Building and Testing Models of Consumer Purchase Intention in Competitive and Multicultural Environments

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Abstract

In this research, we develop and empirically test a model of consumer purchase behavior in a competitive environment using aggregate data from two experiments with North American and Chinese consumers. Our research extends the dual mediation model to include ad affective responses, confidence in evaluating a brand and competition. The results show that ad affect is an important determinant in the formation of ad attitude. Consumers' brand cognitions not only impact their brand attitudes, but also influence their confidence in evaluating the brand. Confidence determines their purchase intentions. In addition, competing ads and brands have detrimental effects on consumers' attitudes and purchase intentions toward a focal brand in a focal ad. However, North American and Chinese consumers follow the same brand decision-making process regardless of their cultural orientation. Our study also includes directions for practical applications and future research.

Keywords: Consumer Decision-making; Affect; Confidence; Competition.

Introduction

Existing information processing theory generally argues that consumers process attribute information independently for different brands and compare the values summated across all relevant attributes (Fishbein and Ajzen 1975). However, this theory limits the ability of consumer behavior models to discover the real marketing phenomenon, because competition has been ignored. Consumer decision-making process is a competitive comparison and is the result of competition at each stage of ad and brand information processing (Laroche 2002; Laroche and Sadokierski 1994). Even though the dual mediation model has been widely adopted by researchers studying the underlying causal determinants and consequents of attitude toward ad (Aad), attitude toward brand (Ab) and purchase intention (PI) constructs, it also does not take competition into account. In addition, the model misses ad affect (AFFad) and confidences in evaluating the brand (CONb), which are key constructs and have important implications in terms of the formations of ad attitude and purchase intention (Edell and Burke 1987; Gardner 1985; Laroche 2002). Therefore, our study attempts to address these issues and contribute to the literature on the understanding of the mechanisms that information about a competing ad and brand is processed comparatively and that evaluations of the competing ad and brand directly and negatively influence evaluations of a focal ad and brand. It provides a more comprehensive understanding of the effects of advertising on consumer attitude and purchase intention in multiple-ad and multiple-brand environments. In addition, while consumer decision-making process continues to be an important topic for both researchers and marketing practitioners, there have been few attempts to assess the consumer brand decision-making process across cultures. Thus, another goal of the research is to extend the framework into a multicultural setting.

Conceptual Background and Model

Borrowing from the dual mediation model (Brown and Stayman 1992; MacKenzie and Lutz 1989; MacKenzie, Lutz, and Belch 1986), affect (Edell and Burke 1987; Gardner 1985), confidence in evaluating a brand (Howard 1989; Laroche and Sadokierski 1994) and competition (Laroche, Kim and Zhou 1996), our conceptual framework (Figure 1) posits that consumers' affective responses directly influence their ad attitudes. Ad affect plays an important role in the formation of Aad (Edell and Burke 1987; Gardner 1985; Homer 1990; Mitchell 1986). Consumers' brand cognitions not only influence his/her brand attitude, but also impact his/her confidence in evaluating the brand. Consequently, the consumer's brand attitude and confidence determine his/her purchase intention (Laroche 2002; Laroche, Kim and Zhou 1996). Competing ads and brands may have effects on consumers' selection of a focal brand in a focal ad. This research framework is generally supported by previous research in the literature.

Insert Figure 1 about here

Competitive Cad and AFFad Effects on Aad

Research has endeavored to better understand the antecedents of Aad (Homer 1990; MacKenzie, Lutz, and Belch 1986). On one hand, an ad context can influence ad evaluations (Burke and Edell 1989; Hastak and Olson 1989; Keller 1991; Singh and Churchill 1987). The thoughts about the ad's characteristics during ad exposure are viewed as cognitive responses, which determine Aad formation (Edell and Burke 1987). On the other hand, as Lutz (1985) suggested, the determinants of Aad are not all cognitively based responses to an ad. Other Aad determinants such as the moods elicited by the ad are simply the individuals' affective state when exposed to the ad. The advertising context can also generate a reader's overall affective reactions. Affective responses play an important role in the advertising context, since feelings

may not only be triggered very quickly (Zajonc 1980), but may also influence subsequent processing (Gardner 1985). Goldberg and Gorn (1987) demonstrated that mood evoked by a television program carried over to the subject's felt mood while s/he watched the associated commercials. The subject's evaluations toward the commercials were impacted by the nature of the program. A happy program generated greater ad effectiveness and more positive responses while a sad program induced negative responses. Thus, the attribute-based cognitive responses, as well as the affective responses generated by ad stimulus, have an influential role on the formation of Aad.

