

Switching Behavior in Automobile Markets: A Consideration-Sets Model

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Consideration-set formation and the direct and indirect consequences of consideration-set size on switching behavior in automobile markets provide the focus for this model development and testing effort. Empirical support is provided for a model revealing that consideration sets, formed as a consequence of prior experience, product knowledge, and satisfaction, play a substantial role in a consumer's decision to switch or repurchase the same brand acquired on the previous purchase occasion. Consideration sets are shown to affect the switching decision both directly and indirectly (by motivating retailer search activities).

Some car buyers switch from one brand to another at trade-in time, whereas others display consistency of choice from purchase to purchase. On that decision—whether to remain loyal to the previously purchased make or switch brands—hangs the fortune of automobile manufacturers. But the observed decision has its genesis much earlier in a process that includes the buyer's prior experience, product knowledge, satisfaction, media search, consideration-set formation, and retailer search. This article postulates and empirically tests causal linkages between these constructs.

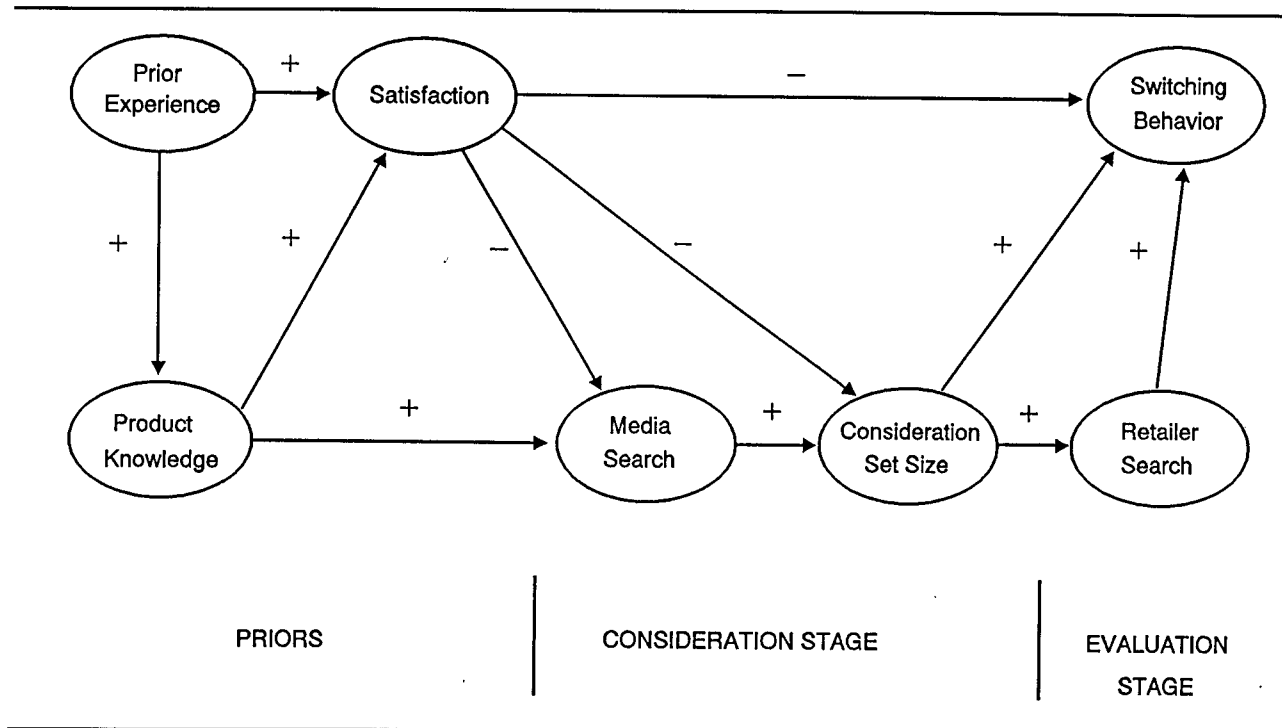
Particular emphasis is placed on consideration-set formation. This is a factor of primary importance in the investigation of brand switching, because a decision to switch is not likely without first considering the availability and attractiveness of one or more alternatives. Moreover, because automobile purchases, relative to many other goods and services, are characterized by high decision complexity, consideration-set formation may be expected to constitute a distinct stage of the decision process (Kardes et al. 1993).

