second condition, the tabbed external filter condition, the web site
was designed so that participants could click on a tab that would take them directly to the
sub-category that they were interested in. Even though they could go to that category
directly, the other tabs and their names were visible on the screen and could theoretically
have influenced perceptions of variety. In the third condition, primed, the bags were
once again all viewed by the participants but we told the participants the classification
system that we used to organize the bags (and this classification system was the same as
the system used to create the tabs in condition 2). Thus, in this condition, the rational for
the organization was made clear but the participants were still forced to view the entire
assortment, whereas in the tabbed condition they could literally choose to view only part
of the assortment, however, they could also view the entire assortment if they so chose.

This experiment was designed to test hypothesis 3, which states if the external filter
matches the participant’s shopping goal, perceptions of variety and satisfaction with the
assortment offering will decrease. In addition, it also tests whether these decreases were
due to the match between the structure of the filter (which is mimicked in the primed
condition) or the actual filtering, i.e., the ability to view only a part of the assortment.

We should point out that in this experiment, as in the preceding ones, we are not
considering situations with excessive or overwhelming variety (i.e., conditions that
Iyengar and Lepper (2000) explored). That situation of excessive variety would likely
serve as a boundary condition for our results and is left for future research.
Procedure
Participants for experiment 4 were 237 undergraduates at a mid-atlantic university who completed the study for course credit. The experiment was administered on personal computers over the Internet but in a laboratory setting. It was a one-factor between subjects design. Once seated at a computer, participants were asked to review a simulated web site selling various kinds of bags. They were given one of four different specific goals that were counterbalanced across the experimental conditions. The specific goals were: (1) buy a bag, (2) buy a backpack, (3) buy a backpack that also carries your laptop, and (4) check out the backpacks that also carry a laptop. The 32 bags were presented to participants in one of three different external filtering formats: no filter, no filter with primed organization, or tabbed filter that allowed partial viewing of the assortment. After they completed the shopping task, participants responded to a series of questions dealing with their perceptions of variety and satisfaction with the assortment offering. In addition, participants answered questions regarding their cognitive overload as well as recall of product information. See Appendix for a listing of the measures.

Results
In support of H3, the results indicated a main effect of external filter on overall variety (F(2,212)=2.94, p< .05). Participants in the tabbed external filter condition indicated significantly lower perceptions of variety (M = 17.3) than participants in the no filter (M = 20.98) or primed (M = 22.04) conditions. Similarly, the results also reveal a main effect of external filter on satisfaction (F(2,218)=7.35, p< .001). Again, participants in the tabbed external filter condition indicated significantly lower satisfaction levels (M = 4.25) than participants in the no filter (M = 5.06) or primed (M = 5.01) conditions.
The results of experiment 4 also reveal a significant main effect of external filter on cognitive overload (F(2,220)=3.34, p< .05). Participants in the no filter (M = 2.48) and primed (M = 2.63) conditions indicated that they found the assortment to be significantly more overwhelming than participants in the tabbed condition (M = 1.96). This finding supports the idea that when consumers are presented with an external filter that matches their shopping goal, they are able to go directly to their desired item without having to look through all of the products offered in the assortment.

Lastly, experiment 4 also reveals a significant main effect of external filter on the number of bags recalled (F(2,211)=5.18, p < .01). Participants in the tabbed external filter condition recalled significantly fewer bags (M = 4.48) than participants in the no filter (M = 5.06) or primed (M = 5.18) conditions. There were no significant effects or interactions due to type of goal.

