

# THE INTERPLAY OF PRODUCT CLASS KNOWLEDGE AND TRIAL EXPERIENCE IN ATTITUDE FORMATION

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**ABSTRACT:** This paper suggests that when ad exposure is accompanied by direct experience, participants' prior product class knowledge will moderate the degree of likelihood that they will experience expectation disconfirmation. Findings indicate that high-knowledge participants' responses toward the product that generates positive experiences vary from their responses toward the product that generates negative experiences in terms of degree of expectation disconfirmation, level of valenced attributional thoughts, ad attitudes, brand attitudes, and purchase intentions. In clear contrast, low-knowledge participants generate similar responses to the two products, suggesting a confirmation bias resulting from ad exposure.

Even though consumers sometimes rely on advertising as the single source of information in formulating their brand evaluations and purchase decisions, in other situations, consumers can gain additional product information via direct trials before purchase. Still, consumers may be encouraged by advertising to purchase a product. Their consumption experience then functions as important feedback to their ad-based brand judgments, and furthermore, determines how likely it is that they will be repeat consumers. This is especially true when verifiable product information can only be obtained via direct experiences, not through advertising. Therefore, to get a complete picture of the role that advertising may play in the brand evaluation process, it seems important to understand how ad-based expectations may interact with product experience, together affecting brand evaluations.

Expectation plays an important role in consumer satisfaction, as consumer satisfaction is usually expressed as a function of expectation and disconfirmation (Anderson 1973; Bearden and Teel 1983; Boulding et al. 1993; Kopalle and Lehmann 1995, 2001; Oliver 1980; Olson and Dover 1979). This line of research suggests that the more direct experiences are congruent with prior expectations, the more favorable the product evaluations will be. Advertising is one important source of information upon which consumers' expectations regarding the product may be developed (Hoch and Deighton 1989). Therefore, the greater the discrepancy between direct experiences and ad-based expectations, the less favorable the evaluations of the ad and the brand will be. Yet, as Hoch and Deighton (1989) have argued, learning from

product trials is not "a simple process of discovering objective truth" (p. 1); sometimes learning from product trials is illusory and inefficient, such that product evaluations are subject to the influence of advertising claims. Specifically, Olson and Dover (1979) have shown that ad exposure encourages consumers to assimilate their product experiences in the direction that is consistent with their ad-based expectation, leading to a confirmation bias.

Although ad exposure may set up expectations that later bias participants' interpretations of their direct experiences, thereby leading to confirmation bias in brand evaluations, this study argues that confirmation effects are not robust. Indeed, Greenwald et al. (1986) have argued that when testing a theory, it is important to discover the many conditions in which a predicted result cannot be obtained. The primary questions, then, are under what conditions will we not expect confirmation bias, and under what conditions will we obtain expectation disconfirmation effects. This study proposes that one of the contingent factors is an individual's product class knowledge. Confirmation bias will be less likely when consumers have considerable product class knowledge, as opposed to when consumers do not have much product class knowledge.

Specifically, this study argues that high-knowledge consumers are data-driven, integrating their ad impressions with their direct experience evaluations. Therefore, expectation disconfirmation may emerge when product experiences indicate discrepancies. In reasoning out the discrepancies, high-knowledge consumers will generate different numbers of

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external-based attribution thoughts in relation to internal-based attribution thoughts based on the direction of their expectation disconfirmation. As a result, they will express different responses in terms of ad attitudes, brand evaluations, and purchase intention for a product that generates positive experiences versus a product that generates negative experiences. Low-knowledge consumers, on the other hand, are expectation-driven, accommodating new information to prior expectations, which leads to a confirmation bias, regardless of what their direct experiences may suggest. Therefore, they will not express different numbers of external-based and internal-based attribution thoughts, different ratings of the ad and brand, or different levels of purchase intention when a product generates positive, as opposed to negative, experiences.

### EXPECTATION DISCONFIRMATION IN THE PROCESS OF PRODUCT EVALUATION FORMATION

Consumer satisfaction is determined by the discrepancies between product expectations and perceived product performance (Anderson 1973; Bearden and Teel 1983; Boulding et al. 1993; Kopalle and Lehmann 1995, 2001; Oliver 1980; Olson and Dover 1979). Product expectations are defined as pretrial beliefs about the product (Olson and Dover 1979; Oliver and Winer 1987), which may be developed through means such as company promotion communications or word of mouth (Oliver 1980). The basic assumption behind this line of research is that exposing consumers to product information will encourage them to develop expectations regarding the product that later serve as a reference frame against which subsequent product performance is judged (Olson and Dover 1979). As noted by Churchill and Surprenant (1982), the process of product evaluation, or satisfaction formation, involves three stages: expectation, performance, and confirmation/disconfirmation.

