Influences of Category Structure on Brand Positioning and Choice

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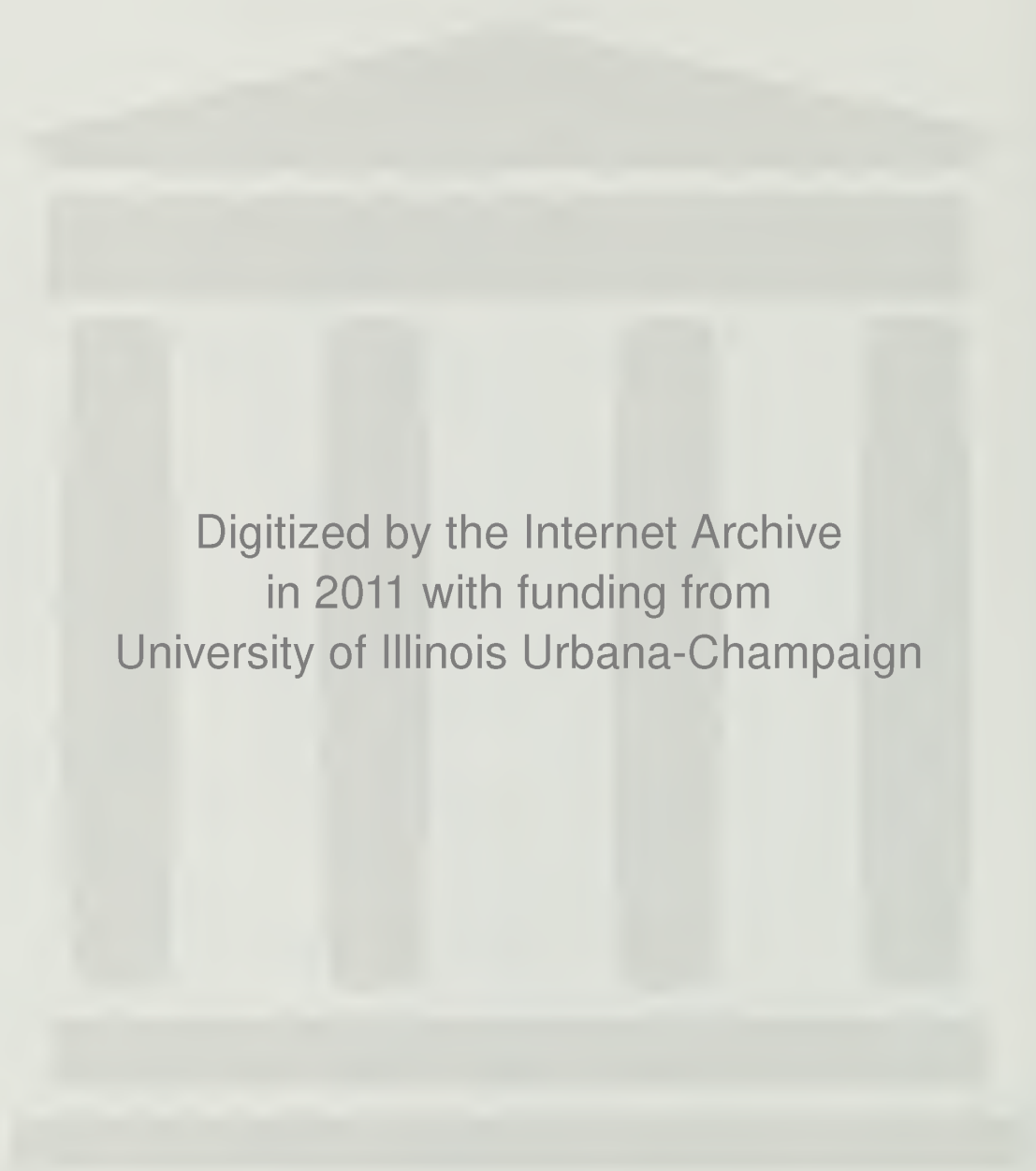
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INFLUENCES OF LEARNING GOAL AND NEW BRAND DISCREPANCY ON CATEGORY PERCEPTIONS AND CHOICE

Abstract

Consumers categorize products to facilitate storage and retrieval of product information. Marketers who understand these processes can develop marketing strategies that may improve the likelihood that their brands are chosen. We integrate two areas of categorization research in marketing: 1) the formation of initial category perceptions and 2) the influence of brand positioning strategies on category perceptions. The results of a study provide insights into the effects of initial category perceptions on the evaluation of subsequently introduced brands, the effects of category perceptions on choice, and the influence of brand positioning strategies on the updating of category perceptions. Implications for marketing strategy are discussed.

INTRODUCTION

Consumer categorization of products is an important phenomenon of consumer behavior. A ubiquitous cognitive activity (Mervis and Rosch 1981), categorization enables efficient storage of information and improves the retrievability of useful information (Lingle, Altom and Medin 1984). For consumers, categorization of product information may aid in the evaluation of brands (Cohen and Basu 1987). For marketers, understanding consumers' categorization processes can facilitate development of marketing strategy. For example, Sujan and Bettman (1989) demonstrate that marketers can affect the types of category perceptions with which consumers store product information by manipulating characteristics of the presented information. Their findings indicate that positioning strategies implemented by marketers can be used to influence brand differentiation by consumers.

A strategy that effectively induces brand differentiation by consumers may be affected by the knowledge that consumers already possess about the product category, and the purpose for which that knowledge was acquired. For example, consumers who have been exposed to many brands of laptop computers may have developed some level of expertise about the product category. The knowledge they have about which attributes are important for making a good quality choice, and which attribute values are typical and which are desirable, may affect the way they acquire, organize, and store information about new entrants to the product category.

Within this group of knowledgeable consumers, further distinctions may be drawn, based upon the purpose for which the product knowledge was obtained. A consumer who has obtained knowledge of the product category in order to buy a laptop computer may have a knowledge base that differs in content and structure from one who has learned about the category in order to convey information about the range of brand characteristics to someone else (e.g., a salesperson or one involved in a group decision).