We first develop the theoretical model and hypotheses that address the relationships among the variables identified above. The sample and measures are then described, followed by the reporting of model/hypothesis testing and results. Next, the study's conceptual and strategic contributions are highlighted. Finally, limitations are identified and future research directions are proposed.

MODEL DEVELOPMENT AND HYPOTHESES

The consideration set of brand-choice alternatives is the subset of all possible brands that the consumer seriously evaluates when making a purchase decision, including familiar brands in the evoked set and previously unknown brands found accidentally or through intentional search (Peter and Olson 1990). The idea that humans, often unable or unwilling to evaluate every possible alternative, consider only a limited subset finds support in other areas of inquiry. Simon (1979) deals with the limited processing capabilities of humans and the need to reduce the search

FIGURE 1
PROPOSED CONSIDERATION-SET MODEL



among all available alternatives to produce a satisfying solution. Constraining active consideration to a subset of brands expected to meet some minimum standard of acceptability would seem, therefore, to offer an advantage with respect to information-processing efficiency. Prior research has shown that alternatives in the consideration set become the focus of active, involved processing (Nedungadi 1990; Shocker et al. 1991). Shocker et al. (1991) offer a comprehensive review of the literature dealing with consideration sets.

Conceptual Model

Efforts to model complex choices have treated consideration-set formation as the first of two stages of the choice process. In the first phase, according to Wright and Barbour (1977), the consumer uses a noncompensatory rule to reduce the choice set to a few alternatives, and in the second phase he or she uses a compensatory rule to evaluate the remaining alternatives. Gensch (1987) tested and found support for such a two-stage model in an industrial setting. Nedungadi (1990) also uses a two-stage approach to model the choice process. In the first stage, the brand is brought into the consideration set; in the second, evaluation takes place based on the utility provided by each brand. Although Gensch and Nedungadi use different product categories, methodologies, and data, they both conclude that the factors affecting consideration are not necessarily the same as those affecting choice.

The proposed model, depicted in Figure 1, is similar to Nedungadi's (1990) in that it contains a consideration

stage and an evaluation stage. The consideration stage is when the consideration set is formed under the influence of various factors. The consumer enters the evaluation stage with a certain number of brands he or she is serious about and evaluates them on the basis of their attributes. This stage ends with the purchase decision.

There are some differences, however, between our model and Nedungadi's. Choice of restaurants (the focus of Nedungadi's research) is often followed immediately by a visit to the selected restaurant. In the case of an automobile, the process is more deliberative (although prior research has demonstrated a limited propensity for information search among some consumers, even for automobiles; see Furse, Punj, and Stewart [1984]). First, the time lag between first thought of buying and the purchase is often longer than that associated with many other products or services. Therefore, even if a brand is not accessed when one first thinks of making a purchase, there is sufficient time and opportunity to access it before the consideration set is finalized. (More time affords a greater opportunity for exposure to ads and other retrieval cues.) Second, access to any automobile magazine would immediately make the consumer aware of a large number of available brands. Thus brand accessibility in memory, though potentially useful in making a consideration set manageable in the presence of a very large universal set, is not as critical in automobile-purchase decisions as it is in the market domain addressed by Nedungadi. In the purchase of an automobile, there is also great potential for the various components of perceived risk to be present: performance, financial, physical, social, psychological,

and time (Jacoby and Kaplan 1972). The higher the overall level of risk, and the larger the number of types of risk involved, the less likely the consumer is to take a chance with a brand that is not completely acceptable. For example, a poorly performing new car is a greater cause for concern than a poor laundry detergent. Thus acceptability may be a more critical factor in automobile-purchase decisions.