Within this research paradigm, confirmation is assumed to occur when product experiences are in accord with pretrial expectations. Disconfirmation, on the other hand, is assumed to occur when product experiences are discrepant from pretrial expectations. Disconfirmation effects can be either in the positive direction or in the negative direction. When product performance is better than expected, positive disconfirmation is assumed to occur, whereas when product performance is worse than expected, negative disconfirmation is assumed to occur. In addition, drawing upon assimilation theory, past research has proposed that individuals are more likely to assimilate judgments in accordance with their existing expectations than they are to acknowledge discrepancies from previously developed expectations (Olson and Dover 1979). Indeed, it is also generally agreed among so-

cial psychologists that human reasoning is prone to a confirmation bias (e.g., Klayman and Ha 1987; Lord, Ross, and Lepper 1979).

### EXPECTATION DISCONFIRMATION GIVEN AD EXPOSURE AND PRODUCT TRIALS

The effects of ad exposure and product trial on product evaluations may also follow the three-stage process that involves expectation, performance, and confirmation/disconfirmation. For example, Deighton (1984) has specifically proposed a two-step model to explore the interplay between ad exposure and objective product information, such as product experience and product evidence. His model suggests that, at step one, exposure to advertising encourages consumers to hold a tentative hypothesis or ad-based product belief regarding the product. At step two, when consumers have direct product experiences or are exposed to further evidence from credible sources, they will test their ad-based tentative hypothesis. Therefore, the second step involves the product trial stage as well as the disconfirmation stage, which are proposed in consumer satisfaction literature.

Most important, a critical assumption underlying Deighton's (1984) model is that advertising exposure affects subsequent trial-based product evaluations by predisposing consumers to more favorable trial experiences, resulting in a confirmation bias and leading to support of the tentative hypothesis. This is consistent with findings in consumer satisfaction literature, suggesting that individuals are more likely to assimilate differences in order to hold brand attitudes that are congruent with their prior expectations. The confirmation bias can also explain why ad-derived beliefs are more likely to emerge when advertising exposures precede product experiences, as opposed to when ad exposures follow product experiences (Smith 1993).

### PRODUCT KNOWLEDGE AS A CONTINGENT FACTOR OF EXPECTATION DISCONFIRMATION

The emergence of confirmation bias may be contingent on other variables. For example, drawing upon Deighton's (1984) model, Hoch and Ha (1986) have shown that the two-step process of confirming ad-established tentative hypotheses by direct experiences emerges only when the product experiences are ambiguous, not when product experiences are not ambiguous. It appears that confirmation/disconfirmation is more/less likely to emerge when the product experience is ambiguous, and thus less diagnostic for making judgments, as opposed to when the product experience is not ambiguous.

Individual difference may also moderate the expectation confirmation/disconfirmation effects. Yet past literature remains largely silent about how personal differences may alter

the degree to which ad exposure may exert influences on confirmation of direct experiences. The only exception is Kamins, Assael, and Graham (1990), who have demonstrated that the expectation disconfirmation process through advertising exposure and product trial varies for participants in low- and high-involvement conditions. The present study is another attempt to gain understanding of how individual differences in product knowledge levels may moderate the expectation disconfirmation process.

Product knowledge is a well-explored construct in consumer research (Alba and Hutchinson 1987; Brucks 1985). A consumer's prior knowledge has been shown to facilitate information processing (Brucks 1985). Therefore, high-knowledge consumers and low-knowledge consumers differ in how they process information. High-knowledge consumers are more likely to process information analytically by applying decision criteria that should be readily available from memory (Bettman and Sujan 1987) and are less likely to rely on heuristic cues when they make product inferences than are low-knowledge consumers (Biswas and Sherrell 1993). An ad perceiver's product knowledge has also been shown to affect how he or she processes advertising messages (Smith and Wortzel 1997).

The processing differences for high-knowledge and low-knowledge consumers can be attributed to the completeness and complexity of consumers' knowledge structures or schemata (Park and Lessig 1981). Marks and Olson (1981) have suggested that consumers have cognitive representations of product categories that are stored in memory. According to Marks and Olson (1981), high-knowledge and low-knowledge consumers differ in how well their product representations are structured. In contrast to low-knowledge consumers, high-knowledge consumers have better-developed and more complex schemata with well-formulated decision criteria. Due to these differences, when high-knowledge consumers process information, less cognitive effort is required and relevant knowledge structures can be activated automatically, resulting in the availability of evaluation criteria and rules for product assessments (Alba and Hutchinson 1987).