Furthermore, Lutz (1985) indicated that cognitive antecedents are perhaps determinants of affective responses to advertising stimuli. Advertising may influence individual responses by inducing mood states from an ad context. On the other hand, individuals who have good feelings may readily generate positive cognitive responses. Therefore, although cognitive and affective responses are distinct, they are related to and impact each other. It was hypothesized that:

H1: Consumers' cognitive and affective responses toward an ad are correlated when consumers are exposed to the ad.

On the basis of the previous discussion, it is assumed that both cognitive and affective responses to an ad influence the evaluations of the same ad. However, any ad does not exist in a vacuum, and it competes with other ads, so that one consumer's general perceptions of other ads may have effects on his/her attitude toward the focal ad (Laroche, 2002). Therefore, this research extends the Cad/AFFad→Aad relationships to a competitive context. This leads to the hypotheses that:

H2a: Consumers' cognitive reactions to a focal ad and competing ads will influence their attitudes toward the focal ad.

H2b: Consumers' affective reactions to a focal ad and competing ads will influence their attitudes toward the focal ad.

Competitive Aad Effects on Cb

Research has shown that a favorable Aad may result in favorable brand beliefs (Lutz, MacKenzie and Belch 1983). For example, supportive arguments may result in a favorable Aad and increase the strength of existing beliefs toward the brand in the ad. However, counter-arguments to an ad that possesses specific attributes are likely to decrease one's Aad and, in turn, reduce his/her strength of beliefs toward the advertised brand.

MacKenzie, Lutz, and Belch (1986) also argued that as ad message involvement decreases and ad execution involvement increases, the influence of Aad on Cb should increase due to the documented effects of peripheral cues on object perceptions. Brown and Stayman (1992) confirmed that the Aad-Cb link is robust across a majority of studies. Aad influences Ab both directly, and indirectly, by means of Cb. The underlying rationale is that an individual's overall reactions to an ad impact his/her propensity to accept the ad message content (Coulter and Punj 1999). This seems to be the more popular view that a positive (negative) Aad may yield more (less) favorable Cb. Incorporating competitive effects into the model of consumer purchase intention and consistent with the theory in the dual mediation model, it was hypothesized that:

H3: Consumers' attitudes toward a focal ad and competing ads will influence their cognitions toward the focal brand in the focal ad.

Competitive Aad and Cb Effects on Ab

Research has indicated that there is a significant relationship between Aad and Ab. A strong positive attitude toward an advertisement might turn into brand preference, consciousness and loyalty (Brown and Stayman 1992; MacKenzie, Lutz and Belch 1986). However, any ad competes with other ads in the marketplace, so a consumer's generally positive responses to other ads may have an influence on his/her attitude toward the advertised brand in a focal ad. Therefore, this research extends the Aad-Ab relationship to a competitive environment.

Furthermore, Ajzen (1993) argued that most contemporary social psychologists prefer the cognitive approach to attitude formation. They believe that attitudes develop from beliefs that people hold about an object. The object is associated with certain attributes and characteristics. A positive or negative valence is assigned to each attribute, and all attributes are summated to form the attitude. Hence, on exposure to an ad, an individual's brand cognitions (such as beliefs toward the brand in the ad) determine his/her attitude toward the same brand. However, the consumer may also use his/her prior experience about the main attributes of different brands to discriminate a particular brand from other brands. His/her attitude toward a focal brand not only depends on his/her brand cognition toward the brand, but also on his/her perceptions of competing brands in a consideration set (Laroche 2002; Woodside and Clokey 1974).

Overall, both Aad and Cb determine the formation of Ab. Taking the competitive effects into account (Laroche, Kim and Zhou 1996) and remaining consistent with the literature (Brown and Stayman 1992; MacKenzie and Lutz 1989), it was hypothesized that:

H4a: Consumers' attitudes toward a focal ad and competing ads will influence their attitudes toward the focal brand in the focal ad.

H4b: Consumers' brand cognitions toward a focal brand and competing brands will influence their attitudes toward the focal brand.

