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The A²SC² Model: The Influence of Attitudes and Attitude Strength on Consideration and Choice

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This research investigates the influence of attitudes and attitude strength on consideration and choice. Three experiments provide support for the Attitude and Attitude Strength, Consideration and Choice (A²SC²) Model, which hypothesizes that (a) attitude strength moderates the influence of attitudes on consideration, such that attitudes guide consideration more for strongly held attitudes than for weakly held attitudes and (b) consideration of a brand mediates the influence of attitudes and attitude strength on choice.

How individuals choose is of interest to a wide variety of researchers. In particular, attitudes and persuasion researchers and decision-making researchers have, largely independently of one another, explored the processes by which individuals come to choose one alternative over another. The present research was conducted in order to integrate and synthesize aspects of these two literatures. Specifically, we review findings from both areas and, based on these findings, advance a model that seeks to better articulate the processes by which (1) attitudes influence brand consideration and (2) attitudes and attitude strength influence choice. We conduct three experiments in order to test the hypotheses that describe this model.

OVERVIEW

Decision Making: The Role of Consideration

The notion that for a product to be chosen for purchase it must first be considered has emerged as a fundamental

principle of research associated with decision-making processes (Alba, Hutchinson, and Lynch 1991; Hauser and Wernerfelt 1990; Kardes 1994; Roberts and Lattin 1991; Shocker et al. 1991). Howard and Sheth (1969) introduced the notion that a subset of alternatives is considered prior to choice. Since then, it has been generally accepted that individuals navigate through a series of sets of alternatives in order to arrive at a choice. The first set of alternatives includes all of the alternatives that could potentially satisfy the choice (i.e., the universal set; clearly, individuals often will not be aware of all of these alternatives). The next set includes all of the alternatives of which the individual is aware (i.e., the awareness set). From this awareness set, an individual is likely to consider only a small number of alternatives. Those alternatives that are considered constitute the consideration set. From this consideration set, a choice is made (see Shocker et al. 1991). The importance of consideration to both theory and practice has grown since its introduction, most notably with Hauser and Wernerfelt (1989) arguing that 70% of the variance accounted for in choice is explained by consideration.

Recently, the concept of consideration sets has received a great deal of attention (for a review, see Roberts and Lattin 1997). Consideration has been found to play a role in many marketing-related phenomena. For example, consideration has been found to underlie the pioneering advantage: pioneering brands are more likely to be considered, as well as chosen, than are follower brands (Kardes et al. 1993). In addition, Nowlis and Simonson (2000) provide evidence

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consistent with the notion that consideration mediates the influence of promotions on brand switching: the efficacy of a price reduction in switching consumers to other price-tier alternatives can be predicted by understanding the composition of the consumers' consideration sets. Other areas in which consideration has been found to be influential include packaged goods (Bronnenberg and Vanhonacker 1996), consumer durables (Hauser, Urban, and Weinberg 1993), industrial products (Heide and Weis 1995), and scanner panel data (Siddarth, Bucklin, and Morrison 1995).

Given the importance of consideration, a natural question arises as to what leads one alternative to be considered and another alternative not to be considered. Both theory and research have suggested that a fundamental antecedent of consideration is attitude toward the alternative. In short, the more liked (Howard and Sheth 1969; Posavac, Sanbonmatsu, and Fazio 1997) or memorable and easily retrieved from memory (Nedungadi 1990), the greater the probability that a brand will be considered prior to purchase.

Attitudes and Behavior: The Role of Attitude Strength

A key construct in the present research is attitude strength. Attitude strength has been defined as "a latent psychological construct that is presumably represented in memory by various attributes of the attitude" (Petty and Krosnick 1995, p. 3). That attitude strength moderates the influence of attitudes on thoughts and behavior has emerged as a fundamental principle of research associated with attitudes and persuasion (Fazio 1995; Petty, Haugtvedt, and Smith 1995; see Petty and Krosnick 1995). Attitudes are generally defined as relatively enduring evaluations of objects (e.g., persons, places, products, issues, ideas; Eagly and Chaiken 1993; Petty and Cacioppo 1981). Attitudes are typically conceptualized and measured as lying along a bipolar continuum ranging from positive/favorable/good to negative/unfavorable/bad. To the extent that an individual evaluates an object positively, that individual is more likely to approach or consume that object. That is, attitudes are presumed to guide behavior (Allport 1935).

The concept of attitude strength holds that attitudes that possess equivalent extremity (as measured by traditional bipolar scales) can differ as to their underlying strength. That is, two individuals may provide similar responses to an attitude question (e.g., both answer +3 on a scale from -4 to +4), and yet the strength associated with their seemingly identical responses can differ, such that one of the individuals possesses a "strong" +3 and the other possesses a "weak" +3. It is important that these differences in attitude strength have been found to moderate the extent to which attitudes influence behavior: although two attitudes may appear to be equally positive or negative as measured by traditional attitude scales, if one of the attitudes is stronger, it is more likely to guide subsequent thoughts (e.g., Houston and Fazio 1989) and behavior (e.g., Fazio, Powell, and Williams 1989) than the weaker attitude (e.g., Petty et al. 1995;

Priester and Fleming 1997). Specifically, strong attitudes have been found to (1) come to mind faster, (2) persist over time, (3) resist counterpersuasive attempts, and (4) guide behavior more than weak attitudes (Fazio 1995; Petty and Cacioppo 1986; Petty et al. 1995).

A strongly held attitude is the result of relatively effortful cognitive elaboration (Anand and Sternthal 1990; Maheswaran and Sternthal 1990; Petty and Cacioppo 1986). Elaboration occurs when individuals possess the motivation and ability to scrutinize information, and it is the process whereby an attitude is formed or changed as the result of the thoughts that an individual has in response to information about an attitude object. When individuals lack the motivation or ability to elaborate, they still are able to form attitudes in response to information. However, under these conditions, attitudes are likely to be the result of relatively nonthoughtful associative and inference processes (e.g., Petty, Cacioppo, and Schumann 1983; Petty and Wegener 1998).

To summarize, we conceive of attitude strength as a unidimensional construct with a specific causal antecedent (elaboration) and meaningful consequences. As such, one can make inferences about attitude strength by obtaining indicators of antecedents of elaboration (such as self-relevance), elaboration (such as thought), properties associated with attitude strength (such as attitude accessibility) and/or consequences resulting from attitude strength (such as feelings of confidence and importance). Given the hypothesized influence of elaboration on attitude strength, it is also possible to create attitudes with different strength as a function of manipulated elaboration. Consequently, our conceptualization suggests that the influence of attitude strength on consideration choice should be detectable by multiple operationalizations of attitude strength. We adopt such an approach herein. Specifically, we operationalize attitude strength by self-report in experiment 1, by both self-report and measures of attitude accessibility in experiment 2, and by manipulation of elaboration in experiment 3. Our conceptualization of attitude strength is presented in figure 1.