Antecedent Variables

The choice of antecedent variables in the proposed model was guided by the work of Peter and Olson (1990), Srinivasan and Ratchford (1991), and Nedungadi and Kanetkar (1992). Peter and Olson (1990) view consideration sets as being composed of (1) a set of familiar brands evoked from memory, (2) brands found through intentional search, and (3) brands found accidentally. Product experience and knowledge, modeled by Srinivasan and Ratchford (1991) as consideration-set antecedents, seemingly provide the basis for an evoked set of familiar brands. Nedungadi and Kanetkar (1992) argue that consideration is influenced by brand acceptability (the buyer's attitude toward the brand) and accessibility (whether the brand is brought to mind on the choice occasion). Perhaps the primary determinant of acceptability in the context of a brand-switching decision is satisfaction with the previous purchase. Hence prior experience, product knowledge, and satisfaction are modeled as *priors*. These, along with media search (also consistent with Peter and Olson [1990]), are expected to influence consideration-set formation.

In a review of the information-search material, Beatty and Smith (1987) identify four major dimensions of search (basically, types of information sources): media, retailer, interpersonal, and neutral. Fast, Vosburgh, and Frisbee (1989) use a similar division of sources. In this article, neutral sources are combined with media sources; interpersonal sources are not included. Because neutral sources refer to reading about car ratings in magazines, they can be considered to be part of the media sources. Interpersonal sources doubtless play a role in automobile purchases. However, the pervasiveness of such influences renders it difficult to predict where in the choice process it is most appropriately modeled. For example, a consumer may consult with friends and relatives when he or she first thinks of buying a car and may also use a "purchase pal" for the final purchase. Therefore, information search from interpersonal sources is omitted from the proposed model. Two types of information sources are included here: media and retailer.

Researchers have sometimes used prior experience as a surrogate for objective product knowledge (e.g., Punj and Staelin 1983). This research, however, concerns itself with consumers' subjective perceptions of their knowledge level (Brucks 1985), which cannot be assumed to be perfectly correlated with prior experience. Therefore, we model the two constructs as separate but related, with increasing experience expected to lead to increased product knowledge:

H1: Prior experience will positively affect product knowledge.

Experience-based product-class knowledge is expected to affect satisfaction positively because a knowledgeable consumer would have more realistic expectations about the product. Alternatively, a negative relationship could exist between the two constructs based on experts' ability to detect inferior performance (Sujan 1985, Fiske and Pavelchak 1986). Richins and Bloch (1991) found, in a longitudinal study, that satisfaction ratings decrease more for consumers who are high in involvement. They theorize that this is because such consumers are more knowledgeable and hence are better able to identify problems. However, they found that the same subjects' satisfaction level remained higher than that of less knowledgeable consumers. Apparently, the same knowledge that enabled an expert to recognize weak performance also enabled him or her to select a product unlikely to have such problems. Based on these results, the model predicts that the expectations-based positive relationship between knowledge and satisfaction will dominate, leading to higher satisfaction levels for more knowledgeable as opposed to less knowledgeable consumers. Because Richins and Bloch's (1991) study ended with data collected two months after purchase, the present investigation (which takes observations at the time of subsequent purchase) provides an appropriate test of the temporal stability of their results. (It is assumed that there has not been a substantive change in the consumer's knowledge since the previous purchase occasion, because both satisfaction and knowledge measures are taken at the same point in time.)

H2: Product knowledge will positively affect satisfaction.

Prior experience is expected to have a direct effect on satisfaction in addition to the mediated effect captured by H1 and H2. An experience-satisfaction relationship has been established by prior research (LaTour and Peat 1979). An owner's experience with automobiles, even if spread out over multiple cars and decades, may not result in a perception of a high level of knowledge. At the same time, it may be more than adequate to allow the owner to recognize what he or she "likes" in a car, and therefore to experience greater satisfaction (unrelated to self-rated product knowledge) than a less experienced car buyer:

H3: Prior experience will positively affect satisfaction.