This study argues that, given better-developed schemata, when high-knowledge consumers are exposed to ad messages followed by product trials, they will have the cognitive capacity to compare their trial experiences with their expectations. In addition, high-knowledge consumers' product experiences are more diagnostic and informative than low-knowledge consumers' product experiences (Kempf and Smith 1998). As a result, high-knowledge consumers are less likely to generate a confirmation bias. Due to a higher extent of message integration, to the degree that their trial experiences are different from their expectations, they will generate higher levels of expectation disconfirmation.

In clear contrast, low-knowledge consumers, with less-

developed knowledge structures, will not have the cognitive capacity to compare their trial experiences with their expectations in the product attitude formation process. Furthermore, studies exploring direct product experiences have also suggested that, for participants whose prior knowledge is limited, direct experiences are less diagnostic (Kempf and Smith 1998). This seems to suggest that low-knowledge consumers probably do not have enough knowledge to make confident judgments, even when they have direct product experiences. Due to these differences, low-knowledge consumers are more likely to show a confirmation bias than are high-knowledge consumers. That is, low-knowledge consumers will be subject to the influence of advertising and will ignore what their personal experiences may suggest.

To test the proposed differences, this study will vary participants' product experiences and examine how high-knowledge consumers and low-knowledge consumers generate different responses. Specifically, this study suggests that when participants try a good-tasting juice and a bad-tasting juice, high-knowledge participants will express different levels of expectation disconfirmation, whereas low-knowledge consumers will not. Thus, the study's first hypothesis is presented:

*H1: High-knowledge participants will express more expectation disconfirmation when products are bad tasting as opposed to good tasting, whereas low-knowledge participants will not express different levels of expectation disconfirmation.*

#### EXPECTATION DISCONFIRMATION: THE ATTRIBUTION PROCESS

Some researchers have tried to understand the underlying cognitive process that may explain the effects of disconfirmation on brand evaluations. For example, Kamins, Assael, and Graham (1990) have demonstrated that cognitive responses mediate the effects of expectation disconfirmation on posttrial evaluations. When product performance is discrepant from ad-based expectations, different levels of ad-related or product-related supporting and counterarguing cognitive responses are generated, which mediate the impacts of expectation disconfirmation on brand evaluations.

Attribution thinking has also been proposed as one of the possible underlying mechanisms that may result in different degrees of consumer satisfaction when levels of expectation disconfirmation vary (Oliver and DeSarbo 1988). Attribution characterizes the process through which individuals explain why a particular event or outcome comes about (e.g., Weiner 1986, 2000). In the attitude formation context, attribution theory emphasizes "how people's inferences about the causes of communicators' attitudinal statements affect their agreement with these statements" (Eagly and Chaiken 1993). The theory as-

sumes that message perceivers' causal inferences concerning communicators' stated positions determine the degree to which the perceivers will be persuaded by the stated positions. To the extent that an individual perceives a communicator's message to be true, he or she is more likely to be persuaded.

Attribution theory has been introduced to explore specifically how ad viewers attribute the manipulative intent of advertisers (e.g., Coulter and Pinto 1995; Settle and Golden 1974; Smith and Hunt 1978). For example, Settle and Golden (1974; see also Smith and Hunt 1978) have shown that viewers' attributional reasoning determines the credibility of message claims. If messages are attributed to actual product performance or attributes, the perceived credibility of ad claims is enhanced. However, if messages are attributed to the advertisers' intention to sell the product, ad viewers then have less confidence in the claims. In addition, it has been proposed that advertising claims that surpass reasonable expectations may be perceived as less credible and, hence, may be discounted to a higher degree than claims that do not surpass reasonable expectations (e.g., Smith and Hunt 1978).

It seems reasonable to argue that in the product attitude formation process involving ad exposures and product trials, expectation disconfirmation may encourage consumers to engage in different attributional reasoning. To the extent that higher levels of positive disconfirmation occur, consumers may generate more internal attributions and perceive ad messages to be objective depictions of the products. On the other hand, to the extent that higher levels of negative disconfirmation occur, consumers may generate more external attributions and interpret ad messages to be manipulative. Those attributional thoughts may further determine consumers' ad and product evaluations.