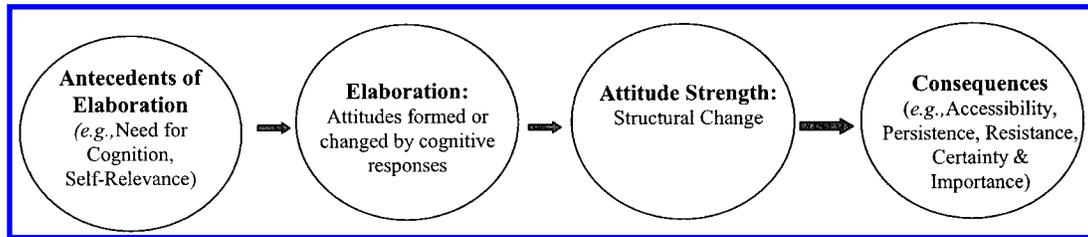
The Moderating Role of Attitude Strength on the Influence of Attitudes on Consideration

As depicted in the top panel of figure 2, the choice literature posits a main effect of attitudes on consideration. By incorporating the findings of attitude strength into the consideration set literature, we predict that attitude strength will moderate the influence of attitudes on consideration. As such, it should be the brands associated with strongly held positive attitudes that are most likely to be considered. Such a finding would provide an advance to the decision-making literature.

Mediational Role of Consideration on the Influence of Attitude Strength Associated with Positive Attitudes on Choice

As depicted in the middle panel of figure 2, the attitudes literature posits that attitude strength moderates the influence

FIGURE 1
CONCEPTUALIZATION OF ATTITUDE STRENGTH



of attitudes on choice. What is known about *how* strongly held attitudes guide behavior? Current and recent research in psychology has focused on finding moderators to the influence of attitudes on behavior. We will propose and find evidence for mediators to the influence of strongly held attitudes on behavior. Such mediation would be of tremendous value in that it could provide insight into the psychological processes that underlie the ability of strongly held attitudes to guide and influence behavior. By incorporating an understanding of consideration with the attitudes literature, we hypothesize that attitudes and attitude strength influence choice, at least in part, by the process of consideration. Thus, we predict that strongly held positive attitudes will be more likely to be considered, and as a result of this consideration, chosen. Such a finding would provide an advance to the attitudes and behavior literature.

Attitude and Attitude Strength, Consideration and Choice (A²SC²) Model

Taken together, our hypotheses suggest that attitude strength will moderate the influence of attitudes on consideration, in addition to choice, such that the influence of attitudes on consideration will be greater for strongly held than for weakly held attitudes. As such, it should be the brands that are strongly liked that are more likely to be considered than either the brands that are weakly liked or the brands that are not liked. If so, an understanding of the joint influences of attitudes and attitude strength is important in understanding the antecedents of consideration. In addition, our hypotheses suggest that attitudes and attitude strength guide choice by the process of consideration. Brands for which individuals possess strongly held positive attitudes are more likely to be considered than brands for which individuals possess weakly held positive, or negative attitudes. And it is consideration that guides whether a brand is chosen. The bottom portion of figure 2 provides a diagram of our model.

Hypotheses

Prior research on attitude strength has found that attitude strength moderates the role of attitudes on choice (e.g., Fazio 1995; Petty et al. 1995). We hypothesize that we will replicate this finding:

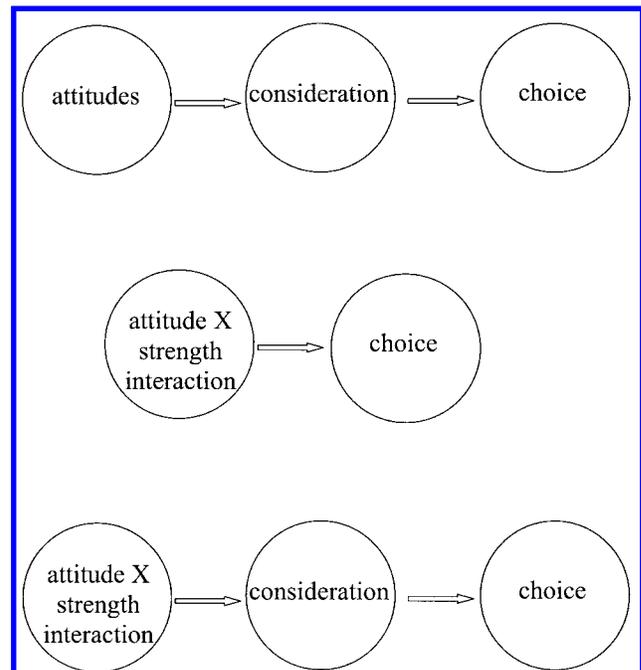
H1: There will emerge an attitude × attitude strength interaction on choice, such that brands associated with strongly held attitudes will demonstrate a greater influence of attitudes on choice than brands associated with weakly held attitudes.

A key determinant of whether an alternative is included in a consideration set is whether the alternative is liked or disliked. We hypothesize that we will replicate this finding:

H2: There will emerge a main effect of attitudes on consideration, such that liked brands are considered more than disliked brands.

Nedungadi's (1990) work suggests that brand alternatives

FIGURE 2
HYPOTHESIZED RELATIONSHIPS



NOTE.—Relationships hypothesized by the consideration set literature (top), the attitude literature (middle), and the A²SC² model (bottom).

that are more accessible (i.e., memorable) are more likely to be considered than those that are less accessible, independent of the participants' attitude toward the brand. Given the relationship between accessibility and attitude strength, we hypothesize that we will find this relationship:

H3: There will emerge a main effect of attitude strength on consideration, such that brands associated with strongly held attitudes are considered more than brands associated with weakly held attitudes.

We explore the hitherto unexamined notion that attitude strength will moderate the influence of attitudes on consideration. We expect that brands associated with strongly held attitudes will demonstrate the influence of attitudes on consideration to a greater extent than those brands associated with weakly held attitudes. Thus, although we predict main effects of attitudes and attitude strength on consideration, we hypothesize that these main effects will be moderated by attitude strength (for attitudes) and attitudes (for attitude strength). Specifically, we hypothesize that

H4: There will emerge an attitude \times attitude strength interaction on consideration, such that brands associated with strongly held attitudes will demonstrate higher attitude-consideration associations than brands associated with weakly held attitudes.

We also explore the hitherto unexamined notion that consideration mediates the influence of attitudes and attitude strength on choice. Specifically, we expect that mediation analyses will demonstrate that the influences of attitudes and attitude strength on choice will be significantly reduced when the variance attributed to the influence of consideration on choice is eliminated (see Baron and Kenny 1986; Kenny, Kashy, and Bolger 1998). We hypothesize that

H5: Consideration will mediate the interactive influence of attitudes and attitude strength on choice.