Discussion
The findings of experiment 4 suggest that a match between a consumer’s shopping goal and the external filter provided by a website, results in lower perceptions of variety and satisfaction with the overall assortment, although participants felt less overwhelmed. Since the match between goal and external filter allowed consumers to find the subset of products that fit their shopping goals immediately, they essentially ignored the rest of the assortment. Even though they could see that the website also offered other products and product categories in the additional hyperlinks, they did not process the additional offering because they did not actually see the products on the screen. While this result may seem somewhat intuitive, the key insight from this experiment is that the efficiency of the filtered approach also comes with a decrement in the respondents’ perceptions of variety and satisfaction with the assortment offering.
When there is no filtering, participants no longer scan the entire assortment. While this results in easier processing, as evidenced by the lower overload ratings for the tabbed condition in experiment 4, participants left the website with lower perceptions of the assortment variety. This, in turn, could have a negative impact on future visits since participants may remember the store as providing little variety and therefore less likely to meet their future needs. Although we examine the filtering concept in an on-line environment where filtering is easy to operationalize, this concept could also occur in physical stores. For example, retailers could provide detailed maps or guides on kiosks that could guide consumers directly to the product of interest or alternatively they could lead consumers through circuitous paths (e.g., IKEA does this in their furniture stores) that force consumers to view more of the assortment.

Our finding provides support for retailers who design store layouts or websites that require their customers to roam the store before being able to purchase their desired products. Even if customers do not engage in impulse buying while walking through the store or browsing through the site, our results indicate that they are likely to perceive more variety and feel more satisfaction with the overall assortment.

Experiment 4 also demonstrates that it is not the match between a consumer’s shopping goal and the external organization that yields the lower perceptions of variety and satisfaction with the offering, but rather the explicit ability not to view parts of the assortment. Whereas providing consumers with an external filter that allows easier navigation through the assortment decreases perceptions of variety and satisfaction with the offering, providing consumers with an understanding of the structure of the assortment has no negative effect on variety or assortment satisfaction. Neither does it
offer the benefit however, as shown in Experiments 1 and 2, of having a match between the structure of the assortment and an existing internal structure. Thus, congruent external filtering limits appreciation of the assortment while goals congruent with the organization of the assortment do not.

**CONCLUSIONS**

Results from four studies show that consumers’ perceptions of variety and satisfaction with the assortment offering and choices from the assortment are largely dependent on whether the internal organization inside the consumer’s head is congruent with the external organization provided by the store. We defined internal structure as either a function of a consumer’s existing category scheme or as a function of his/her shopping goals. To examine external structure we manipulate both the layout of the products on the screen or in the store as well as the filtering mechanisms used for product search.

In the first two studies, we demonstrated that for familiar product categories congruency between a person’s existing internal structure and the external layout of the store resulted in higher perceptions of variety and satisfaction with choices from the assortment. Since consumers have strong, established internal schemas of familiar product categories, it is critical that the external layout of the assortment matches the internal organization. When the two organizations are congruent, people are better able to process the assortment and therefore have higher perceptions of the variety that is offered. On the other hand, when the two organizations are incongruent, consumers become confused and overwhelmed by the assortment and are unable to perceive the variety that is offered.
In experiments 3 and 4, we looked at unfamiliar categories for which consumers did not have established internal category schemas. In these cases, the internal organization was manipulated through the use of specific shopping goals. Experiment 3 showed that regardless of the external layout used to organize an unfamiliar category, consumers had higher perceptions of variety and were more satisfied with the overall offering when they were given a specific shopping goal. Since consumers do not have a set way of thinking about an unfamiliar category, their search through the assortment is relatively unguided. By giving consumers a specific shopping goal, however, they are provided with a way to organize the category internally, thereby making the processing of the assortment easier. Thus, perceptions of variety and satisfaction levels with the offering are higher when consumers are given specific goals for shopping in an unfamiliar category.

The last study of this research examined the effects of shopping goals matching the filtering mechanism used by a retailer to navigate search of the assortment. When a consumer’s shopping goal is congruent with the external filtering structure that provides efficient search through a web site, consumer perceptions of variety and satisfaction with the offering are actually lower than when the assortment is presented all at once on one screen. The match between shopping goal and filter allows consumers to proceed immediately to the small number of products that meet their needs for that shopping trip. They still see the other products and categories of products that the web site also offers, but they do not actually have to view the individual products. As a result, consumers do not process the rest of the products offered in the assortment. Since they only observe a small subsection of the assortment, they have lower overall perceptions of variety and are
less satisfied with the offering. On the other hand, when no filter is provided and products are placed all on one screen, consumers must search through the entire assortment looking for items that fit their goal. Since in this case consumers are forced to process the entire assortment in order to find an item that meets their needs for that particular shopping trip, they leave the store with higher overall perceptions of variety and satisfaction with the offering.