The effect of product knowledge on media search is expected to be positive for two reasons. First, acquisition of knowledge beyond the basic functional literacy needed for the successful use of a product is commonly a consequence of interest or involvement in the product. As involvement increases, search is known to rise (Beatty and Smith 1987). Second, more product-relevant knowledge implies a well-developed and potentially readily accessible memory structure, leaving the consumer confident in

his or her ability to interpret, evaluate, and use information gleaned through media search (Johnson and Russo 1984). A countervailing influence of product knowledge is also possible; that is, knowledgeable consumers, confident in the adequacy of the information they can retrieve from internal memory stores, may lack motivation to engage in an external search. Which of these influences will be strongest is an empirical question, but the following hypothesis anticipates that the net effect of product knowledge on media search will be positive:

H4: Product knowledge will positively affect the extent of media search.

If the consumer is satisfied with the current car, media search may be reduced because of the consumer's likely intention to buy the same brand. This in turn reduces the accessibility of other brands and leads to a smaller size for the consideration set. Alternatively, lower levels of satisfaction would increase the perceived need to access additional information in order to arrive at a more satisfactory choice. For example, dissatisfaction may lead to a reexamination or rejection of noncompensatory decision rules (e.g., "only domestic cars"), thereby leading to increased media search. This expectation is reflected in the following hypothesis:

H5: Satisfaction will negatively affect the extent of media search.

Consideration Stage

The causal sequence of information search and consideration-set formation is not clearly and unambiguously established in extant literature. Punj and Staelin (1983) modeled the consideration set as an exogenous variable that precedes information search. Srinivasan and Ratchford (1991) modeled consideration-set size as an endogenous variable with positive experience and product knowledge as antecedents, but retained Punj and Staelin's assumption that consideration-set formation precedes search. However, Srinivasan and Ratchford (1991) added a qualifier that situations could exist in which information search precedes the formation of the consideration set. This qualifier is a focus of the present research. Here the consideration set is used as an endogenous variable and is modeled so that search, viewed in terms of media and retail sources, can precede and succeed the formation of the consideration set.

In the consideration stage, the two factors affecting the size of the consideration set are accessibility of the brands from memory and the acceptability of the brands. According to Kardes et al. (1993), retrieval (which is contingent on accessibility) necessarily precedes a brand's inclusion in the consideration set. Such retrieval, they note, should be affected by "any variable that influences the encoding of brand-related information into memory" (p. 64). Likewise, Nedungadi (1990) has shown, as has the early work of Tulving and Pearlstone (1966), that accessibility is

affected by the availability of retrieval cues in the external environment. In the case of a consumer searching for a car, the retrieval cues would be the information he or she obtains from reading articles in magazines, attending to advertisements, and so on. These media sources would affect consideration-set size by making brands already stored in memory accessible and by making the consumer aware of brands not previously stored, at least some of which would likely be sufficiently attractive to be added to the consideration set. This, then, leads to an expectation of a direct positive relationship between media sources and consideration-set size:

H6: Extent of media search will positively affect the size of the consideration set.

The second factor influencing the consideration set is satisfaction with the previous purchase. In an extreme situation, a highly satisfied consumer may perceive his or her present brand as dominating all others by virtue of its proximity to his or her ideal point. In this case, the consideration set is constrained to a single alternative, with no acceptable substitutes. As satisfaction decreases, the consumer becomes more likely to consider other brands. Thus the model predicts an inverse relationship between satisfaction with the previously owned brand and the size of the consideration set:

H7: Satisfaction will negatively affect the size of the consideration set.

Evaluation Stage

In the evaluation stage of the proposed model, the first construct is labeled *retailer search*. Once the consumer has formed a consideration set, he or she will start visiting dealers and obtaining information (talking to salespeople, test driving cars, etc.). It is assumed that at this stage the typical consumer has identified alternatives he or she wishes to consider and has ceased consulting media sources to find out if other models are available. Thus a consumer who is actively considering a larger number of alternatives is expected to visit a larger number of dealers in order to undertake the comparative evaluation needed to make an informed choice. (The inclusion of this effect in the model is essential to the demonstration of search processes affected by, as well as those that affect, consideration sets.) This leads to the following hypothesis:

H8: The size of the consideration set will positively affect the extent of retailer search.