EXPERIMENT 1

The goal of experiment 1 was to test the predictions associated with the A²SC² Model. To do so, participants provided their attitudes and attitude strength to different toothpaste brands and also provided choices and indicators of their consideration sets for toothpaste.

Method

Participants and Design. One hundred and seventeen participants completed two booklets—one designed to assess participants' attitudes and attitude strengths and the other designed to elicit participants' choice and consideration sets. The administration of the booklets was counter-balanced. Thus, the design of the experiment was an attitude \times attitude strength \times booklet order mixed factorial design, with the first two factors within-participant and the third between-participant.

Independent Variables. Attitudes toward each brand were assessed on nine-point scales. Three scales were used in order to provide multiple indicators of the participants' attitudes. One scale was anchored with -4 equal to "bad" and $+4$ equal to "good," the second scale was anchored with -4 equal to "negative" and $+4$ equal to "positive," and the third scale was anchored with -4 equal to "unfavorable" and $+4$ equal to "favorable." Analyses revealed that the three scales were highly related (Cronbach's $\alpha = .97$). Thus, we created an overall brand attitude measure by averaging the three scale responses. This approach resulted in an attitude measure ranging from -4 to $+4$.

Attitude strength toward each brand was assessed on 11-point scales. Four items were used in order to provide multiple indicators of the participants' attitude strengths. All four of the scales ranged from 0 to 10. One scale was anchored with "not at all important" and "extremely important," the second with "not at all self-relevant" and "extremely self-relevant," the third with "not certain at all" and "extremely certain," and the fourth scale with "have not thought about it at all" and "have thought about it a great deal." These measures were chosen so as to reflect the antecedents of elaboration, elaboration, and consequences associated with strength consistent with our conceptualization of attitude strength (see fig. 1). Analyses revealed that the four scales were highly related (Cronbach's $\alpha = .92$). Thus, we created an overall brand attitude strength measure by averaging the four scale responses. This approach resulted in one attitude strength measure ranging from 0 to 10.

Participants were randomly assigned to one of two booklet order conditions such that half of the participants first completed a booklet that assessed attitudes and attitude strengths and then completed a booklet that assessed choice and consideration sets. This factor did not interact with any of the key hypotheses. Thus, it is not considered further.

Dependent Variables. Participants completed a booklet designed to elicit a memory-based choice and consideration set. The first page asked participants to choose a brand of toothpaste. On the following page, participants were asked to list all of the brands of toothpaste that they had considered in arriving at their choice. From these choice and consideration set listings, all brands were designated as either having been chosen or not and considered or not. The specific order of eliciting choice followed by consideration was chosen for two reasons. First, this measure is consistent with prior research examining the influence of attitudes (Posavac et al. 1997) and accessibility (Nedungadi 1990) on consideration. Second, this order provides a more stringent test of our mediation hypotheses. Were consideration to have been measured before choice, any evidence of mediation would be open to the alternative explanation that the mediation results arose due to the order of measure. In contrast, if evidence for mediation is found given the choice followed by consideration order, such an alternative explanation is obviated.

Results

Analytic Approach. Since the dependent variables are dichotomous, categorical modeling of the data was conducted in order to test the hypotheses. This approach allowed for the inspection of whether there emerged main effects of attitude and attitude strength and the key attitude \times attitude strength interaction on the dependent variables. We used a hierarchical approach such that a series of models increasing in complexity were run, interpreting only the highest order term(s) in each analysis (Cohen and Cohen 1983). Specifically, we ran one model that estimated the main effect influences of attitude and attitude strength on the dependent variable, and we then ran a second model that included both the main effects and the interaction, interpreting only the interaction, on the dependent variable, with dummy variables to capture the within-participant variability.

Choice. Analyses were conducted that examined the effects of participant, attitude, attitude strength, and the attitude \times attitude strength interaction on choice. These analyses revealed main effects for attitude ($\beta = 1.14$, $\chi^2 = 37.8$, $p < .0001$) and attitude strength ($\beta = .63$, $\chi^2 = 46.8$, $p < .0001$). Of greater interest, however, is the interaction predicted by hypothesis 1. The analysis revealed that there did emerge an attitude \times attitude strength interaction ($\chi^2 = 5.7$, $p < .02$). As found in previous research, the influence of attitudes on choice was greater for strongly held attitudes ($r = .35$) than for weakly held attitudes ($r = .14$). Figure 3 graphs the probability of choice as a function of attitudes and attitude strength, both dichotomized for representational purposes.

Consideration. Analyses were conducted that examined the effects of participant, attitude, attitude strength, and the attitude \times attitude strength interaction on consideration. These analyses revealed main effects for attitude ($\beta = .40$, $\chi^2 = 43.6$, $p < .0001$) and attitude strength ($\beta = .44$, $\chi^2 = 111.4$, $p < .0001$). In support of hypotheses 2 and 3,

FIGURE 3

PROBABILITY OF CHOICE AS A FUNCTION OF ATTITUDE AND ATTITUDE STRENGTH, EXPERIMENT 1

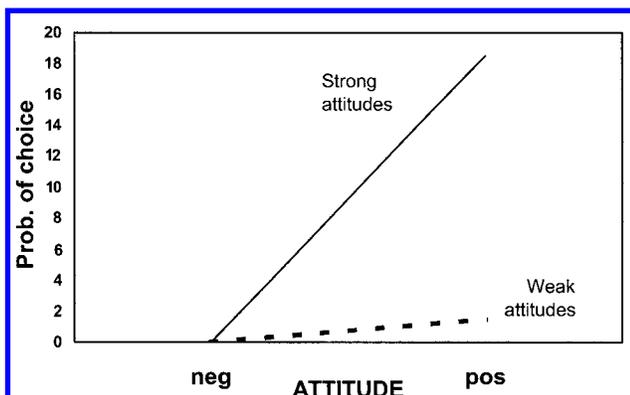
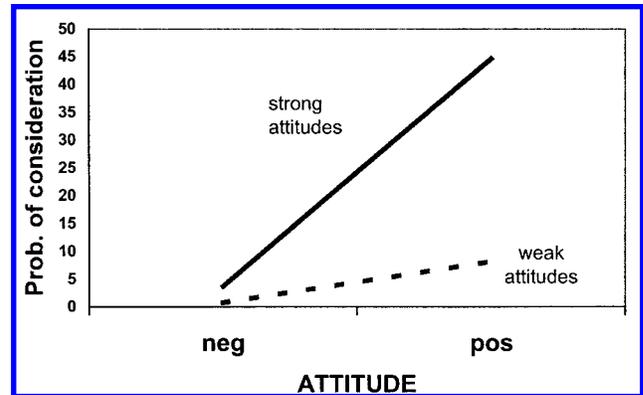


FIGURE 4

PROBABILITY OF CONSIDERATION AS A FUNCTION OF ATTITUDE AND ATTITUDE STRENGTH, EXPERIMENT 1



these main effects reveal that the extent to which participants like a brand influences the probability of consideration of that brand and that strongly held attitudes are more likely to be considered than weakly held attitudes.