Competitive Cb Effects on CONb

Confidence is defined as "the buyer's degree of certainty that his/her evaluative judgment of the brand is correct" (Howard 1989, p. 34). This definition states that confidence not only pertains to the buyer's overall belief in a particular brand, but also involves the buyer's ability to evaluate the attributes of the brand. A consumer's confidence in evaluating a brand is a function of his/her familiarity with the brand (Laroche, Kim and Zhou 1996; Park and Lessig 1981). Familiarity with a brand increases the consumer's ability to efficiently comprehend and use new

information related to the brand (Urbany, Dickson and Wilkie 1989). Consumers who are aware of brand attributes in a given product category can discriminate between different brands easily and confidently. One of the reasons consumers are confident in discriminating between brands is that their memory plays a part in the phenomenon of confidence. The key to whether consumers have confidence in their assessment of a specific brand is the extent to which they remember the brand's attributes. Consumers' confidence in using what is retrieved from their memory reflects their cognitions toward a brand such as their conviction in their beliefs about the brand. They should have greater confidence in evaluating a brand as they receive better cognitions toward the brand. In cases where an individual is very familiar with or believes in the importance of a brand's attributes, he/she may carefully remember information about the brand. On the other hand, if the individual is unfamiliar with or does not believe in the importance of a particular brand's attributes, he/she may only randomly remember information about the brand. Since consumers consider only a few alternatives instead of all the available brands within a given product category because of their limited capacity and memory space (Howard and Sheth 1969), it can be maintained that the more cognitions toward a focal brand, the more memory space is used for that brand and the less for the competing brands. Therefore, it was hypothesized that:

H5:   Consumers' brand cognitions toward a focal brand and competing brands will influence their confidence in evaluating the focal brand.

Competitive Ab and CONb Effects on PI

In advertising literature, numerous studies have demonstrated that attitude toward a brand significantly impact intention to buy that brand (Brown and Stayman 1992; Homer 1990; MacKenzie, Lutz and Belch 1986). In consumer behavior literature, some researchers have also indicated that there is a significant positive relationship between brand attitude and intention to buy. Of particular note is, Laroche, Kim and Zhou (1996), which proposed a multi-brand model

of intentions that indicates that consumers' intentions to choose a specific brand are based on the attitudes held simultaneously about all the brands in a product category. They found that a consumer's intention to buy a focal brand is determined not only by his/her attitude toward the same brand, but also by his/her attitudes toward other brands within the consideration set.

In addition, researchers have suggested that confidence is one of the determinants of purchase intention, and plays a key role in predicting intention to buy (Bennett and Harrell 1975; Laroche and Sadokierski 1994). For example, Laroche and Sadokierski (1994) demonstrated that intention to choose an investment firm depends on confidence in the evaluations of the firm. Particularly, confidence in evaluating a specific investment firm has a much stronger effect on intention to buy than attitude toward the investment firm. Consumers are more likely to purchase a brand when they have a high degree of confidence in evaluating the brand. In a later study, Laroche, Kim and Zhou (1996) found that if an individual's confidence in evaluating competing brands is stronger, his/her intention to buy a focal brand will be lower.

Together, brand attitude and confidence in evaluating the brand contribute to the formation of purchase intention. They play an important role in predicting consumer intention behavior. Therefore, the following hypotheses were developed:

H6a: Consumers' brand attitudes toward a focal brand and competing brands will influence their purchase intentions toward the focal brand.

H6b: Consumers' confidence in evaluating a focal brand and competing brands will influence their purchase intentions toward the focal brand.

Culture in Consumer Decision-Making Process

As more firms operate globally looking for growth and profit in international markets, an understanding of how culture influences consumer purchase behavior is essential for marketers and advertisers. Cultural factors that have been studied to date with regard to their impact on

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purchase behavior include cultural values (Han and Shavitt 1994; Zhang and Gelb 1996), emotion type (Williams and Aaker 2002) and information content (Hong, Muderrisoglu and Zinkhan 1987). However, research to date concerning the influence of culture on consumer attitude and purchase intention has produced conflicting results. Zhang and Gelb (1996) found that advertising appeals emphasizing individual benefits have more influence on consumer brand attitude and purchase intention in the United States than in China, whereas advertisements emphasizing in-group or family benefits have more influence in China. Similarly, Aaker and Maheswaran (1997) found that consensus information exerts a larger impact in Hong Kong than in the United States. In contrast, Mathur (1998) argued that consumers' beliefs, attitudes, and intentions in decision-making processes are expressed in a similar way in different cultures. Given the above mixed results with research into the influence of culture on consumer purchase behavior, it is not surprising that research into the influence of culture on consumer decision-making has also produced conflicting findings. Unfortunately, there is no explanation for these inconsistent findings in literature, so cross-cultural similarities and differences in consumer decision making process need further exploration.