These different types of consumers suggest that knowledge of consumers' categorization processes can be used by marketers for two related purposes: 1) to segment consumers into groups, within which product category perceptions are similar, and 2) to guide development of

effective brand positioning strategies by using knowledge of existing category perceptions. We propose that brand positioning strategies are more likely to be successful if marketers are aware of the past experience consumers have with a product category and the reasons for the experience (i.e., buying or learning to convey information). Past experience may affect the organization of stored information, thereby influencing choice and subsequent perceptions of the product category.

To summarize, the preceding discussion suggests that in order to develop effective positioning strategies, marketers must be able to answer several questions about how consumers might categorize a new brand:

1. What type of category perception does the consumer have for this brand?

2. Where does my brand fit in this perception?

3. What category perception would be most advantageous for my brand?

4. Can I influence the way consumers categorize my brand?

The goal of the research in this paper is to examine the categorization process characteristics that can be used to answer these questions, in order to develop effective positioning strategies. To this end, hypotheses about the categorization process and its effects on consumer behavior are formulated. The results of a study to test the hypotheses are presented.

Past research in categorization has considered the formation of initial category perceptions (Coupey and Nakamoto 1988), described different types of categories (Barsalou 1985; Rosch 1981), and examined the role of category perceptions in the context of brand positioning (Sujan and Bettman 1989). In this paper, we integrate and extend these areas of contribution to provide a broader view of the categorization process, one that may be used not only to direct segmentation, but also to develop positioning strategies for different segments of consumers. In doing so, we replicate the findings of Coupey and Nakamoto (1988), and of Sujan and Bettman (1989). In addition, we make four new contributions. First, we assess the influence of consumers' initial category perceptions on subsequent tendencies to position new brands in a product category. Second, we look at one result of the categorization process by examining the effects of category

perceptions on choice. Third, we examine the effect of prior category perceptions and a new entrant to the category on consumers' perceptions of category characteristics. Fourth, we explore how consumers update product categories as a result of positioning strategies for new brands.

CONCEPTUAL BACKGROUND AND HYPOTHESES

In the psychology literature, two different functional types of categories have been described. Rosch (1981) describes the common taxonomic category, in which items are related by similarity of their features. This distribution is characterized by a 'central tendency', or mean value, which occurs more frequently than any other item. Barsalou (1985) suggests that for many classes of items, however, items may not be arranged in a common taxonomic structure. Instead, people may often order items in cognitive structures in terms of how well they might satisfy a goal. For example, a consumer searching for diet foods might be more likely to have a 'goal-derived' category of "best foods to eat on a diet," than a common taxonomic category of "foods to eat." In the goal-derived category, foods would probably be arranged in terms of the amount of calories they contain, with the distribution weighted toward low-calorie foods. Figure 1 contains examples of both category structures.

Figure 1 about here.

In the marketing literature, Coupey and Nakamoto (1988) demonstrate that consumers may form different category perceptions as a function of their learning goal (e.g., to make a choice, or simply to learn information), and the skewness of the items in the category (e.g., the degree to which many items have high values on one attribute). Their research indicates that different factors may result in the formation of different category perceptions. For example, brand information learned to make a choice tends to result in a category structure that emphasizes more desirable brands, while information learned simply to know the information tends to result in a broader structure that contains a wider range of both good and bad brands. The structure of these

perceptions appears similar to the structures described by Barsalou and Rosch; Coupey and Nakamoto describe a category perception formed under a choice goal as a 'preference' category (analogous to a goal-derived category), and a perception formed under a learning goal as a 'perceptual' category (analogous to a common taxonomic category).

Differences in category structure have also been shown to occur in terms of the ways consumers organize information within a product category as a function of discrepancy. Sujan and Bettman (1989) found that consumers tended to subtype a brand that was strongly discrepant from other brands in the product category on a focal attribute, placing the discrepant brand in a category by itself. For a brand that was only moderately discrepant, consumers tended to create a differentiated position for the brand, retaining it as a member of the larger product category.

None of the earlier research has addressed the issues of whether or how initial category perceptions, such as those noted by Coupey and Nakamoto (1988), influence the tendency to subtype or differentiate a new, discrepant, brand. In addition, previous research has not examined whether consumers will tend to favor brands in subtyped positions or in differentiated positions, or how consumers alter their category perceptions in response to positioning strategies. These issues should be addressed in order to use knowledge of categorization processes both to segment consumers and to develop strategies for individual segments that will make effective use of extant category perceptions.

Several sets of hypotheses were developed to examine the effects of category structure on brand positioning and choice. In addition, hypotheses needed to replicate the findings of Coupey and Nakamoto (1988) and Sujan and Bettman (1989) were also examined. Given the replicatory nature of these latter hypotheses, however, they are not presented as formal predictions.

The first task in examining the categorization process is to evaluate the effect of the initial purpose for learning category information on the resulting category perception, in order to replicate the effect observed by Coupey and Nakamoto (1988). The second task of this research is to examine the changes to category perceptions as a function of the initial perception and a new, discrepant brand. The third task is to examine the effect of category structure on brand choice.

The final task is to examine the influence of a positioning strategy on consumers' perceptions of the overall product category, including investigation of whether and how consumers update perceptions of category structures.

Task One: Formation of Initial Category Perceptions

As noted above, Coupey and Nakamoto (1988) demonstrate that consumers may form different product category perceptions depending upon the learning goal for which they initially encode product information. Consumers who process information with a goal of learning about the product category and its members are expected to have more complete and accurate knowledge of the category than consumers who process information to make a choice (see also Biehal and Chakravarti 1983, 1986 for a similar conclusion). This more complete processing is expected to result in the formation of a perceptual category, in which brands of poor quality, as well as brands of better quality, are represented. For consumers with perceptual categories, knowledge of modal, high and low attribute values, and the frequency with which they occur, should be close to the actual, presented values. In contrast, consumers who process to make a choice are expected to focus on brands they perceive to be superior. Because the task is to choose the best brand, consumers may conserve cognitive effort by reducing the amount of attention they devote to perceived inferior brands. Due to this tendency, consumers should form a perception of the category that emphasizes brands with high attribute values. In accord with the reasoning presented by Coupey and Nakamoto, we expect that consumers who process with a choice goal will be better able to recall modal and high levels of attributes than low levels. In addition, truncated processing of less desirable brands by choice goal consumers should make these consumers able to recall fewer brands in the product category than learning goal consumers. The same lowered ability should also be noted for attribute recall. Because choice goal consumers are only charged with choosing and retaining the name of a brand, they are expected to expend less effort than learning goal consumers to encode product attributes for ready retrieval.