Of greater interest, however, is the interaction predicted by hypothesis 4. The analyses revealed that there did emerge an attitude \times attitude strength interaction ($\chi^2 = 16.4$, $p < .0001$). This interaction was interpreted by examining the influence of participant and attitude on strongly and weakly held attitudes separately. These separate analyses revealed that, as predicted by hypothesis 4, the influence of attitudes on consideration was greater for strongly held attitudes ($r = .46$) than for weakly held attitudes ($r = .18$). Figure 4 graphs the probability of consideration as a function of attitudes and attitude strength, both dichotomized for representational purposes.

Mediational Analyses. In order to examine whether consideration mediates the interactive influence of attitudes and attitude strength on choice, we estimated two models. The first model examined the main effects of attitudes and attitude strength, as well as the attitude \times attitude strength interaction, on choice. The second model estimated these influences with the addition of consideration as a covariate. We conducted a modified Sobel test (Kenny et al. 1998) on the reduction in the explanatory power provided by the attitude \times attitude strength interaction as a result of including consideration. That is, we estimated the extent to which accounting for the variance of choice due to consideration reduced the impact of the attitude \times attitude strength interaction on choice. A significant reduction in the influence of the interaction as a result of introducing consideration as a covariate provides evidence that consideration mediates the influence of the attitude \times attitude strength interaction on choice. As predicted, the influence of the interaction was reduced from $\beta = .017$ to $\beta = .002$ ($z = 10.3$, $p < .001$).¹ Alternative

¹Similar significant reduction was found for the main effects of attitudes and attitude strength, suggesting that consideration also mediated these main effects, as well as the interaction.

analyses, in which the interaction is represented by a comparison of the strongly held positive attitudes in comparison to the weakly held positive attitudes and the negative attitudes, yields similar findings. As such, the analyses are consistent with the hypothesis that consideration mediates the influence of attitudes and attitude strength on choice.

Discussion

The results of experiment 1 provide support for the A²SC² Model. As predicted, experiment 1 provided evidence that attitudes guide consideration more when those attitudes are strongly held than when they are weakly held. Although liked brands have a greater probability of consideration than disliked brands, liked brands associated with strongly held attitudes have a greater probability of consideration than liked brands associated with weakly held attitudes. Such an interaction provides insight into the question of when and why attitudes are likely to influence consideration. Specifically, although it is true that preferred and memorable products are more likely to be considered, by incorporating the construct of attitude strength, we are better able to understand which liked products will be considered. At the most basic, the findings of experiment 1 suggest that a main effect model of the influence of attitudes on consideration is incomplete and inaccurate. It is not liking, per se, that guides consideration but, instead, the combination of strength and liking.

The results of experiment 1 also provide evidence that strongly held positive attitudes influence choice, at least in part, because of the mediational influence of consideration. That is, strongly liked brands are more likely to be chosen because they are more likely to be considered. This represents the first instance in which a variable has been found to mediate the interaction of attitudes and attitude strength on behavior.

EXPERIMENT 2

Recall that our conceptualization of attitude strength suggests that such moderation and mediation should emerge for not only self-reported indicators of attitude strength but also when attitude strength is operationalized by assessing properties associated with attitude strength. Experiment 2 was conducted in order to examine whether attitude accessibility similarly produced the results of moderation and mediation found in experiment 1. In order to address this question, we replicated experiment 1 with one modification: at the beginning of the experimental session, participants completed a computer task designed to assess the accessibility of their attitudes toward the brands. Attitude accessibility has been advanced as an indicator of attitude strength (Fazio 1995), and research has demonstrated that elaborated (i.e., strong) attitudes come to mind faster than relatively nonthoughtfully formed (i.e., weak) attitudes (Petty et al. 1995; Priester and Petty 2003).

We hypothesize that the results of experiment 1 should

replicate regardless of which indicator of attitude strength is used. Specifically, we hypothesize that

H6: There will emerge an attitude × attitude strength interaction on consideration, regardless of the nature of the indicator of attitude strength.

H7: The influence of the attitude × attitude strength interaction on choice will be mediated by consideration, regardless of the nature of the indicator of attitude strength.

Method

Participants and Design. One hundred and ninety-three participants completed three tasks. At the beginning of the experimental session, participants performed a computer task designed to assess the accessibility of their attitudes to the same brands of toothpaste used in experiment 1. Following this task, participants completed the booklet designed to provide self-report measures of attitudes and attitude strength toward the brands. Approximately 25 min. later, participants completed the booklet designed to elicit their choice and consideration sets.

Independent Variables. In order to assess attitude accessibility, participants provided dichotomous responses to three attitude questions after doing a series of practice trials on unrelated brands (see Fazio 1990). Computers recorded the response latencies to the attitude questions. Attitudes and attitude strength toward the brands were measured using the same indicators as were used in experiment 1.

Dependent Variables. The dependent variables of choice and consideration were measured as in experiment 1.

Results

Data Reduction. In order to arrive at a measure of attitude accessibility for each brand for each participant, the three response latencies to each brand were averaged. This average response latency was subjected to a logarithmic transformation. In order to control for individual differences in response latencies, we calculated the logarithm of the average response latency for all brands for each participant, thus providing a baseline response latency. We then subtracted this baseline response latency from the logarithm of the average response latency to each brand to yield measures of adjusted response latency. This transformation results in an index indicating how fast or slow the response to a particular brand is as compared to the average response latency on an individual by individual basis (see Fazio 1990).

Choice. Analyses were conducted that examined the effects of participant, attitude, attitude strength, type of strength indicator, the attitude × attitude strength interaction, and the attitude × attitude strength × type of strength

indicator on choice. These analyses revealed main effects for attitude ($\beta = 2.59, \chi^2 = 238.6, p < .0001$) and attitude strength ($\beta = .36, \chi^2 = 40.5, p < .0001$) on choice. As found in experiment 1, however, these main effects were qualified by the predicted attitude \times attitude strength interaction ($\chi^2 = 18.6, p < .0001$). As found in experiment 1 and prior research, the influence of attitudes on choice was greater for strongly held attitudes ($r = .35$) than for weakly held attitudes ($r = .19$). This interaction was moderated by the type of attitude strength indicator ($\chi^2 = 4.1, p < .05$). Inspection of this three-way interaction revealed significant two-way interactions for both types of indicator, with the three-way interaction emerging because the magnitude of the two-way interaction was greater for the self-reported indicator ($\chi^2 = 19.4, p < .0001$) than for the accessibility indicator ($\chi^2 = 3.7, p = .05$). Figure 5 graphs the probability of choice as a function of attitudes and attitude strength, both dichotomized for representational purposes.