This study additionally suggests that the attribution process will also be moderated by product knowledge. High-knowledge participants will generate more internal attribution-based thoughts in relation to external attribution-based thoughts when they try a good-tasting juice than when they try a bad-tasting juice. In contrast, low-knowledge participants are not likely to express different levels of internal attribution-based thoughts in relation to external attribution thoughts. Hence, the study's second hypothesis:

*H2: High-knowledge participants will express higher levels of valenced attributional thoughts when products are bad tasting as opposed to good tasting, whereas low-knowledge participants will not express different levels of valenced attributional thoughts.*

## EXPECTATION DISCONFIRMATION ON JUDGMENTS

As discussed earlier, expectation disconfirmation has evaluation consequences. Moreover, external attributions have been

shown to lead to less favorable ad evaluations, whereas internal attributions have been demonstrated to result in more favorable ad evaluations (Swinyard 1981; Jain, Buchanan, and Maheswaran 2000). Therefore, it is reasonable to argue that the more consumers perceive that products are worse than expected, the more likely they are to generate more negative ad and product evaluations. This study proposes that due to an enhanced level of expectation disconfirmation for high-knowledge participants, they will generate more favorable ad and product evaluations when products are good tasting as opposed to when products are bad tasting, whereas low-knowledge participants will not.

Olson and Dover (1979) have indicated that expectation disconfirmation also exerts impacts on purchase intentions. In addition, advertising research also indicates that direct experiences lead to stronger product attitudes and product purchase consistency (Smith and Swinyard 1982, 1983). All participants in this study will be exposed to ads and will have direct trial experiences. Given a stronger attitude-behavior consistency associated with direct experience, patterns of results similar to those for brand evaluations should emerge when product purchase intentions are concerned.

*H3: High-knowledge participants will express more positive ad attitudes (H3a), brand attitudes (H3b), and purchase intention (H3c) when products are good tasting as opposed to bad tasting, whereas low-knowledge participants will not express different ad attitudes, brand attitudes, or purchase intention.*

## METHOD

### Research Design

The study has one manipulated factor, product taste, with two levels—good taste versus bad taste. Participants were categorized into either the high-product knowledge group or the low-product knowledge group, based on a median split using a product knowledge scale.

### Participants

Eighty participants were recruited for this study. Participants were from the campus of a national university in Taipei and were paid for their participation.

### Stimuli

Three criteria guided the selection of the investigated product. First, the product had to be relevant to potential participants. Second, since this study involves direct trials of the product, it had to be easy to provide direct trial experiences,

not simply examination, of the investigated product. Finally, participants had to vary in their product knowledge to distinguish high-product knowledge consumers from low-product knowledge consumers. A pretest showed that beverages are among the top products that are most likely to be purchased by college students, the potential participants for this study. Providing direct trial experiences for beverages was executable and within reasonable research budgets. Among the different types of beverages available in Taiwan, fruit drinks offer a large selection and varying percentages of pureness, mix, and nutrition supplements. Therefore, compared with other drinks, researchers would be more likely to be able to distinguish participants who had high-product knowledge of fruit drinks from those who did not. It is also important to note that the study was scheduled to be conducted in late spring when a couple of new brands of fruit drinks were supposed to be launched, which made the false research story sound more credible. Based on the stated criteria, fruit drinks were selected to be the test product.

Professionals working at Ogilvy & Mather Ad Agency created the stimuli ads. Professional copywriters and creative people wrote ad messages and created visuals to fit message descriptions. A fictitious brand name, Spin-C, was adopted for the products. Based on a pretest that asked consumers to list important attributes they looked for when purchasing fruit drinks, three product attributes were featured in the ads: "good taste," "contains calcium," and "contains vitamin C." The ad copy read: "Spin-C—Your best choice. Delicious and fresh taste. Made from fresh fruits. Contains vitamin C, iron, and calcium supplements." To improve external validity, the ads were inserted between two real filler ads.

## Procedures

Participants were randomly assigned to one of the two different conditions: ad exposure with good-tasting product and ad exposure with bad-tasting product. The coordinator told participants that a new company was going to launch a new product and wanted to ask their opinions regarding the new product's ad. Then the assistant distributed a stimulus folder that started with brief instructions, followed by a filler ad, a stimulus ad, and another filler ad. Participants were instructed to read the ads as they would when they read magazine ads. After they finished reading, the assistant collected all the stimulus packages. The coordinator continued to suggest that to thank them for their participation, each of the participants would be provided with a free sample of the fruit drink of the same brand that was featured in the ad they had read. Then the assistant delivered the drinks in paper cups, which were seen being poured from a bottle with the exact same packaging as shown in the ad. After this, questionnaires were distributed. In the questionnaire, participants were asked to provide their thoughts

when they viewed the ad and tried the product. They then rated their responses to the ads and the brands. After this, they rated their purchase intentions and responded to a scale that assessed their product knowledge. After they finished the study, the coordinator conducted a short debriefing.