Task Two: Effects of Discrepancy and Learning Goals on Category Structure

The next hypotheses address the individual and joint impact of initial perceptions, as determined by learning goal, and brand discrepancy on consumers' tendency to subtype or differentiate the newly presented brand. While Sujan and Bettman (1989) assessed the impact of discrepancy on consumers' categorization behavior, they did not consider whether the structure of the initial category perception might also influence the effect of a brand positioning strategy.

If consumers are presented with a new brand that is discrepant on a focal attribute from the other brands they have examined, they may attempt to reflect this difference in the way they place the new brand in the product category. Sujan and Bettman demonstrate that moderate levels of discrepancy which make a brand more desirable tend to result in a differentiated position for that brand within the overall category, while strong levels tend to result in a subtyped position in which the brand is in a category by itself. Therefore, to replicate the findings of Sujan and Bettman, we examine the hypothesis that discrepancy of a brand will influence its position within the product category, such that moderate discrepancy will lead to a differentiated position, and strong discrepancy will lead to a subtyped position.

The positioning of a new, discrepant brand may also be affected by the structure of the initial category perception. Consumers with perceptual categories (formed under a learning goal) may have broader, more accurate, knowledge of the attribute values a brand might exhibit than consumers with preference categories, who may focus primarily on brands with more desirable attribute values. Better knowledge of values is expected to provide a stronger basis for comparing the new brand to old brands, and for detecting dissimilarities. Therefore, we extend the work of Sujan and Bettman by proposing that:

> H1. Initial category perceptions will affect positioning behavior of a newly introduced brand, such that consumers who form an initial perceptual structure will be more likely to subtype a new, discrepant brand than consumers who form an initial preference structure.

Task Three: Effects of Category Perceptions on Brand Choice Behavior

One issue for marketers who consider alternative positioning strategies is whether an advantage can be obtained from being subtyped versus being differentiated. Clearly, if brands tend to be subtyped because they are possess a more desirable level of a diagnostic attribute, then they should also tend to be chosen disproportionately. More generally, however, we expect that consumers will be more likely to choose brands that are members of smaller brand sets than brands that are members of larger sets. Because the basis for membership in a category is similarity (Rosch 1981, pg. 29), greater numbers of brands in a category should tend to reduce consumers' ability to discriminate any one brand. Consumers who subtype brands, either as a result of learning goal or perceived discrepancy, or both, are increasing the discriminability of brands in that subtyped set. Thus, consumers who subtype should be more likely to choose a brand from the subtyped set than from the overall category, regardless of the basis for subtyping. Formally stated:

H2. A brand will be chosen more frequently if it is subtyped than if it is differentiated, regardless of the level of discrepancy.

Task Four: Effects of Structure on Updating of Category Perceptions

To complete the analysis of category structure effects on consumer behavior, hypotheses are presented about the effects of subtyping behavior, as a function of learning goal and discrepancy, on subsequent category perceptions. From the research of Coupey and Nakamoto, we know that consumers form different types of category perceptions. From the work of Sujan and Bettman, and from hypothesis 1 of this paper, we expect to find that category perceptions may be altered, both as a function of discrepancy and of the initial category perception. The following hypotheses describe how consumers' category perceptions may differ as a function of learning goal and discrepancy, and how category perceptions are updated after exposure to a new brand.

Sujan and Bettman (1989) suggest that one effect of brand positioning strategies may be to change consumers' perceptions of the original category, in terms of perceptions of variability. To replicate their findings, it must be shown that higher levels of discrepancy result in greater perceptions of variability on the discrepant attribute and increased importance of this attribute.

In addition to the replication hypothesis, hypotheses may also be developed about the effect of initial category perceptions and positioning strategies on the resulting category perceptions. Sujan and Bettman found no effect of discrepancy on subjects' perceived variability of the category (i.e., the number of submarkets in the product category). The failure to observe an effect may be due to the failure to consider the type of initial category perception held by a consumer. For example, a consumer who has an initial perceptual structure (as formed through a learning goal) may tend to have more complete brand knowledge than a consumer with an initial preference structure. Therefore, the learning goal consumer may be better able to see differences between a new, discrepant brand and other brands than a choice goal consumer, resulting in the subtyping behavior predicted in H1. As a result, the learning goal consumer should perceive greater variability, and thus more submarkets, in the product category than a choice goal consumer. The choice goal consumer, focusing on the higher attribute values, may tend to see positive discrepant values of a new brand as merely one more member of the product category ranging around the upper end (i.e., assimilation is easier). This type of consumer should perceive fewer submarkets in the markets as discrepancy increases. This interaction is formally presented as:

H3. As discrepancy increases, choice goal consumers will tend to perceive fewer in the submarkets in the product category than learning goal consumers.

Perceptions about the category in terms of attribute ranges and values and attribute typicality are expected to change as a function of subtyping behavior. The changes may be influenced by the form of the initial category perception. Specifically, we predict that if the introduction of a new, discrepant brand leads to differentiation, then overall perceptions of the category should

remain relatively unchanged. If, however, a consumer subtypes the new brand, then he may update the overall category by incorporating the attribute values of the new brand into his perceptions of attribute ranges and attribute value frequency. This rationale is consistent with an assimilation/accommodation approach (e.g., Rumelhart and Norman 1972). If the new brand is differentiated within the overall category, consumers may assimilate the characteristics of the brand into their current perceptions of the category. This process suggests that global characteristics of the category, such as perceptions of the typical values of attributes and of attribute ranges, will not be significantly changed. If the new brand is subtyped, however, the perception of the overall category may be updated by accommodating the more extreme values of the new brand (Taylor 1981; Weber and Crocker 1983). These processes are illustrated in Figure 2. Panel A depicts the assimilation process of differentiation. When a new, moderately discrepant brand is introduced, it has no effect on the initial perceptions of the category. Perceptions of the mean and range are unchanged. In the accommodation process of subtyping, however, the introduction of a new brand leads consumers to update perceptions of the initial category, such that the mean and range perceptions are changed.

Figure 2 about here.

H4. Brand subtyping will tend to result in changes to initial category perceptions (e.g., range, frequency of attribute level occurrence, etc.) while brand differentiation will tend to result in few or no changes to the initial category perceptions.