Consideration. Analyses were conducted that examined the effects of participant, attitude, attitude strength, type of strength indicator, the attitude \times attitude strength interaction, and the attitude \times attitude strength \times type of strength indicator on consideration. These analyses revealed main effects for attitude ($\beta = 1.56, \chi^2 = 603.7, p < .0001$) and attitude strength ($\beta = .40, \chi^2 = 132.5, p < .0001$) on consideration. As found in experiment 1, however, these main effects were qualified by the predicted attitude \times attitude strength interaction ($\chi^2 = 16.3, p < .0001$). As found in experiment 1, the influence of attitudes on consid-

FIGURE 5

PROBABILITY OF CHOICE AS A FUNCTION OF ATTITUDE AND ATTITUDE STRENGTH, EXPERIMENT 2

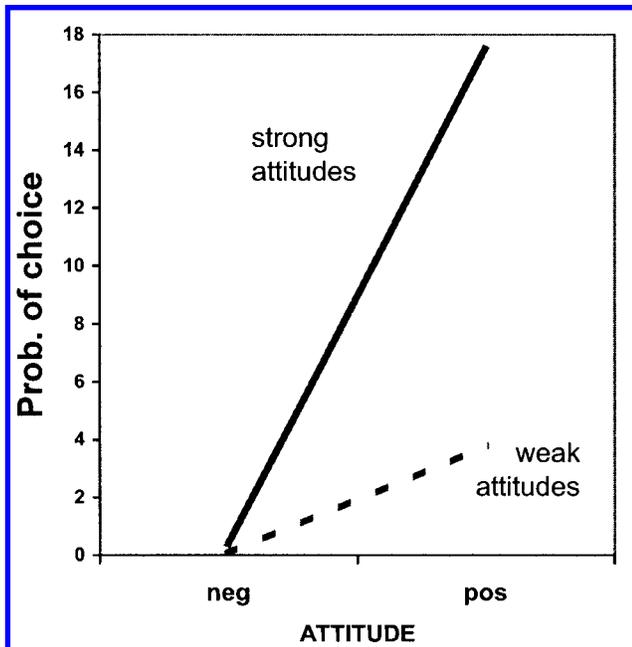
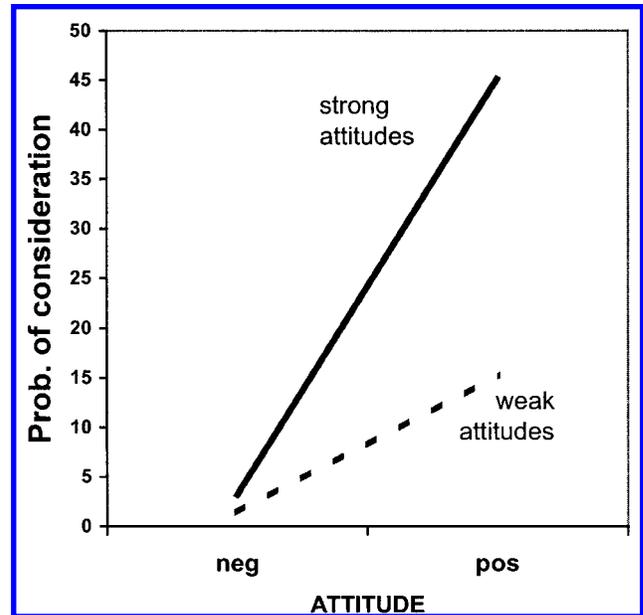


FIGURE 6

PROBABILITY OF CONSIDERATION AS A FUNCTION OF ATTITUDE AND ATTITUDE STRENGTH, EXPERIMENT 2



eration was greater for strongly held attitudes ($r = .50$) than for weakly held attitudes ($r = .30$). This interaction was not moderated by the type of attitude strength indicator ($\chi^2 = 2.0, p > .15$). Figure 6 graphs the probability of choice as a function of attitudes and attitude strength, both dichotomized for representational purposes.

Mediational Analyses. As in experiment 1, to test for mediation, we calculated two models. Analyses revealed that, as in experiment 1, there was significant reduction: The interactive influence of attitudes and attitude strength on choice was reduced from $\beta = .06$ to $\beta = .038$ ($z = 17.1, p < .0001$).² The alternative analyses, in which the interaction is represented by a comparison of the strongly held positive attitudes to the weakly held positive attitudes and the negative attitudes yields similar findings. As such, the analyses are consistent with the hypothesis that consideration mediates the influence of attitudes and attitude strength on choice.

Discussion

Recall that experiment 2 was conducted in order to examine whether the moderation and mediation found in experiment 1 extended to other theoretically consistent measures of attitude strength. The results of experiment 2 are clear. Attitude strength both moderated the influence of attitudes on consideration and mediated the influence of

²As in experiment 1, similar significant reductions were found for the main effects of attitudes and attitude strength.

strongly held attitudes on choice, regardless of whether the measure was based on self-report or attitude accessibility. Thus, support is provided both for the A²SC² Model and for our conceptualization of attitude strength. To the extent that both measures provided convergent results, our conceptualization of attitude strength is supported.

Although the results of experiments 1 and 2 are consistent with the predictions of the A²SC² Model, there do emerge two concerns from these experiments. First, both of the studies used toothpaste brands as the attitude objects in order to investigate the proposed processes. It is possible that the observed results may be due to specific properties associated with the toothpaste category (e.g., health concerns, relatively infrequent purchases), rather than representing more generally operating processes. Second, both of the studies used a correlational design to examine the relationships. Given this design, the question of causality is not addressed by either study. Specifically, although we propose that attitudes and attitude strength guide choice by consideration, it is equally plausible that this relationship is due entirely to a third, unmeasured variable. Most problematically, it could be that familiarity influences both reports of strongly held positive attitudes (i.e., one is likely to report that familiar brands are more strongly liked) and likelihood of consideration and choice (i.e., one is more likely to consider and choose those brands with which one is familiar; see Bagozzi, Baumgartner, and Yi 1992; Marks and Kamins 1988). Were this the case, there may exist no causal influence of strongly held positive attitudes on consideration and choice.