## Independent Variables

### *Product Taste: Good Versus Bad*

A pretest ( $N = 20$ ) was conducted to select one brand that was good tasting and another brand that was bad tasting. Six newly introduced brands of juice drinks were used in the pretest. Twenty participants were asked how good tasting they thought each brand of fruit drink was; they were also asked to guess the brand of the drink. Results of the pretest indicated that the brand selected to be the good-tasting drink was rated much higher on taste on a seven-point Likert scale than the brand selected to be the bad-tasting drink,  $t = 4.80, p < .01, M_{\text{good}} = 5.07, SD = 1.42, M_{\text{bad}} = 2.77, SD = 1.72$ . None of the participants correctly discerned the brand.

Responses from the main experiment also showed that the good-tasting drink was rated much higher on taste on a seven-point Likert scale than the brand selected to be the bad-tasting drink,  $F(1, 79) = 5.67, p = .02, M_{\text{good}} = 4.84, SD = 1.21, M_{\text{bad}} = 4.08, SD = 1.60$ . Therefore, manipulation checks were deemed satisfactory. It is also worth mentioning that the bad-tasting brand was withdrawn from the market due to low sales volumes one month after the study was conducted.

### *Product Knowledge: High Versus Low*

Product knowledge was a measured variable. Sujan (1985) has argued that measuring participants' product knowledge adds more ecological realism to the study than does manipulating participants' product knowledge. Measures of both subjective knowledge and objective knowledge have been adopted in the past (Brucks 1985). Nonetheless, Park and Lessig (1985) have suggested that measures of subjective knowledge can indicate how confident consumers are, as well as how much they know. Therefore, this study adopted subjective measures of product knowledge. Study participants appraised their subjective knowledge regarding the product category—juice drinks—by rating their agreement with four statements, using a seven-point Likert scale. The four statements were as follows: "I know a lot about juice," "I would consider myself an expert in terms of my knowledge of juice," "I know more about juice than my friends do," and "I usually pay a lot of attention to information about juice products." Cronbach's reliability  $\alpha$  was satisfactory at .88. Adopting Sujan's (1985) procedure, participants were categorized into two groups based

on a median split. The two groups differed significantly on the product knowledge scale,  $F(1, 79) = 173.32, p < .01, M_{\text{high}} = 3.83, SD = .83, M_{\text{low}} = 1.81, SD = .53$ .

In addition, high-product knowledge participants and low-product knowledge participants did not differ in their product involvement using a seven-point scale with 12 items selected from Laurent and Kapferer's (1985) product involvement scale,  $F(1, 79) = .86, p = .36, M_{\text{high}} = 4.36, SD = .69, M_{\text{low}} = 4.20, SD = .87$ , or in their attention to advertising using a five-item seven-point scale,  $F(1, 79) = .59, p = .45, M_{\text{high}} = 4.26, SD = 1.19, M_{\text{low}} = 3.84, SD = 3.18$ .

## Dependent Measures

### *Expectation Disconfirmation*

Participants were asked to rate how discrepant the product's taste was from their expectations on a seven-point Likert scale. The two items were as follows: "the product was highly discrepant from my expectation" and "the product was totally different from my expectation." The correlation of the two items was significant (Pearson's  $R = .71, p = .01$ ).

### *Valenced Attributional Thoughts*

The study adopted Smith and Hunt's (1978) approach to tap participants' attributional thoughts when they processed the ads. They were first asked to provide their thoughts regarding the ad and the product. They were then asked how truthful they believed the advertiser was with them, and were further questioned about their specific responses. Following Smith and Hunt (1978), cognitive responses were first coded to be either attributional thoughts or nonattributional thoughts. Attributional thoughts were further coded to be internal attribution thoughts or external attribution thoughts. Examples of internal attribution thoughts were "the fruit drink tastes as fruity as the ad suggests" and "the fruit drink should be very nutritious." Examples of external attribution thoughts were "the ad is simply trying to sell the product" and "the ad cheats consumers." External attribution thoughts were deducted from internal attribution thoughts to form the index of valenced attributional thoughts.

Coding procedures recommended by Kolbe and Burnett (1991) were employed to improve the objectivity of the coding. Two coders who were not aware of the research purpose coded the cognitive responses. The coding units were "sentences." The primary coder coded all the open-ended responses and the second coder coded 36% of them. Scott's  $\pi$  (Scott 1955) was employed to assess intercoder reliability. The Scott's  $\pi$  for the two coding categories were .89 and .94, respectively, which were deemed satisfactory. The items that the coders disagreed on were resolved through discussions.

### *Ad Attitudes*

A five-item seven-point Likert scale was used to measure participants' liking of ads. The items were adopted from Mad-den, Allen, and Twible (1988). The five items were "interesting," "good," "likable," "not irritating," and "pleasant." Cronbach's reliability  $\alpha$  for ad attitudes was deemed satisfactory at .88.