To test these hypotheses, a study was conducted. Formation of initial category perceptions was examined, and changes to the resulting category perceptions due to the introduction of a new brand were assessed.

METHOD

Subjects completed a three-part study in which they examined information about brands of laptop computers. Providing subjects with individual brand information enabled tests of hypotheses about the effect of category perceptions on choice that could not be done with the format used by Sujan and Bettman (1989), in which subjects familiar with the category were shown a single print ad.

Subjects

Forty-six undergraduates at a major midwestern university participated in the study, which took an average of thirty minutes to complete. Subjects received credit toward a course requirement for completing the study.

Stimuli

The product category information was given as sixteen fictitious brands of laptop computers, each described by the same four attributes: battery life, display screen quality, processing speed, and memory capacity. The laptop computer category was selected based upon pretests which indicated that subjects tended to be unfamiliar with characteristics of the category. On a nine point scale (1 was "Not at all Familiar," and 9 was "Very Familiar"), the mean response for ninety-seven subjects was 3.87, with a standard deviation of 2.27. The median response was 3.0.

Five levels of each attribute were varied across the sixteen brands. To create a set of brands with a normal distribution, the distribution on each attribute was symmetric, and from the lowest level to the highest level, the frequency of level occurrence was 2,3,6,3,2. The brand profiles were constructed so that each brand was of similar overall quality, all else being equal. Battery life ranged from 2 1/2 hours to 5 3/4 hours, in approximately 4/5 hour increments. Display screen quality was given in pixels, and ranged from 800 to 12,500 pixels per square inch.

Processing speed, given in millions of instructions per second (mips), varied from 1 to 12. Memory capacity ranged from a low of 512 kilobytes to a high of 1640 kilobytes.

Design and Factor Manipulations

The study was a 2 x 3 between-subjects design. The independent variables were learning goal and brand discrepancy. Learning goal was manipulated in order to observe its effect on the formation of initial category perceptions. Following Coupey and Nakamoto (1988), we manipulated initial perception formation by giving subjects different learning goals. Two learning situations can be identified in consumer information processing: 1) a directed learning situation and 2) a nondirected learning situation. (Biehal and Chakravarti 1982). In a directed learning situation, the main reason for information processing is to learn the characteristics of the stimuli. A consumer who learns about the products in a particular category in order to describe them to someone else, or to make a choice from the category at a later time, may engage in directed learning. In contrast, a consumer who acquires and stores information about available products while making a choice may be learning the information in a nondirected manner (Bettman 1979). In this choice goal situation, information most relevant to the choice may receive disproportionate attention, and brands that are judged to be inferior may receive little or no additional processing. Thus, these two types of learning situations may lead to the formation of different category perceptions.

The second factor manipulated was the discrepancy between a newly introduced brand and other brands in the product category. Discrepancy was manipulated in order to observe its effects on consumers' organization of product information within the original category perception. To examine how consumers placed a new brand within the category, and the effect of placement on subsequent category perceptions and choice, three levels of discrepancy were manipulated: no discrepancy, moderate discrepancy, and strong discrepancy. These levels mirror those used by Sujan and Bettman (1989).

Discrepancy was manipulated on the screen display attribute. Sujan and Bettman operationalized discrepancy on a 'focal attribute,' an attribute to which subjects' attention was guided. Directing attention to one attribute may have biased subjects' perceptions of attribute diagnosticity. Rather than guide subjects' attention, we used the results of pretests to determine which of the four laptop attributes subjects tended to feel was neither most important nor least important. Mid-range importance reduced the possibility of obtaining a floor or ceiling effect of discrepancy (Sujan and Bettman 1989). Pretest data indicated that the attribute ranked second in importance among the four tested was display screen quality. This attribute was used in lieu of a focal attribute.

The manipulation of learning goal and discrepancy resulted in an experimental design with six different treatment conditions: directed learning and no discrepancy, directed learning and moderate discrepancy, directed learning and strong discrepancy, choice and no discrepancy, choice and moderate discrepancy, and choice and strong discrepancy.

Procedure

Subjects were run in six groups, corresponding to the six treatment conditions. Each subject received a test package with three booklets and sixteen cards with brand information. Subjects were randomly assigned to treatment conditions.

In the first part of the study, subjects were exposed to one of the two different task descriptions, each of which was designed to prime a different learning goal. Then they examined the set of brand cards and completed a sorting task. In the sorting task, subjects created groups of brands, so that brands within a group were more similar to each other than to brands in any other groups. Subjects also chose the brand they would prefer to own. After the choice, subjects recorded the group and their members in the test booklet, and the booklets from part one were collected. Subjects kept the groups of cards but were not allowed to refer to the information on each card.

In part two, data to assess category perceptions were collected. In order to examine the effect of learning goal on category structure, subjects were asked to recall brands and attributes, and to provide attribute level and frequency information for the modal, high and low values of each attribute. Subjects' attribute weights were also collected.

The discrepancy manipulation was introduced in part three. It was effected by the introduction of a new brand of laptop computer. Subjects were given the new brand card and asked to place the card relative to the brands they had examined in part one. Then subjects named the brand they would prefer to own. Information about category perceptions was collected for the second time. Data for manipulation checks and demographic analyses, such as familiarity, ownership and gender, were also collected. After completing part three, subjects were debriefed and excused.

Independent Variables

Learning goal. In order to create two different category structures, two learning goal conditions were used: directed learning and choice. The learning goal was manipulated with paragraphs which created two scenarios in which subjects examined the laptop brands. The directed learning goal was induced by the following statement:

"In this study you will be asked to learn some information about laptop computers, like the one pictured below. At the end of the study, you will be tested on your knowledge about laptops. As a result, you must study all of the information carefully and thoroughly."

The choice goal was induced by telling subjects:

"Imagine that you are going to buy a laptop computer, like the one pictured below. In the following task, you are going to make such a choice."

Discrepancy. Discrepancy was manipulated by introducing a new brand. Three levels of discrepancy for the brand were developed for the screen display attribute, based upon the results of pretest data. The levels were: 1) no discrepancy (consistent information), 2) moderate discrepancy, and 3) strong discrepancy. Both the moderate and strong discrepancy were in a

positive direction. Pretest data suggested the use of the typical/modal value in the no discrepancy condition, the highest attribute value plus half its range again for the moderately discrepant brand, and twice the highest value for the strongly discrepant brand.