The final step in this process is the purchase choice, which in this instance is modeled as the decision to repurchase the same make (manufacturer) as on the prior purchase occasion or to switch to a different alternative (switching behavior). The consumer is more likely to exhibit switching behavior at higher levels of retailer search. The comparison process implicit in visits to multi-

525 buyers had repurchased the same make whereas 876 had switched to another. The average time interval between purchase and participation in the study was four and a half months. Srinivasan and Ratchford (1991) reported evidence that respondent forgetting was not a significant problem in this data set.

A list of measures used is provided in Table 1. Reliabilities of multiple-item scales, which were calculated using equation 10 of Fornell and Larcker (1981), are shown in Table 2. Equation 11 of Fornell and Larcker (1981) established that corresponding average-variance-extracted values were well above 0.50, indicating that variance captured by the constructs was larger than error variance.

The search measures were obtained partly by assessing the time spent (in hours and minutes) on each of the following activities:

1. reading books/magazine articles;
2. reading advertisements/listening to advertising on television/radio;
3. reading about car ratings in magazines;
4. reading automobile manufacturer brochures/pamphlets;
5. driving to and from dealerships;
6. looking around showrooms;
7. talking to sales people; and
8. test driving cars.

A factor analysis (varimax rotation) of these activities produced two factors: media search (activities 1 to 4) and retailer search (activities 5 to 8). Factor scores were used as indicators of the relevant constructs in the analysis, along with items measuring the extent to which the respondent "referred to newspapers/magazines/brochures a lot before I bought my new car" (media search) and the number of cars test driven and dealers visited (retailer search).

ANALYSIS AND RESULTS

The analysis was conducted by applying LISREL VII (Jöreskog and Sörbom 1989) to the polychoric correlation matrix of the measured variables. The dichotomous nature of the switching measure necessitated the use of polychoric correlations (Jöreskog and Sörbom 1990.) Pairwise deletion was used to account for missing values, leaving an effective sample size of 1,241.

Analysis of the measurement model (see Table 1 for a complete listing of indicators and standardized path parameters) indicates that each of the latent constructs is adequately captured by its indicators. All measurement paths are significant ($t > 2$). The chi-square measure of fit for the model was 311.95 ($df = 57, p = .000$). The proposed model need not be rejected based on this result alone, because the chi-square statistic tends to increase with sample size (Jöreskog and Sörbom 1989). The goodness-of-fit index was 0.964 and the adjusted goodness of fit was 0.943. The root mean square residual was 0.046. These

TABLE 2
Estimated Structural Relationships
between Constructs

Reliability	Structural Relationship	Standardized Parameter Estimate	t value
n.a. ^a	Prior experience →		
	Product knowledge (H1)	.123	3.717*
	Satisfaction (H3)	.134	4.019*
.926	Product knowledge →		
	Satisfaction (H2)	.081	2.389*
	Media search (H4)	.381	7.001*
.925	Satisfaction →		
	Media search (H5)	-.158	-3.854*
	Consideration-set size (H7)	-.101	-3.185*
	Switching behavior (H11)	-.304	-8.701*
.860	Media search → Consideration-set size (H6)	.427	9.083*
n.a.	Consideration-set size →		
	Retailer search (H8)	.771	13.666*
	Switching behavior (H10)	.238	4.252*
.928	Retailer search → Switching behavior (H9)	.114	1.919
Squared Multiple Correlations			
Satisfaction	.027	Retailer search	.594
Media search	.158	Switching behavior	.234
Consideration-set size	.203		

a. n.a. = not applicable; * $p < .05$.

results indicate a good fit for the model. Comparing the fit of the proposed model with alternative models characterized by fewer or more constraints, as recommended by Anderson and Gerbing (1988), also provides evidence of acceptable fit. The difference in chi-square values between the proposed model and a more constrained alternative (satisfaction → switching path fixed at zero) is significant ($\chi^2_p - \chi^2_a [df = 1] = 100.05, p < .001$). This suggests that the proposed model explains the relationships between the variables significantly better than the more constrained model. Freeing a conceptually plausible path (prior experience → consideration-set size), on the other hand, results in an insignificant difference in fit ($\chi^2_p - \chi^2_a [df = 1] = .01, p > .10$), indicating that the additional path provides no significant increase in explanatory power. From these results it appears that the model and data set provide a reasonable basis for the testing of the hypotheses.