EXPERIMENT 3

Experiment 3 was conducted in order to address both of the concerns described above. Recall that our conceptualization of attitude strength suggests that a manipulation of elaboration should provide convergent findings for the hypothesized processes. In addition to providing yet further support for our conceptualization of attitude strength and the A²SC² Model, a demonstration that manipulated elaboration leads to the moderation and mediation found in experiments 1 and 2 would argue against the alternative explanation provided by familiarity. Specifically, evidence that manipulated strength uncovers similar results as found in experiments 1 and 2 rules out the alternative explanation that the results of experiments 1 and 2 are due to other third variables confounded with strongly held positive attitudes. Specifically, there should exist no differences in familiarity (or other unmeasured variables) between strongly and weakly held attitudes if participants are randomly assigned to experimental conditions in which elaboration is manipulated. Any subsequent differences in the influence of elaboration on choice and consideration are due to differences in attitude strength, not to differences in familiarity. In order to address the question of whether specific features associated with the toothpaste category were responsible for the results of experiments 1 and 2, we used a fictitious candy bar as the attitude object for experiment 3.

We hypothesize both of the following:

H8: Manipulated strength of positive attitudes will influence consideration.

H9: The influence of attitude strength for the positive attitudes on choice will be mediated by consideration.

Method

Participants and Design. Forty participants were randomly assigned to one of two cells. Half of the participants were exposed to an advertisement under conditions of high elaboration. The others were exposed to an advertisement under conditions of low elaboration. After reading the elaboration manipulation, all participants were exposed to an advertisement for a fictitious candy bar. The advertisement was constructed such that it contained both information that could be used as strong arguments for participants who thoughtfully viewed the ad (e.g., rich, mouthwatering taste) and features that could serve as positive peripheral cues for participants who nonthoughtfully viewed the ad (e.g., many reasons were provided). In this manner, it was hypothesized that all individuals would form equally positive attitudes toward the candy bar, the bases of which, however, would differ in terms of underlying strength. After reading the advertisement, participants provided their attitudes toward the candy bar. Approximately 10 minutes later, participants completed a choice and consideration set elicitation task. Participants then provided their recall of the brand name and an ease of recall measure.

Independent Variable. One difficulty with the manipulation of elaboration for the purposes of a consideration set experiment is that elaboration has often been confounded with availability in prior research. For example, Petty, Cacioppo, and Schumann (1983) manipulated involvement in two ways, both of which influenced perceptions of availability. First, highly involved participants were told that they could choose the target product as a gift, whereas participants with low involvement were told that they would choose an unrelated product. Second, the advertisement for the high-involvement conditions explained that the product would be test-marketed in their city, whereas the advertisement for the low-involvement participants said that the product would be test-marketed only in a distant city. Thus, the participants were led to believe that the product associated with the high-involvement conditions was available, but that the product associated with the low-involvement conditions was not available. Were such a manipulation to be used in the present research, a finding that elaborated attitudes are more likely to be considered than nonelaborated attitudes would be vulnerable to the alternative interpretation that individuals consider those alternatives that are available more than those alternatives that are unavailable.

Recall that elaboration is the process whereby individuals attend to, scrutinize, and assess the cogency of presented information. This thoughtful information processing results

in attitudes that are based on the thoughts and feelings that an individual has in response to the information. Elaboration occurs when individuals possess the motivation and ability to engage in issue-relevant thinking. As such, when individuals lack ability (or motivation), elaboration is likely to be reduced (Petty and Cacioppo 1986). We developed a manipulation of elaboration that sought to capitalize on these concepts. In order to produce a high level of elaboration, half of the participants were instructed to pay attention to the thoughts that came to their mind while they read the advertisement. This instruction was designed to facilitate elaboration, upon which the resulting attitude would be based, thus producing a relatively strong positive attitude toward the candy bar. In contrast, to produce a low level of elaboration, the other participants were instructed to count the number of polysyllabic words in the advertisement. This instruction was designed to produce cognitive load, thus undermining the ability of the participants to elaborate. As such, any attitude formed toward the candy bar would be based upon nonthoughtful inferences and associations, thus producing a relatively weak positive attitude toward the candy bar. In short, this manipulation was designed to produce attitudes that were equivalent in terms of positivity but that differed in terms of strength.

Since this particular manipulation of elaboration had not been used in prior research, we conducted a pretest. One hundred and three participants were exposed to an advertisement for the fictitious candy bar under conditions of high or low elaboration, following which, participants provided their attitudes toward the candy bar and completed a thought-listing task that measured the number and valence of their cognitive responses toward the candy bar (see Petty and Cacioppo 1986). While attitudes did not differ as a function of elaboration conditions ($M_{\text{high elaboration}} = 1.16$, $M_{\text{low elaboration}} = .88$; $F(1, 102) = 1.22$, $p = .27$), the number of positive ($M_{\text{high elaboration}} = 1.7$, $M_{\text{low elaboration}} = .9$; $F(1, 102) = 10.1$, $p < .002$) cognitive responses did differ. Regressing the cognitive responses (a composite measure created by subtracting the negative from the positive) and elaboration (high vs. low) on attitudes yielded a significant cognitive response \times elaboration condition interaction ($F(1, 100) = 4.38$, $p < .04$), decomposition of which revealed that cognitive responses had a greater influence on attitudes for those participants in the high-elaboration ($F(1, 50) = 28.0$, $p < .0001$) than for those participants in the low-elaboration condition ($F(1, 50) = 8.5$, $p < .005$). As such, the attitudes in the high-elaboration condition were based more on the cognitive responses than the attitudes in the low-elaboration condition. In short, these results suggest that the manipulation produced attitudes that were equivalent in extremity but that differed in terms of their bases.

All participants read the following:

The advertisement that you are going to see is for a candy bar that has just been released in the Midwest. It is possible that you have seen it in the stores. You will read a "mock-up" advertisement that is designed primarily to give an impression of how the actual advertisement will appear when

it is in print. We are conducting market research at this stage in order to assess the advertisement. We would like you to read the advertisement. As you read the advertisement, please follow the instructions below.

To manipulate elaboration, those participants in the high-elaboration condition were further instructed:

We are interested in how thoughtful the advertisement is. In order to assess advertising thoughtfulness, we would like you to read the advertisement following these instructions: Read the advertisement paying particular attention to the thoughts that come to your mind as you look at and read the advertisement. Some of the thoughts may be in response to the specific words and ideas used in the advertisement. Some of the thoughts may be ideas that you think of from your own experiences. The types of thoughts that come to your mind are not important. What is important is that you really think about the advertisement and pay attention to the thoughts that do come to your mind as you look at and read the advertisement.

In contrast, those participants in the low-elaboration condition were further instructed:

We are interested in how comprehensible the advertisement is. In order to assess advertising comprehensibility, we would like you to read the advertisement following these instructions: Read the advertisement paying particular attention to the number of words with more than one syllable that appear in the advertisement. Examples of words with more than one syllable include "water," "puppy," "bigger," "people," "yourself" (all of which contain two syllables) and "happiness," "minimum," "computer" (all of which contain three syllables). In contrast, words with just one syllable include "our," "gone," "last," "word." Your task is to read the advertisement paying particular attention to the number of words with more than one syllable that appear in the advertisement. Prior research has found this method to be an excellent way of measuring ease of comprehension.