Dependent Variables

Category perception. Three types of measures were used to ascertain initial category structure: brand recall, attribute recall, and attribute level and frequency recall.

In part one, after making a brand choice, subjects were asked to list as many brands as they could from the set they had just examined. The dependent measure was a count of the correct names in each list. The attribute recall measure was developed in the same manner.

From information provided by subjects about the focal attribute values perceived to be typical (i.e., modal), high, or low, measures were constructed to examine the nature of the initial category perception. A range variable was created by subtracting the low value from the high value on each attribute given by each subject. In addition, three measures were created by subtracting the actual, presented value of the modal, high, or low value from the values provided by subjects. Frequency data was also used in this manner to examine recall accuracy on the focal attribute for the modal, high, and low values.

Subtyping and differentiation. Measures to assess subtyping and differentiation behavior were developed with two types of data. One measure reflected subjects' behavior in placing the new brand into a category by itself, a subtyped position, or into a preexisting group, a differentiated position. The second set of measures used subjects' perceptions of the new brand's similarity to the brands presented earlier. Four scales from Sujan and Bettman (1989) were used to assess the extent to which subjects felt the new brand should be subtyped or could be merely differentiated. The four scales each ranged from one to seven, where one indicated agreement and seven indicated disagreement. The scales were:

1. The last brand that you considered is generally like the other brands of laptop computers that you examined.

2. The last brand has characteristics that distinguish it from the other brands of laptop

computers that you examined.

3. The last brand is in a category by itself.

4. Compared with other brands of laptops that you examined, the last brand is a different

type of laptop computer.

Scales 1 and 2 measured differentiating behavior, while scales 3 and 4 measured subtyping

behavior. Thus, subjects who considered the new brand to be in a differentiated position should

agree with 1, but disagree with 2. Subjects who believed that new brand belonged in a subtyped

position should disagree with 1 but agree with 2. Scales 3 and 4 directly assess subtyping.

Subjects who feel the new brand was a subtype should tend to agree with both scales.

Effects of category structure on choice behavior. Category structure effects on choice were

examined with subjects' data about the brand they chose and about the group from which it was

chosen. One measure reflected whether subjects chose the new brand in part three, or whether

they selected one of the sixteen original brands. This measure was a binary dependent measure,

where 1 indicates that a subject chose the new brand, and 0 indicates choice of a brand presented

earlier. The measure was used to assess the influence of subtyping and differentiation behaviors

on consumer choice.

Another measure was developed to examine the size of the group from which the choice was

made, relative to the sizes of the other groups created by a subject. To obtain a measure which

incorporated information about subjects' general tendencies to create multiple brand groups, this

measure was constructed by subtracting the average size of a subject's group from the size of the

group to which the chosen brand belonged.

Effects of a newly introduced brand on category perceptions. Several measures were used to

examine hypotheses about changes to overall category perceptions when a new, discrepant brand

was introduced. Perceptions of variability (submarkets) in the product category were assessed

with a seven point scale which asked subjects how much they agreed or disagreed with the statement, "There are many types of laptop computers." Category perceptions were also analyzed using the measures described earlier to assess initial category structures. To examine updating of category perceptions, differences between the values provided after part one and part three were used to reflect changes in category perceptions.

RESULTS

Manipulation checks

Several preconditions had to be satisfied in order to provide a suitable test of the hypotheses. First, subjects had to be relatively unfamiliar with laptop computers so the formation of initial category perceptions could be examined. Second, the learning goal manipulation had to result in two different types of category perceptions. Third, the discrepancy manipulation had to result in different tendencies to subtype or differentiate a new brand.

On a seven point scale with 1 reflecting no familiarity, the mean for forty-six subjects was 2.73, with a standard deviation of 1.62. It appears that subjects were generally unfamiliar with the category of laptop computers. Thus, formation of initial category perceptions could be observed.

As a manipulation check, analyses of variances were conducted to ascertain the effect of learning goals on the initial category structures. The display screen attribute, described in pixels, is the attribute upon which analyses were conducted. This attribute is analogous to the focal attribute used by Sujan and Bettman (1989).

One-way analyses of variance were done to examine the effect of learning goal on recall for the display screen attribute of modal, high, and low attribute values, and of brands and attributes. It was expected that directed learning subjects would be better able to recall attribute levels and judge their frequency of occurrence than choice subjects. The dependent measure was the difference between the presented value and the stated value. Analysis of the modal value given by subjects for the display screen quality attribute revealed no significant differences as a function of

learning goal. Both groups were quite accurate, with a mean of -2545.6 for directed learning subjects and 1439.8 for choice subjects. These results indicate that both groups of subjects were aware of the typical value. This finding mirrors that noted by Coupey and Nakamoto (1988). Analysis of frequency recall revealed no significant difference. In retrospect, this non-finding is not surprising in view of research in psychology which suggests that people are remarkably well able to automatically discriminate the frequency of appearance of items in a category, and of components of the items (Alba, Chromiak, Hasher, and Attig 1980; Hock, Malcus, and Hasher 1986).

We had also expected that choice subjects would tend to be more accurate than directed learning subjects in recalling the highest attribute level. For the display screen attribute, the effect of learning goal approached significance $F(1, 45) = 3.63$, $p < .06$). As predicted, choice subjects were more accurate at recalling the high value, even though both groups of subjects underestimated the actual value. Choice subjects were too low by an average of 870 pixels, while directed learning subjects erred by an average of 3347.31 pixels.

Recall of the minimum value was also examined. Although the effect of learning goal was not significant, choice goal subjects were less able than directed learning subjects to accurately recall the value. Providing directional support for expectations, choice subjects overestimated the lowest value by an average of 431.85 pixels, while directed learning subjects were only off by an average of 381.96 pixels. In contrast with frequency recall for modal and high values, recall of frequency for the minimum value revealed an effect of goal which approached significance ($F(1, 45) = 2.71$, $p < .10$). Choice subjects tended to underestimate the frequency with which the lowest level occurred, while directed learning subjects overestimated it (means of -1.75 and 1.92 respectively).