The results of the hypothesis tests are shown in Table 2, with the variance explained for each endogenous construct shown at the bottom of the table. Prior experience exerted a significant positive effect on product knowledge, as predicted by H1. Prior knowledge is significantly positively associated with satisfaction (H2), suggesting that a stronger knowledge base induces more realistic expectations, with expectancy confirmation and satisfaction the likely result. The path linking prior experience to satisfaction is significant and positive, in keeping with the expectation (H3) that increasing experience in the purchase of

new automobiles enhances a buyer's ability to make a satisfying choice. Estimates associated with H2 and H3, though statistically significant, are not high in magnitude, suggesting weak evidence in favor of those hypotheses. As product knowledge increases, so does media search, as evidenced by the significant positive relationship between knowledge and media sources, in support of H4. Some prior research has found an inverted-U relationship between product knowledge and search (e.g., Brucks 1985) which, if present, would go undetected in LISREL analysis. To check for this, the sample was divided into low-, medium-, and high-knowledge groups and media-search means were calculated for each (3.56, 4.11, and 4.45, respectively—a linear trend). Thus an inverted-U relationship did not emerge in this instance. The significant negative relationship between satisfaction and media search is in agreement with H5, which argued that less satisfied consumers are likely to engage in more extensive media search than will their more satisfied counterparts.

As predicted by H6, the media sources construct is significantly positively related to consideration-set size, suggesting that media search induces consumers to consider an increased number of alternatives. Satisfaction is shown to exert a significant negative influence on consideration-set size, consistent with H7; that is, the higher the satisfaction with the most recent car purchase, the smaller the number of alternatives considered.

The final hypotheses dealt with effects arising in the model's evaluation stage. As predicted by H8, consideration-set size was significantly positively related to retailer search; the consideration of a larger number of alternatives led consumers to devote more time to showroom visits, test drives, and related retailer-search activities. The observed influence of retailer search on switching behavior, though in the direction predicted by H9 (positive), was only marginally significant ($t = 1.92, p < .10$). The inference that increased retailer search leads to an increased possibility of switching must therefore be treated with caution. Consistent with H10, elevation of consideration-set size is shown to significantly increase switching behavior, independently of the mediating role of retailer search. Finally, satisfaction exerted the predicted significant direct negative effect on switching behavior (H11); that is, more satisfied buyers are more likely than less satisfied consumers to purchase the same make as on the prior purchase occasion, even after extracting satisfaction's effect on consideration-set size. Satisfaction is shown to exert the strongest impact on switching behavior.

DISCUSSION

The results highlight the roles of information sources and satisfaction in consideration-set processes. Prior research has modeled consideration sets as antecedents of search (e.g., Punj and Staelin 1983). There has been acknowledgment (Srinivasan and Ratchford 1991) that in some cases consumers could bring additional brands into their consideration sets as a result of the search process, but there seems to have been no prior effort in the literature

to explicitly model the process. This research undertook the task of ascribing the direction of causality between the two constructs.

Many brands are eliminated due to information obtained from media sources, which leads to a set of brands that the consumer seriously considers buying. But before the purchase is made, the consumer has to choose from among the brands in the consideration set. This process is facilitated by visiting various dealerships, test driving cars, and shopping for prices (retailer search). Based on retailer sources, the consideration set itself, and satisfaction with the prior purchase, a final decision is made to repurchase the brand acquired previously or to switch. Empirical analysis provides validation for such a process in terms of the relationship between media sources, consideration-set size, retailer sources, and satisfaction.

Satisfaction is an important construct linking the use of the product with choice. It directly reduces the size of the consideration set; it also has an indirect effect on consideration-set size (by reducing the search of media sources and thereby the accessibility of other brands) and a direct effect on switching behavior beyond that mediated by the consideration set. The impact of satisfaction is therefore felt in both the consideration stage and the evaluation stage.