Dependent Variables. Attitudes toward the candy bar were assessed on seven nine-point scales anchored with -4 (equal to negative, harmful, foolish, unfavorable, bad, unlikable, and unappealing) and $+4$ (equal to positive, beneficial, wise, favorable, good, likeable, appealing). Analyses revealed that the seven scales were highly related (Cronbach's $\alpha = .94$). Thus, we created an overall brand attitude measure by averaging the seven scale responses. This approach resulted in one attitude measure ranging from -4 to $+4$.

To measure choice and consideration, participants read that, "As a gesture of thanks for your help, we would like to offer you a gift. As part of our research, we have a complete assortment of candy bars. You can have any candy bar you want. Please take a moment and tell us what candy

bar you would like to have.” Immediately below these instructions, participants provided their choice of candy bar. On the following page, participants read:

Although you chose one candy bar, it is possible that you considered more than one before choosing. Please take a moment and list all of the brands that you considered in arriving at your choice. That is, if you considered two brands and chose one, write down the names of both brands you considered. If you thought of five brands, and chose one, write down the names of all of the five brands that you considered. Only write down as many brands/alternatives as you actually considered in making your choice.

Immediately below these instructions appeared eight lines. On these lines participants wrote their considered brands.

To measure memory, participants were asked to provide the name of the candy bar for which they had read an advertisement. Participants provided the name on a blank line. Immediately below this line, participants provided an indication of how difficult it was to remember the name of the candy bar on an 11-point scale anchored with 0 equal to “not at all difficult” and 10 equal to “extremely difficult.”

Results

Manipulation Checks. As in the pretest, attitudes toward the candy bar did not differ significantly as a function of elaboration ($M_{\text{high elaboration}} = 1.5$, $M_{\text{low elaboration}} = 1.0$); $F(1, 38) = 2.2$, $p = .15$. Ability to remember the brand name of the candy bar did not differ as a function of elaboration (all of the participants were able to correctly recall the name). The difficulty in remembering the brand name of the candy bar did not differ as a function of elaboration ($M_{\text{high elaboration}} = 3.2$, $M_{\text{low elaboration}} = 2.8$; $F(1, 38) = .2$, $p > .6$). Thus, our manipulation proved successful in producing attitudes that were equivalently positive, as well as equally and as easily memorable, and yet differed in underlying strength.

Choice. Whether the candy bar was chosen or not as a function of elaboration was examined by means of categorical modeling. The results of the analysis revealed that those participants who were exposed to the advertisement under conditions of high elaboration were significantly more likely to choose the product (25%) than were those participants who were exposed to the advertisement under conditions of low elaboration (0%; $\chi^2 = 5.7$, $p < .02$).

Consideration. Whether the candy bar was considered or not as a function of elaboration was examined by means of categorical modeling. The results of this analysis revealed that those participants who were exposed to the advertisement under conditions of high elaboration were significantly more likely to consider the product (35%) than were those participants who were exposed to the advertisement under conditions of low elaboration (5%; $\chi^2 = 5.2$, $p < .03$). Thus,

the results of this experiment provided support for hypothesis 8.

Mediational Analyses. Analyses were conducted in order to examine the mediational role of consideration. The results of these analyses are presented in figure 7. The modified Sobel’s test on the direct versus indirect influence of strength on choice yielded a significant reduction ($z = 2.6$, $p < .005$). That is, the influence of strength on choice was reduced from $\beta = .25$ to $\beta = .07$ by accounting for the variance associated with consideration, and this reduction is statistically significant. It is worth noting that this set of analyses suggests that consideration fully mediates the influence of elaboration on choice. Specifically, when the joint influences of elaboration and consideration are examined, the influence of elaboration is reduced to nonsignificance at the same time that the influence of consideration on choice remains significant. Thus, as in experiments 1 and 2 and in support of hypothesis 9, the mediational analyses suggest that strength influences choice through its influence on consideration. This mediational influence is uncovered even when attitude strength is manipulated, rather than measured.

Discussion

Recall that experiment 3 was conducted in order to examine whether the results of experiments 1 and 2 were obtainable by manipulating the elaboration upon which attitudes toward a product were based. In addition to providing convergent validity for our conceptualization of attitude strength, this operationalization also addressed the issue of causation. Specifically, if the results of experiments 1 and 2 were replicated in experiment 3, any alternative explanations for the findings based on the correlational nature of experiments 1 and 2 would be obviated. And, in fact, the results of experiments 1 and 2 were replicated. Attitude strength influenced the extent to which positive attitudes influenced consideration and choice, and consideration fully mediated the influence of attitude strength on choice.

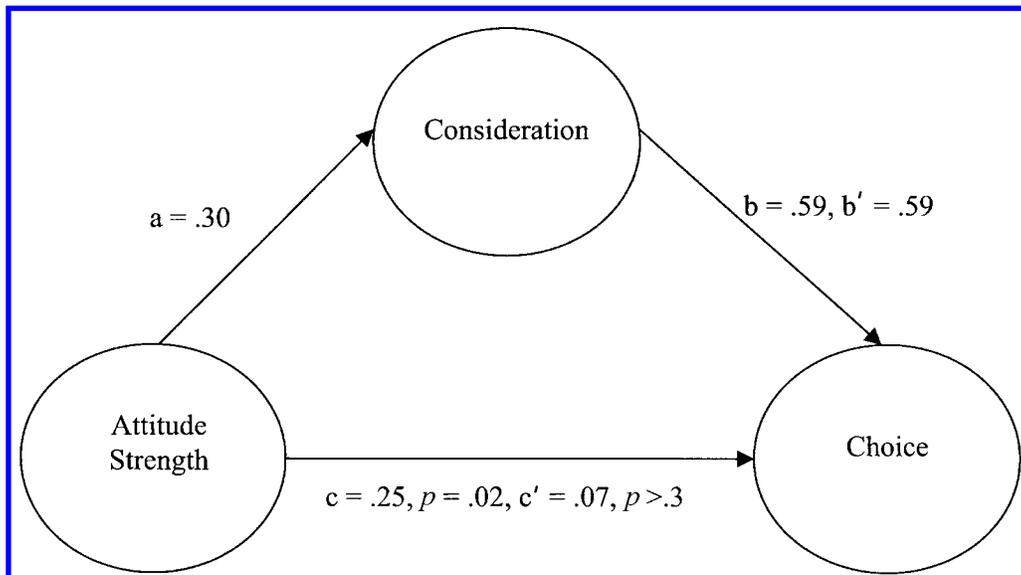
GENERAL DISCUSSION

At the most basic, this article advances the A²SC² Model, which provides two contributions. First, it provides the first demonstration that attitudes and attitude strength, in combination, influence whether an alternative is considered. Second, it provides the first demonstration that the influence of attitude strength on behavior is mediated by consideration. As such, this research contributes both to our understanding of consideration and to our understanding of attitudes and behavior.