Overall, consumer research has dealt extensively with the effect of culture on behavior in general and with behavioral differences across cultures. However, much of this research on culture is limited to mean comparisons (i.e., comparing the means of brand attitude and purchase intention between two cultures), and the specifics of whether or not culture influence specific stages of the model have received little empirical attention. Given the importance of advertising as a cross-cultural marketing tool, testing the factors that impact consumer attitudes and purchase behaviors, and examining their relationships cross-culturally are important steps in assessing the cultural values of ad effectiveness. We are interested in examining the consumer decision-

making process through which North American and Chinese consumers evaluate ad and brand information and make judgments. We expect that North American and Chinese consumers follow different brand choice processes. Thus, it was hypothesized that:

H7:   The extended competitive vulnerability model of consumer decision-making process varies between North American and Chinese consumers.

Method

Research Design

To test the proposed model by using the aggregate data, two experiments were conducted both in North America and China. Experiment 1 used a 2 (appeal: individualistic vs. collectivistic-laden advertising appeal) x 2 (argument strength: weak vs. strong argument) x 2 (competition: focal vs. competing ad) x 2 (culture: individualist vs. collectivist) research design. Aside from the replacement of arguments with culture-laden pictures, the procedure for experiment 2 was identical to that of experiment 1. Experiment 2 used a 2 (appeal: individualistic vs. collectivistic-laden advertising appeal) x 2 (picture: individualistic vs. collectivistic-laden advertising picture) x 2 (competition: focal vs. competing ad) x 2 (culture: individualist vs. collectivist) research design.

Two digital cameras were chosen as the stimulus product. Two hypothetical brands of digital cameras were presented. The two brands were priced at approximately the same value and this constituted the controlled price attribute. The print ads for the digital cameras differed in appeal, picture and attribute information, and were constructed in full color to imitate magazines ads. The cameras in the focal and competing ad were similar in size, but different in design. In order to ensure equal print quality of the ads, those that were used in China were also printed in North America.

Stimuli Development

Based on interviews with both North Americans and Chinese subjects, five individualistic appeals and five collectivistic appeals were developed. Several rounds of pretesting were done with separate groups (total sample size = 56) of North American-born and Chinese-born faculty members, staff and EMBA/MBA students at a northeastern North American university. From the results of the pretest, "Achieve Genuine Self-expression" was selected for the final individualistic appeal and "Share the Joy with Those You love" for the final collectivistic appeal. The two appeals indeed reflected the respective group cultural values and norms (Lin 2001; Zhang and Gelb 1996).

In experiment 1, different levels of argument strength (with or without actual attributes) were used to generate positive or negative cognitions for the focal ad and competing ad, respectively. In experiment 2, ad arguments in the focal ad and competing ad were manipulated to be identical. The results of manipulation checks of two-pre-tests showed that the arguments had been identified correctly ($p < .01$). The text for the advertising appeals and arguments were translated from English into Mandarin and back-translated to ensure equivalence.

Culture-laden advertising pictures which would elicit positive or negative feelings were manipulated in experiment 2. The results of the pre-test (total sample size = 21: 10 North American-born and 11 Chinese-born subjects) showed that the two pictures which were selected had been identified correctly ($p < .01$). One picture emphasizing self-expression and uniqueness tends to be more favorable for North Americans, while the other picture emphasizing group connections and the feeling of harmony with others tends to be more favorable for Chinese. The two pictures for use in experiment 2 indeed reflected the respective group values and norms.