An analysis of variance was conducted to ascertain the effect of learning goal on the range perceptions of the focal attribute. Interestingly, although the effect was significant ($F(1, 45) = 3.88$, $p < .05$), the means were the opposite of what was expected. Subjects in the choice condition had ranges that were greater than those of subjects in the directed learning condition

(means were 10,398 and 7971, respectively; the correct range was 11,700). The data were inspected to insure that the larger ranges were not due to underestimation of the minimum value. It appears that choice subjects were sufficiently more accurate in recalling the high value that for this variable, their accuracy compensated for their inability to recall the low value.

Subjects recalled significantly more correct brand names in the directed learning condition than in the choice condition ($F(1, 45) = 10.36$, $p < .002$). The mean number of brands recalled for directed learning was 6.69, compared with 4.35 for choice. The minimum number recalled was 0, and the maximum was 12. Directed learning subjects were also significantly better able to recall attributes than choice subjects $F(1, 45) = 5.05$, $p < .03$). The means were 3.88 and 3.60 respectively. The minimum was 2, and the maximum was 4. These results indicate that directed learning subjects have more accurate and complete knowledge of product category information than choice subjects.

In summary, the data indicate that subjects do form different types of category perceptions, and that these perceptions are formed, at least in part, as a function of the learning goal. Directed learning subjects tended to recall more brands and attributes correctly than choice subjects. In addition, their perceptions of attribute values tended to be more accurate than choice subjects for lower values, while choice subjects tended to focus more on higher values. Thus, it appears that choice subjects retained primarily information about the preferred brand and possible substitutes, but did not retain criterial information (e.g., attribute knowledge) used to make the choice. These findings were interpreted as evidence that different category perceptions were formed as a function of different learning goals.

A second set of analyses was conducted as a manipulation check to evaluate the effect of discrepancy on category organization (to replicate Sujan and Bettman (1989)). Subjects' subtyping and differentiating behaviors were examined by looking at subjects' tendencies to put the new brand into a separate group (i.e., subtyping) or into a preexisting group (i.e., differentiation). A effect of discrepancy that approached significance was observed ($X^2_{(2, 45)} = 4.56$, $p < .10$). Subjects for whom the new brand was consistent with the old brands always put

the new brand into an old group. In contrast, subjects presented with a moderately discrepant brand put it into an old group 69% of the time. Subjects with a strongly discrepant brand only put it in an old group 27% of the time. Thus it appears that the findings of Sujan and Bettman are generally replicated using this experiment format; increased discrepancy results in increased subtyping.

Additional analyses were completed to ascertain the effectiveness of the discrepancy manipulation. These analyses were conducted with the four scales used by Sujan and Bettman (1989). Recall that to support the expectation of differentiation due to discrepancy, subjects who saw a moderately discrepant brand must have agreed with both scales 1 and 2, while subjects who saw a strongly discrepant brand must have disagreed with scale 1, but agreed with 2. Subjects who received a consistent brand served as a control group. Therefore, their responses were expected to follow the same pattern, but to be more extreme, as those who saw a moderately discrepant brand. The results for discrepancy were as predicted. For scale 1, the effect of discrepancy was significant F(2, 45) = 17.48, p < .0001). For scale 2, the effect was also significant (F(2, 45) = 8.67, p <.0007). The responses for scales 3 and 4 also exhibited a significant effect of discrepancy (Scale 3: F(2, 45) = 19.28, p <.0001); Scale 4: F(2, 45) = 11.50, P <.0001). As predicted, subjects who saw a consistent or a moderately discrepant brand did not subtype, while subjects who saw a strongly discrepant brand did subtype. These means are shown in Table 1. It was concluded that the discrepancy manipulation was successful.

Table 1 about here.

Hypotheses Tests

The effect of learning goal on new brand positioning was examined to assess the first hypothesis, that consumers with an initial perceptual structure would be more likely to subtype a new, discrepant brand, than consumers with an initial preference structure. Although there was no significant effect of learning goal on subjects' tendencies to subtype or differentiate, the results

indicate, as predicted, that directed learning subjects tended to be more discriminative. The directed learning subjects placed the new brand into a preexisting group only 58% of the time, compared with 75% for choice subjects.

Scale responses were also used to test H1. The effects of goal on positioning behavior were not significant for either scale 1 or 2, but the means form a pattern which suggests that choice subjects tend to differentiate, while directed learning subjects may be more likely to subtype, perhaps because their broader category knowledge enables them to discriminate among brands more finely. The effect of learning goal on the responses to scales 3 and 4 was somewhat harder to interpret. Although neither scale exhibited a significant effect of goal, choice subjects tended to indicate that they would not subtype the new brand (i.e., their responses were higher than 4.0 on the scale). Oddly, however, the same pattern appeared for directed learning subjects. These same subjects had, in scales 1 and 2, appeared to indicate that they would subtype the new brand. We conclude that although directed learning subjects appear to be more discriminative, thus suggesting possible use of a subtyping behavior, they tend to stop short of stating that they would actually place the brand in a category by itself (as scales 3 and 4 were designed to assess).

In sum, there is a significant effect of discrepancy on the way that subjects organize information within a category, and this effect may be moderated by the structure of the category subjects possessed when the new brand was presented. Despite the lack of conclusive support for H1, the data suggest that choice goal subjects appear more likely to differentiate a new brand, while directed learning subjects appear more likely to subtype a new brand.

The next set of analyses were conducted to assess the influence of the new category structure on choice. To test H2, an analysis examined whether there was any effect of subtyping versus differentiation behavior on a subject's tendency to choose the new brand. A categorical data analysis procedure which used loglikelihood analysis was completed. The independent variable was whether a subject had subtyped or not. The dependent measure was a binary measure to indicate whether a subject had chosen the new brand, or one of the first sixteen brands. This analysis gives the percentage of subjects who chose the newly introduced brand,

compared with the percentage of subjects who chose other brands, when the new brand was subtyped and when it was not subtyped. The effect of subtyping on choice was significant $(X^2(1, 45) = 11.66, p < .0006)$. The target brand (i.e., the newly introduced brand) was chosen 94% of the time when it was subtyped, compared with only 47% of the time when it was not subtyped, regardless of the level of discrepancy. This result indicates that category structure does exert a strong influence on choice behavior, thus supporting H3.