Future research could consider the boundary conditions of our results. Certainly, as others have pointed out (e.g., Iyengar and Lepper 2000, Huffman and Kahn 1998) too much variety can be overwhelming. We have not really reached that stage in our experiments. In all of our experiments, participants were able to cope with the amount of variety we presented. However, one can certainly imagine situations with too much variety (e.g., consider a kitchen tile shop) and then likely filtering may be useful in increasing satisfaction with the shopping experiment (a measure we did not consider in this research) even at the expense of satisfaction with the overall assortment (which we did measure).

Together the results of these four studies all suggest that the match or mismatch between the internal organization inside the consumer’s head and the external organization of the assortment provided by the store influences how consumers process the variety offered in the assortment. This work contributes to the existing literature on the application of categorization theory to consumer domains (e.g., Sujan 1985, Meyers-Levy and Tybout 1989, Goodstein 1993) by examining the role of internal categorizations or schemas in the evaluation of the external structure of an assortment. This work also contributes to the perceived variety literature (e.g., Broniarczyk, Hoyer
and McAlister 1998, Hoch, Bradlow and Wansink 1999, Kahn and Wansink 2002) that suggests consumer perceptions of variety are dependent on more than just the actual number of individual items in the assortment. Retailers should be aware of several factors in order to try and get consumers to perceive more variety in their assortments.

First, the more familiar consumers are with a category, the more important it is for a retailer to match the assortment layout with the targeted consumer’s scheme for that category. Second, for unfamiliar categories, shopping goals are useful in helping consumers perceive the variety of the assortment. If consumers are likely to browse, it may be useful for retailers to provide in-store or on-site display cues to suggest shopping goals for their customers. These may not only increase purchase, but they should also help consumers perceive more variety in the assortment. Finally, retailers should consider the tradeoffs of having filtering mechanisms on their web sites that allow for easy navigation through their assortments. While they may decrease confusion for a particular shopping trip, they can also result in consumers having lower overall perceptions of variety and satisfaction with the offering in their store. Retailers should at the very least offer ample incentives for consumers to “pop-out” of their directed path. Knowledge of these three factors will allow retailers to predict whether the external organizations they choose for their assortments will be congruent to consumers’ internal organizations or not, and how their choices will affect perceptions of variety and satisfaction with their overall assortments.
References


Appendix

Scales used in Experiment 1[^3]

**Perceptions of Variety** (alpha=.88)
1. Several good options were available for me to choose between
2. The choice selection was good
3. I would be happy to choose from the same selection next time

**Satisfaction with Choice** (alpha = .67)
1. I am very satisfied with my choices
2. If I could do it all over again, I would probably make the same choices again

Scales used in Experiment 2

**Perceptions of Variety**
Variety perception (1=low variety, 5=too much variety)

**Satisfaction with Choice**
Satisfaction with choice (1=very dissatisfied, 5=very satisfied)

Scales used in Experiment 3

**Perceptions of Variety**
How varied is the store’s assortment of ties? (1=very little variety, 100=very much variety)

**Satisfaction with Assortment**
How satisfied are you with this store’s assortment of ties? (1=very unsatisfied, 100=very satisfied)

Scales used in Experiment 4

**Perceptions of Variety**
In total, off the top of your head (without going back to look) how many business bags were offered? (fill in a number)

**Satisfaction with Assortment**
How satisfied are you with this store’s assortment of business bags? (1=not satisfied at all, 7=quite satisfied)

**Overload**
Did you feel overloaded by the number of products and amount of information provided? (1=not at all, 7=a great deal)

**Recall**
Please list all the business bags you can remember seeing

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[^3]: Both scales yielded one factor solutions and were measured where 1=strongly disagree and 9=strongly agree unless otherwise noted.
FIGURE 1: Examples of the on-line shopping environments in Experiment 1. Products were either organized by form (e.g., "moisturizers") or by fragrance (e.g., "fruit scent products").
FIGURE 2: Example of the Simulated shopping environment for Experiment 3