### *Brand Attitudes*

Brand attitudes were measured with a four-item Likert scale. The items were adopted from Mitchell and Olson (1981) and Holbrook and Barra (1987), as follows: "good," "likeable," "pleasant," and "positive." Cronbach's reliability  $\alpha$  for this scale was deemed satisfactory at .92.

### *Purchase Intention*

This semantic differential scale was adopted from Zhang (1996), with the three items as follows: improbable/probable, unlikely/likely, and impossible/possible. Cronbach's reliability  $\alpha$  for this scale was deemed satisfactory at .93.

## RESULTS AND ANALYSES

A multivariate analysis of variance (MANOVA) was first conducted on expectation disconfirmation, valenced attribution thoughts, ad attitudes, brand attitudes, and purchase intentions. Results showed that neither the main effect of product taste, Wilks's  $\lambda = .95, F = .79, p = .56$  (see Table 1), nor the main effect of product knowledge, Wilks's  $\lambda = .96, F = .62, p = .69$ , was significant. Yet, as expected, a significant interaction between product taste and product knowledge emerged, Wilks's  $\lambda = .83, F = 2.96, p = .02$ . Therefore, analyses of variance (ANOVAs) were further conducted to test the specified hypotheses.

H1 proposes that high-knowledge participants will express more expectation disconfirmation when products are bad tasting as opposed to good tasting, whereas low-knowledge participants will not express different levels of expectation disconfirmation. Although results of the ANOVA indicated that the interaction was not significant,  $F(1, 79) = .91, p = .34$ , given that the MANOVA generated a significant interaction and the hypotheses were established a priori, further simple comparison analyses were also conducted. When responses of the participants in the high-product knowledge group were analyzed, the influence of product taste (good versus bad) was significant,  $F(1, 37) = 4.72, p = .04$  (see Table 2), with good taste generating lower expectation disconfirmation than bad taste,  $M_{\text{good}} = 3.50, SD = 1.46, M_{\text{bad}} = 4.45, SD = 1.20$ . When responses of the participants in the low-product knowledge

**TABLE I**  
**Multivariate and Univariate Results of the Effects of Product Taste and Product Knowledge on Expectation, Valenced Attributional Thoughts, Ad Attitudes, Brand Attitudes, and Purchase Intention**

	Multivariate results			Univariate <i>F</i> values				
	Wilks's $\lambda$	<i>F</i> value	<i>df</i>	Expectation disconfirmation	Valenced attributional thoughts	Ad attitudes	Brand attitudes	Purchase intention
Product taste	.95	.79	(1, 79)	2.77	.14	.57	.69	1.07
Product knowledge	.96	.62	(1, 79)	.33	.03	.90	.01	.85
Product taste $\times$ product knowledge	.83	2.96**	(1, 79)	.91	11.78*	6.74*	4.65**	4.64**

\* $p \leq .01$ .  
\*\* $p \leq .05$ .

group were analyzed, the influence of product taste (good versus bad) was not significant,  $F(1, 41) = .21, p = .65, M_{\text{good}} = 3.64, SD = 1.73, M_{\text{bad}} = 3.90, SD = 1.90$ . The results of simple comparisons were consistent with expectations. Therefore, H1 was generally supported.

H2 proposes that high-knowledge participants will express higher levels of valenced attributional thoughts when products are good tasting as opposed to bad tasting, whereas low-knowledge participants will not express different levels of valenced attributional thoughts. ANOVA indicated that the interaction between product taste and product knowledge on valenced attributional thoughts was significant,  $F(1, 79) = 11.78, p = .01$ . When responses of the participants in the high-product knowledge group were analyzed, the influence of product taste (good versus bad) was significant,  $F(1, 37) = 4.99, p = .03$ , with good taste generating higher levels of valenced attributional thoughts than bad taste,  $M_{\text{good}} = .35, SD = 2.09, M_{\text{bad}} = -1.25, SD = 2.24$ . When responses of the participants in the low-product knowledge group were analyzed, the influence of product taste (good versus bad) was also significant, with bad taste generating higher levels of valenced thoughts,  $F(1, 41) = 6.96, p = .01, M_{\text{good}} = -1.36, SD = 2.59, M_{\text{bad}} = .63, SD = 2.19$ . That is, low-knowledge participants who tried bad-tasting products seemed to make more internal attributions, reasoning that the product did taste the way the ad suggested. It appears that, to assimilate their bad trial experiences with their ad-based evaluations, participants tried to persuade themselves by generating more internal attribution-based thoughts in relation to external attribution-based thoughts. The patterns were thus regarded to be consistent with expectations, confirming H2.