Two exploratory analyses were also undertaken to assess the effects of category structures (i.e., subtyped or differentiated) on subjects' choice behaviors. First, we examined summary statistics about subjects' choice behavior in the first choice, prior to the manipulation of discrepancy. The purpose of this analysis was to examine preference for set size in the absence of the discrepancy manipulation. Recall that we predicted that subjects would tend to make choices from smaller groups rather than from larger groups. The analysis was conducted using a dependent measure constructed by subtracting each subject's average group size from the size of the group from which he or she chose. The mean value of the relative group size variable was -.02. This negative value indicates that subjects did tend to make choices from groups that were smaller than the average group size for each subject. Of the forty-six subjects, sixty-five percent chose brands from groups that were smaller than the average size of the groups they created. Of the sixteen subjects who made choices from groups that were larger than the average size of their groups, only five chose brands from groups that were larger than the average group size by one brand.

To further investigate the effects of category structures on choice, we examined the effect of learning goal on the first choice, made in part one of the study, treating the groups for which discrepancy would be manipulated in part two as control groups. Then we compared the results of the first choice to results of the second choice, made by subjects after the new brand (and discrepancy) was introduced. The dependent measure was the relative choice variable used in the preceding analysis. Analyses of variance revealed no significant, systematic pattern of choice and group size for the first choice, as expected. When discrepancy was manipulated prior to the

second choice, however, it exerted a significant effect on the size of the group from which subjects chose (F(2, 45) = 5.46, p <.008). The mean values of the dependent measure for both choices are shown in Table 2. Smaller values reflect smaller choice group sizes.

Table 2 about here.

The final set of analyses examined the influence of brand positioning strategies (i.e., subtyping vs. differentiation) on the original category perceptions. H3 considered the effect of goal and discrepancy on the perception of submarkets within the product category, while H4 proposed the nature of changes (i.e., updating) to the category structure.

H3 predicted an interaction of goal and discrepancy, in which choice goal subjects were expected to tend to perceive fewer submarkets in the product category as discrepancy increased. Directed learning subjects were expected to perceive more more submarkets as discrepancy increased. The dependent measure was the subject's response to a seven point scale in which a value of one indicated higher perceived variability than a value of seven. The interaction effect was significant (F(2, 45) = 3.26, p < .04). Means for choice subjects were: consistent = 1.71, moderate = 2.43, and strong = 2.83, thus indicating decreasing perceptions of variability. For the directed learning subjects, the means were: consistent = 2.88, moderate = 1.78, and strong = 1.89. Thus, H3 was supported.

To examine H4, analyses of category perceptions were completed using subjects' recall data from part three for values of the display screen attribute. The independent variable used in the analyses of variance was whether or not a subject had subtyped the new brand. The dependent variable was the difference between the attribute level recalled prior to the discrepancy manipulation and the attribute level recalled after the discrepancy manipulation. To provide support for H4, the results of these analyses should show that subjects who subtyped the new brand changed their perceptions of the product category to a greater extent than subjects who differentiated the new brand. For the modal value of the focal attribute, there was a significant

effect on recall of the category structure which resulted from subtyping or differentiating the new brand (F(1, 45) = 3.91, p <.05). Subjects with a subtyped brand provided a mean absolute change value of 2721.25 pixels. Subjects who differentiated the new brand had a mean absolute change value of 495.20 pixels. Therefore, subjects who subtyped the new brand altered their perceptions of the modal value to accommodate the discrepancy of the new brand on the display screen attribute more than subjects who differentiated the new brand.

For the high value of the display screen attribute, there was a significant effect of category structure on recall (F(1, 45) = 6.17, p <.01). Subjects who subtyped gave an mean absolute change value of 8970.62 pixels, while subjects who differentiated gave an average absolute change value of 2690.37. As with the modal value, it appears that subjects who subtyped tended to make greater changes to their initial category perceptions than subjects who differentiated. There was no significant difference between subjects who subtyped and subjects who differentiated in how they altered their perceptions of the lowest value of the display screen attribute.

These results strongly demonstrate that one effect of a differentiating strategy is that subjects do not update an initial category structure as they do when a new brand is subtyped.

SUMMARY AND DISCUSSION

The research presented in this paper does replicate the findings of Coupey and Nakamoto (1988), and of Sujan and Bettman (1989). More importantly, this research makes four new contributions. First, we have demonstrated that the goal for which a consumer originally learns product information has an effect on the structure of the product category, and on the subject's future tendency to subtype or differentiate a new brand. Second, we have shown that consumers tend to make brand choices from smaller brand sets than from larger brand sets, and that brands are more likely to be chosen if they are subtyped, rather than differentiated, regardless of the degree to which the new brand differs from brands in the existing category. Although this may seem intuitively obvious, it had not been tested within a theoretical framework capable of

explaining why such choice situations are preferred. Third, we have shown that category perceptions are influenced by the interaction of the learning goal and the characteristics of the new brand. Sujan and Bettman (1989) found no effect of discrepancy on perceived submarkets. We show that perceptions of submarkets are significantly affected when initial category perceptions are considered as well as the influence of brand discrepancy. Four, we provide insights into the manner in which consumers update product categories as a function of positioning strategies for new brands.

While the research described in this paper is focused on the contents and organization of consumers' category structures, it does not address the processing strategies consumers may use to create the categories. It is interesting to note, however, that many of the findings we present can also be explained with recourse to what is known about the processes by which consumers may compare and evaluate items to determine category membership. For example, an exemplar-based process in which the new brand would be categorized by comparing it with specific members of the target category has been described (Smith and Medin 1981). This process may reflect the comparison process of directed learning subjects who have learned and retained information about attributes and their values in the category. In contrast, choice subjects' behavior appears more reflective of a prototype-based view of new brand categorization, in which the new brand is compared with a composite brand constructed as a set of attributes commonly associated with the category and abstracted into the 'prototype' (Rosch and Mervis 1975). This prototype-based processing would account for our finding that choice goal subjects tended to recall less attribute-specific information, such as attribute names and values.

In terms of limitations, we note that the experimental setting may not have resulted in realistic learning behaviors. Students used to taking studies may have anticipated that they would be asked to make a choice in the directed learning condition, particularly as they were told they would be tested. In support of the manipulation used, however, we note the strong differences in recall as a function of learning goal. These differences suggest that even though subjects may have attempted to second-guess the purpose of the study, their processing behaviors that

influenced encoding and recall of category information were not changed. As a result, the manipulation may be considered a qualified success.