The results also show an effect of media search on the size of the consideration set. In certain other product or service categories (e.g., choice of a restaurant), brands have been shown to enter the consideration set by way of prior experience (Wilde 1981) and consideration sets are often formed without recourse to media search. This relationship highlights the fact that consideration-set formation is more deliberative in the case of automobile purchases, and involves media search.

The impact of perceived product knowledge on media search suggests that more knowledgeable consumers undertake higher levels of media search because of their capacity to learn and integrate new information more easily. (At extreme levels of knowledge, perhaps not observable in the present study, media search may decline in a manner consistent with the inverted-U formation observed by Johnson and Russo [1984]. Alternatively, perhaps the time between automobile purchases is sufficiently long that buyers feel a need for updated information in spite of prior experience.) Less knowledgeable consumers may search less, or may rely more on friends/relatives. The positive effect of product knowledge on satisfaction implies that this effect, observed by Richins and Bloch (1991) two months after purchase, extends through the full period of product ownership to the subsequent purchase occasion. It is also consistent with their theory that knowledgeable consumers' superior ability to select a product that performs well offsets any negative effects because of consumers' greater ability to detect postpurchase performance problems (Richins and Bloch 1991).

As expected, prior experience has a positive effect on satisfaction. This validates LaTour and Peat's (1979) theory that consumers with more experience have expectations that have adapted over time to the performance of subsequent purchases. Therefore, there is a smaller dis-

crepancy between expectations and performance and less likelihood of dissatisfaction.

Strategically, the role of satisfaction in reducing the likelihood of brand switching speaks to the value of post-sale, satisfaction-bolstering activities (outstanding service, regular communication reinforcing perceptions of product strengths, additional "perks," etc.). If the objective is to induce switching, that task too should begin early in the buyer's decision process, before consideration sets are well formed. A media strategy aimed at satisfied owners of competing brands would need to be pervasive, attention grabbing, and effortlessly processed because it could not rely on its audience to seek out and intentionally process its claims. A strategy targeted at dissatisfied owners of competing products, however, has a good chance of stimulating purposeful search by reinforcing that dissatisfaction. Salespersons should be trained to anticipate the constitution of their prospects' consideration sets and to emphasize their products' advantages over competitors.

LIMITATIONS AND FUTURE RESEARCH

The decision to switch/rebuy is not necessarily a yes/no decision for all consumers when they first start thinking about buying a new car. Very dissatisfied and very satisfied consumers are more likely to make that decision at the beginning of the process, but other consumers could make the decision anywhere between first thinking about buying a new car and the actual purchase. The point at which the decision is made is likely to influence subsequent activities. The assumed causal direction between consideration-set size and retailer search constitutes another limitation. In some instances consumers may visit dealers simply to find out what is available in order to form a consideration set. Because of the use of retrospective verbal reports collected at one point in time, these possibilities cannot be tested in this study. As noted earlier, the failure to incorporate interpersonal information sources precludes the comprehensive modeling of search activities. Additionally, whereas most of the hypotheses obtained support by way of statistically significant parameters, in some instances those parameters account for a small proportion of variance in the relevant constructs, which potentially reflects a missing-variables bias. For example, the relationship between knowledge and satisfaction may be moderated by a budget constraint; that is, to be more satisfied, a buyer must be able to afford the car he or she knows to be superior. Finally, the use of LISREL does not allow the detection of complex nonlinear relationships.

Future research efforts are needed to provide longitudinal evidence of the existence and direction of the causal relationships observed in this study, to more comprehensively and objectively capture the role and types of information search, to investigate possible nonlinearity in the modeled relationships, and to extend the observed effects to other product categories. It is possible that variability would exist between product categories with respect to the types of search that precede and follow consideration-set

formation. In product categories in which multiple brands are on display at a single retail outlet, retailer search may precede consideration-set formation. Experimental research could add to knowledge in this area by facilitating more precise observation of the mechanisms by which the observed antecedents of consideration sets (satisfaction and media sources) lead to their formation. A broader approach to the measurement of consideration sets is needed, with attention to such features as preference dispersion, change from previous purchase, and variability.

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