Contribution to Consideration Research and Theory

Recall that previous research has demonstrated that alternatives are more likely to be considered to the extent that

FIGURE 7
MEDIATIONAL ANALYSES, EXPERIMENT 3



they are liked (Posavac et al. 1997) or memorable (Nedungadi 1990). The present research demonstrates that, although liked alternatives have a greater chance of consideration than disliked alternatives, this main effect is moderated by attitude strength. The influence of attitudes on choice is greater for strongly held attitudes than for weakly held attitudes. Although liked brands are generally more likely to be considered than disliked brands, it is the strongly liked brands that are more likely to be considered than the weakly liked (or disliked) brands. The present research also demonstrates that alternatives that are equally memorable can differ in terms of their consideration as a function of attitude strength: although the brand of the fictitious candy bar was equally memorable for those individuals with strong and weak attitudes, it was the individuals with strong attitudes who were more likely to consider consuming the candy bar.

Contribution to Attitudes Research and Theory

Consideration mediates the influence of strongly held positive attitudes on choice, such that strongly held positive attitudes are more likely to be considered, and it is this consideration that leads to choice. This finding provides a first step for understanding why strongly held attitudes influence behavior. As such, this finding provides a deeper understanding of how attitudes guide behavior. Strong attitudes guide behavior, at least in part, by influencing which alternatives are considered prior to choice. Such a perspective increases our understanding of the attitude—behavior relationship and, as such, provides a valuable contribution to the field of attitudes and behavior.

Implications: How to Increase Consideration

Many prior conceptualizations of consideration have adopted an implicitly static model of the psychological processes that underlie consideration. For example, Bronnenberg and Vanhonacker (1996) hypothesize that consideration is influenced by brand salience and that brand salience is influenced by (a) in-store promotions that influence memorability, (b) recency of purchase, and (c) price appropriateness. Implicit in such a conceptualization is that consumers' cognitive networks are relatively set. It follows from this conceptualization of consideration that the best that one can do to influence consideration is to activate these pre-existing cognitive associations when the consumer is ready to purchase. The present research offers a more dynamic conceptualization of consideration. The salience of a brand is most likely influenced by the strength underlying the attitude toward a brand. Further, the strength with which an attitude is held can be influenced through a myriad of techniques (see Haugtvedt, Leavitt, and Schneier 1993; Haugtvedt and Priester 1997). That is, a consumer's cognitive structure is not relatively set but can be changed through well-constructed advertisements and promotional activities. As such, one can influence the strength with which consumers' attitudes are held before the consumers are in the purchase situation, either through advertising or through product use (see Fazio and Zanna 1981).

Such an assertion is certainly not new. For example, Berger and Mitchell (1989) found that advertising could be as influential in changing the accessibility of attitudes as direct experience. However, the present research offers a caveat to this finding. Exposure to advertising, per se, can either lead to an increased probability of consideration or not,

depending on the extent to which the advertisement is elaborated. If a consumer elaborates an advertisement, then the probability of the consumer later considering that brand should increase (given that the advertisement is constructed in such a way as to produce positive thoughts in response). If a consumer does not elaborate an advertisement, however, it is less likely that a consumer will later consider that brand, unless prompted to do so by in-store displays. The present research emphasizes that it is not exposure to the advertising in and of itself that is important but, rather, the psychological process by which the advertising is received.

Remaining Issues and Future Research

Several issues emerge from this research for future research. First, inspection of the attitude \times attitude strength interactions (figs. 3–6) reveals that the influence of attitude strength is greater for liked than for disliked alternatives. That is, strength appears to play little role for disliked brands, especially as compared to the influence it has for liked brands. Might there exist conditions under which strength has greater influence for negative rather than positive alternatives? One possible moderator may be the nature of the decision. Consider that the present choices all had to do with choosing between liked alternatives (i.e., these were fundamentally approach decisions). Under such conditions, strength moderates which liked alternatives are subsequently included in the consideration set and then chosen. What if, instead, individuals had been asked to choose one of several possible painful treatment regimens? That is, what if the nature of the decisions were withdrawal rather than approach? Under such conditions, it may be that strength moderates which disliked alternatives are excluded from the consideration set, leaving the weakly disliked alternatives for choice.

This research also raises the question of, and provides guidance as to, if and when disliked alternatives might be considered. Clearly, one important aspect of this possibility is simply the size of the set of possible alternatives. Decisions for which the possible set of alternatives is very small may lead to consideration sets that are more likely to include disliked alternatives than decisions for which the possible set of alternatives is large. It may also be the case that whether an individual has formed attitudes toward the alternatives in a product category may similarly moderate the likelihood of considering disliked alternatives. Alternatives in a product class for which an individual has not formed attitudes may be brought into the consideration set only to be rejected because, upon reflection, the individual realizes that the alternative is disliked. That is, if all of the alternatives are associated with weakly held attitudes, it is possible, if not likely, that disliked alternatives will be considered. Thus, the extent to which the number of alternatives is small and/or the attitudes toward all of the alternatives in a product class are constructed rather than retrieved may moderate the probability of considering disliked brands.

Finally, it is also noteworthy that all of the present studies used a memory-based rather than a stimulus-based decision. How the A²SC² Model extends to stimulus-based as well as

memory-based choices raises intriguing questions concerning the nature of the influence of strength on consideration and choice. Prior research has found both that attitude strength moderates the influence of attitudes on choice for stimulus-based choices (Fazio et al. 1989) and that attitude strength can guide perceptual orientation toward stimulus-based alternatives, such that one is more likely to notice those alternatives for which one possesses strongly held attitudes rather than weakly held attitudes (Roskos-Ewoldsen and Fazio 1992). Thus, in stimulus-based choices, attitude strength may moderate the influence of attitudes on choice through selective perceptual processing in that individuals' attention is drawn to the alternatives that are liked and associated with strongly held attitudes and that these are the alternatives then considered. Such a process would not account for the findings associated with the present memory-based choices. As such, although attitude strength most likely moderates the influence of attitudes on consideration and choice for both stimulus-based and memory-based choices, future research might profitably examine how the processes by which this influence emerges differ. It is also worth noting that all of the present studies measured consideration after choice. Clearly, future research should ideally manipulate the order in which consideration and choice are assessed, in addition to other variables of interest.

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