In brief, the effects of learning goal on category perceptions may be conservative. It is possible that if time had elapsed between making a choice and being asked to dredge up attribute value information (as in making a second choice in a real purchase decision), choice goal subjects would have been substantially less accurate in recalling values that initially received little processing than the same values when processed by directed learning goal subjects.

Implications

Marketers who wish to use knowledge of consumers' categorization processes to position their brands should consider not only characteristics of the brand to be presented, but also the characteristics of consumers' initial product categories. In other words, it is important to take into account what consumers already know at the time a new brand is introduced.

In addition, the finding that brands from smaller sets tend to be chosen most often suggests that marketers should adopt positioning strategies that will get consumers to subtype their brands. Failing that, marketers should attempt to increase consumers' perceptions of submarkets in the product class. We demonstrated that consumers' initial category structures may affect future perceptions of distinct submarkets. This finding suggests that marketers who target consumers who have made previous choices in the product category may need to emphasize discrepant, desirable features of the new brand more strongly for these consumers than for consumers who have gained broader knowledge about the product category for purposes other than merely for choice.

The effects of subtyping versus differentiation should also be considered in terms of how they affect changes to consumers' perceptions of the product category. The finding that consumers who subtype tend to make greater adjustments to the initial category than subjects who differentiate suggests that a marketer who manages to secure a desirable subtyped position may be

able to maintain a positive place in the consumer's category because the overall category has been updated in terms of attribute values to be used as criteria for other new brands.

Future Research

One avenue for further research is the relationship between category structure and expertise in a product category. This research reported here indicates that consumers with perceptual structures tend to have more complete and accurate knowledge of the product category than consumers with preference structures. Of interest is how these differences translate into performance; that is, do consumers with perceptual structures tend to make better quality choices than consumers with preference structures? If so, are the differences more or less pronounced as time between category formation and choice elapses? Also, do consumers update categories so that a preference structure can become a perceptual structure, if a broader, more detailed base of knowledge is needed?

A second avenue for research, though related to the first, is the examination of how the differing category structures, formed as a result of learning goal and discrepancy, may affect consumers' subsequent processing of information about newly introduced brands to the product category. For example, the recall data indicate that subjects who learned brand information with a choice goal tended to remember fewer details about the characteristics of the product category. Given this finding, it would be interesting and useful to know whether these subjects will rely more heavily on externally presented information or on internally stored, but potentially less complete, information for future brand decisions. Also, will the processing strategy used (e.g., piecemeal versus wholistic (Fiske and Pavelchak 1984; Sujan 1985) or analytic versus nonanalytic (Cohen and Basu 1987)) differ depending upon the structure of the extant category in memory?

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Table 1

SCALE MEANS FOR SUBTYPING AND DIFFERENTIATING BEHAVIORS

DISCREPANCY	CONSISTENT			MODERATE			STRONG	
TASK	CHOICE	LEARNING	TOTAL	CHOICE	LEARNING	TOTAL	CHOICE	LEARNING
SCALE 1	1.71	2.75	2.27	3.57	3.77	3.69	5.33	5.77
"Generally like other brands?"	agree	agree	agree	agree	agree	agree	disagree	disagree
SCALE 2	4.42	4.62	4.53	3.42	2.77	3.06	2.00	1.66
"Distinguishing characteristics?"	disagree	disagree	disagree	agree	agree	agree	agree	agree
SCALE 3	6.85	6.87	6.86	4.42	4.22	4.31	2.83	2.00
"In a category by itself?"	disagree	disagree	disagree	disagree	disagree	disagree	agree	agree
SCALE 4	5.57	6.25	5.91	4.28	4.66	4.48	2.83	2.77
"Different type of laptop?"	disagree	disagree	disagree	disagree	disagree	disagree	agree	agree

Table 2

MEAN VALUES OF GROUP SIZE FOR CHOSEN BRAND VARIABLE

FIRST CHOICE		SECOND CHOICE	
Consistent	-0.13	Consistent	.33
Moderate	-0.01	Moderate	.29
Strong	0.08	Strong	-1.85

Figure 1

TWO TYPES OF CATEGORY STRUCTURES

COMMON TAXONOMIC CATEGORY
"Food to eat."

Typicality

Number of Calories
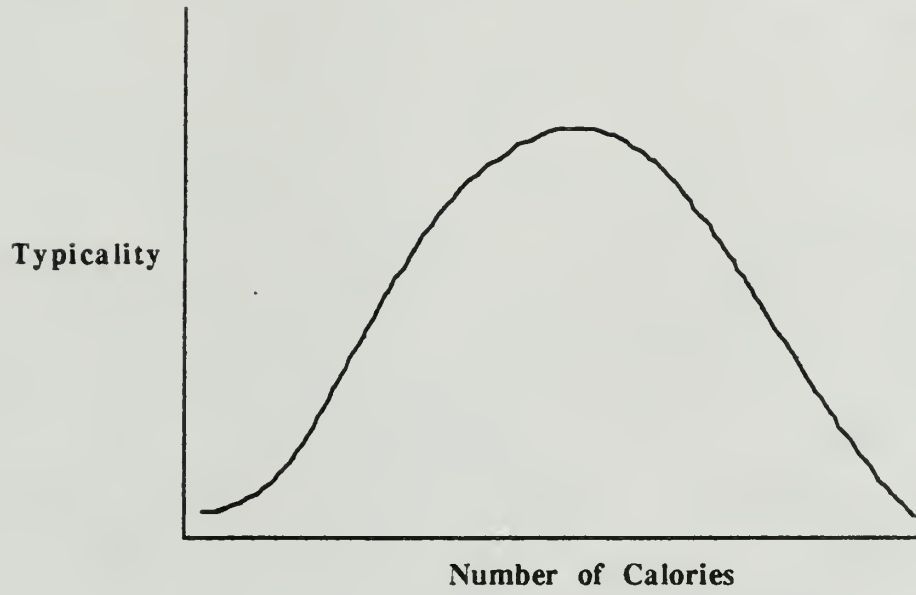
GOAL-DERIVED CATEGORY
"Best food to eat on a diet."

Typicality

Number of Calories

Figure 2