H3a suggests that high-knowledge participants will express more positive ad attitudes when products are good tasting as opposed to bad tasting, whereas low-knowledge participants will not express different ad attitudes. ANOVA indicated that the interaction between product taste and prod-

uct knowledge on ad attitudes was significant,  $F(1, 79) = 6.74, p = .01$ . Simple comparison analysis showed that participants with high product knowledge expressed more positive ad attitudes when the product tasted good than when the product tasted bad,  $F(1, 37) = 7.78, p = .01, M_{\text{good}} = 4.62, SD = .93, M_{\text{bad}} = 3.81, SD = .84$ . In contrast, participants with low product knowledge did not express different ad attitudes when the product tasted good as opposed to when the product tasted bad,  $F(1, 41) = 1.40, p = .25, M_{\text{good}} = 3.76, SD = 1.00, M_{\text{bad}} = 4.21, SD = 1.41$ . Therefore, H3a was supported.

H3b concerns brand attitudes. ANOVA indicated that the interaction between product taste and product knowledge on brand evaluations was significant,  $F(1, 79) = 4.65, p = .03$ . Simple level comparison analysis showed that participants with high product knowledge expressed significantly more positive brand evaluations when the product tasted good than when the product tasted bad,  $F(1, 37) = 4.45, p = .04, M_{\text{good}} = 4.50, SD = .97, M_{\text{bad}} = 3.71, SD = 1.24$ . Participants with low product knowledge did not express different brand evaluations when the product tasted good as opposed to when the product tasted bad,  $F(1, 41) = .89, p = .35, M_{\text{good}} = 3.94, SD = 1.09, M_{\text{bad}} = 4.28, SD = 1.27$ . The results supported H3b.

H3c concerns levels of purchase intentions. ANOVA indicated that the interaction between product taste and product knowledge was significant,  $F(1, 79) = 4.64, p = .04$ . Simple comparison analysis showed that participants with high product knowledge expressed higher purchase intentions when the product tasted good than when the product tasted bad,  $F(1, 37) = 5.11, p = .03, M_{\text{good}} = 4.41, SD = 1.55, M_{\text{bad}} = 3.15, SD = 1.80$ . In contrast, participants with low product knowledge did not express different levels of purchase intentions when the product tasted good as opposed to when the product tasted bad,  $F(1, 41) = .63, p = .42, M_{\text{good}} = 3.92, SD = 1.83, M_{\text{bad}} = 4.37, SD = 1.72$ . Therefore, H3c was supported.

**TABLE 2**  
**Means and (Standard Deviations) for High-Knowledge and Low-Knowledge**  
**Participants When Trying Good- and Bad-Tasting Juices**

	High-knowledge participants				Low-knowledge participants			
	Good taste	Bad taste	F	p	Good taste	Bad taste	F	p
Expectation disconfirmation	3.50 (1.46)	4.45 (1.20)	4.72	.04	3.64 (1.73)	3.90 (1.90)	.21	.65
Valenced attributional thoughts	.35 (2.09)	-1.25 (2.24)	4.99	.03	-1.36 (2.59)	.63 (2.19)	6.96	.01
Ad attitudes	4.62 (.93)	3.81 (.84)	7.78	.01	3.76 (1.00)	4.21 (1.41)	1.40	.25
Brand attitudes	4.50 (.97)	3.71 (1.24)	4.45	.04	3.94 (1.09)	4.28 (1.27)	.89	.35
Purchase intentions	4.41 (1.55)	3.15 (1.80)	5.11	.03	3.92 (1.83)	4.37 (1.72)	.63	.42

## DISCUSSION

Although expectation disconfirmation has been acknowledged as an important mechanism of product satisfaction that involves ad exposures and product trials, there has been a notable lack of attention to its potential contingent factors. This study examined product class knowledge as one possible contingent variable of the expectation disconfirmation mechanism. Specifically, it explored participants' attributional thinking to establish the different cognitive processes triggered by the discrepancy between ad-based expectations and direct product experiences. For high-knowledge consumers, once they have tried the product, their product experiences seem to be diagnostic for them in generating expectation disconfirmation. When product performance does not live up to their expectations, they perceive higher levels of discrepancy between personal experiences and ad conjectures than do low-knowledge consumers. In the process, they also generate more external attribution-based thoughts than internal-based attribution thoughts. Due to these differences, high-knowledge consumers express more negative responses to the ad and the brand than do low-knowledge consumers. That is, in the process of brand evaluation formation that involves ad exposure and direct product experiences, ad exposure seems to play different roles for high-knowledge versus low-knowledge consumers. For high-knowledge consumers, ad exposure generates expectations against which direct product experiences are judged. For low-knowledge consumers, ad exposure biases interpretations of subsequent product experiences.

Yet other explanations of the different responses by high-knowledge consumers versus low-knowledge consumers cannot be ruled out. For example, it is likely that high-knowledge consumers are better in their sensory discriminating abilities than are low-knowledge consumers. In addition, high- and low-knowledge consumers may differ in their knowledge of preferences, or in the different weight they give to advertising and sensory experiences in forming their brand attitudes.

This study's findings highlight the importance of expectation management for marketers. For high-knowledge consumers, designing advertising claims that develop reasonable

expectations, against which product performance can be favorably measured, should be more effective and less likely to generate negative effects. For low-knowledge consumers, overstatements in advertising that cannot be verified easily may work as expected in that they predispose low-knowledge consumers to affirm ad-based expectations and thus reduce the possible negative influence of the unpleasantness of subsequent product trials or product experiences.

When managing consumers' expectations, however, marketers should also understand the characteristics of different products. This study explores the expectation disconfirmation process triggered by the interplay of ad exposure and direct experiences of a product whose most salient attributes are experiential and can be evaluated via trials. As Kempf and Smith (1998) have proposed, trial experiences are more diagnostic when the most salient product features are experiential as opposed to nonexperiential. Therefore, findings regarding expectation disconfirmation for high-product knowledge participants may not emerge when ads feature nonexperiential products, whose consumption may not be diagnostic, even for high-knowledge consumers. Past literature has also indicated that expectation disconfirmation effects vary for durable and nondurable products (Churchill and Surprenant 1982). Exploring different product categories within the same research paradigm will help establish the contingencies of expectation disconfirmation effects. Besides product category differences, past literature has also acknowledged the differences between search attributes and experience attributes, and has shown that direct experiences are only diagnostic for discerning performance of experience attributes, not search attributes (Wright and Lynch 1995). Therefore, even high-knowledge consumers may confirm advertising messages emphasizing search attributes, which cannot be verified by direct experiences.

Degrees of discrepancy have not been specifically manipulated in this study. It is likely that a high degree of discrepancy will irritate consumers regardless of their degree of product knowledge. Every reader of this paper can probably retrieve many personal experiences from memory illustrating the disappointment he or she felt when realizing that a seri-



ous discrepancy existed between what an ad suggested and what the product was really like, and how that discrepancy made him or her swear never to purchase the product again, regardless of how positively they originally thought about the product. Therefore, whether the disconfirmation bias in accordance with ad expectations is only limited to a relatively lower level of discrepancy can be further explored.

In addition, past literature has indicated that, other than advertising exposure, expectations can be based on norms for the product category (Johnson, Anderson, and Fornell 1995). In other words, product category norms may also interact with advertising messages, and together form the performance expectations with which consumers compare their product experiences. Therefore, future research can further explore the antecedents or the nature of pretrial expectations. It is likely that the antecedents or the nature of product expectations may also vary across different individuals and product categories.

This study only explored the condition in which ad exposure was followed by direct experience. On some occasions, product experiences may precede exposure to ad messages. Therefore, the presentation order of product information may complicate consumers' product judgments. For example, Marks and Kamins (1988) have shown that attitude change generated by negative disconfirming product experiences varies in different degrees for an advertising-sample exposure sequence and a sample-advertising exposure sequence. It would be interesting for future research to explore whether further ad exposures after product trials are able to dilute negative trial experiences. For example, a recent investigation has indicated that even advertising exposure after a direct product experience can alter consumers' memories of their product experiences (Braun 1999).

Finally, the results of this study should be considered in light of several other limitations. First, product knowledge in this study is based on perceived knowledge, not objective knowledge. Even though the participants in the two product knowledge groups did not differ in their product involvement and attention to advertising messages, it is likely that perceived product knowledge can be confounded by personality variables, such as confidence, ego strength, and so forth. Moreover, perceived product knowledge is likely to co-vary with other important variables, such as product experiences. Unless the possible confounding impacts can be partialled out, it is difficult to establish the moderating role of product knowledge itself. Furthermore, there is no time lapse between ad exposure and product experience in this study. This may pose a threat when we attempt to generalize the findings to real-life situations, when product experiences usually are not closely preceded by ad exposure. Finally, this study only explored one low-involvement product. As discussed earlier, products vary in many different dimensions, and the confirmation expectation process may thus change as a function of product

differences. Regardless of the limitations, this study points out the importance of the interaction between ad exposure and product experience. Yet the interaction may be far more complex than can be fully explored and understood via a single study. More research efforts are warranted to better our understanding of other possible interactions that involve ad exposure and direct trial.

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