Participants

Both experiment 1 and experiment 2 were conducted with "real" consumers in North America and China in 2002. Two large northeastern cities were chosen for data collection sites in North America. Subjects from one college, two universities, three companies, five shopping malls, two churches and one hospital were invited to participate in the experiment in return for a gift made in China (approximate value $5). The participants were chosen as randomly as possible from the above two cities and consisted of North Americans of both genders and various occupations, levels of income and social status. Similarly, Chinese experimental participants were from 21 different units including three universities, eight companies, five government departments, two hospitals, two hotels and one research institute in the cities of Jiangsu and Beijing. All subjects participated in return for a gift made in North America (approximate value $5). Data collection was conducted in small groups (n = 3-25), where subjects were randomly assigned into one of the design groups. A total of 165 North American (54% female, mean age =36.2), as well as 252 Chinese (52% female, mean age =32.5) subjects participated in experiment 1 while a total of 182 North American (55% female, mean age =37), and 258 Chinese (51% female, mean age =31) subjects participated in experiment 2.

Measures

The same measures were used in both experiments in North America and China. These measures were translated from English into Mandarin and back-translated to ensure equivalence. We used multi-item scales to measure the model constructs. Literature from advertising, psychology, and marketing provide the basis for the measurement of the consumer brand selection process. The questionnaire was pretested several times and was refined on the basis of the pretest results. Following Anderson and Gerbing (1988), we conducted confirmation factor analysis to assess the reliability and validity of the multi-item scales for the proposed model. In

terms of construct reliability (i.e., greater than .60) and percentage of variance extracted by the latent construct (i.e., greater than .50), all the individual scales exceeded the recommended minimum standards proposed by Bagozzi and Yi (1988).

Ad cognition (Cad). Cad was measured by a 5-item, 7-point semantic differential scale (very unpersuasive/very persuasive, very uninformative/very informative, not very meaningful/ very meaningful, very unrealistic/very realistic, and not appealing to my individual values/ appealing to my individual values). These items were used to assess the content, graphic design and layout of both the focal brand ad and the competing ad. Some of these items were drawn from previous studies (Edell and Burke 1987; MacKenzie, Lutz and Belch 1986; Miniard, Bhatla and Rose 1990). The coefficient alphas of these five scales ranged from .75 to .86 for the two ads and for the North American and Chinese subjects.

Ad affect (AFFad). AFFad was assessed by a 2-item scale (unpleasant/pleasant and unexciting/exciting) (Edell and Burke 1987; Holbrook and Batra 1987). The coefficient alphas of these two scales ranged from .72 to .88 for the two ads for the two groups.

Attitude toward the ad (Aad). This construct was measured by a 4-item, 7-point scale (1= very bad, very unfavorable, highly uncreative, and least attractive; 7=very good, very favorable, highly creative, and very attractive). Some of these items have been used in previous studies (Gardner 1985; MacKenzie, Lutz and Belch 1986; Miniard, Bhatla and Rose 1990; Zhang & Gelb 1996). In this research, the coefficient alphas of these four scales ranged from .76 to .90 for the two ads and for the two groups.

Brand cognition (Cb). Cb was initially a four-item scale, but two items were eliminated during the measurement model analysis. Thus, the final measure is a two-item scale (less salient attributes/more salient attributes, and low quality/high quality). It was scored on a 7-point Likert

scale ranging from 1 to 7 for measuring subjects' beliefs (Coulter and Punj 1999). The coefficient alphas of the two items ranged from .69 to .82 for the two brands and for the two groups.

Attitude toward the brand (Ab). This construct was measured with three items (dislike quite a lot/like quite a lot, unsatisfactory/ satisfactory, and very unappealing/very appealing) with end-points labeled "1" to "7" (Gardner 1985; MacKenzie and Lutz 1989; Miniard, Bhatla and Rose 1990; Mitchell 1986). The coefficient alphas of these three scales ranged from .71 to .85 for the two brands and for the two groups.

Confidence in evaluating the brand (CONb). CONb was assessed with two 7-point scales (1= not confident at all, very uncertain; 7= very confident, very certain) (Laroche, Kim and Zhou 1996). The coefficient alphas of these two scales ranged from .85 to .90 for the two brands and for the two groups.

Purchase intention (PI). This construct was measured with four items (Mathur 1998; Yi 1993). These items were: "I would definitely intend to buy/ absolutely consider buying/definitely expect to buy /absolutely plan to buy the digital camera" (1 = strongly disagree and 7 = strongly agree). The coefficient alphas of these four scales ranged from .72 to .88 for the two brands and for the two groups.

Results

Initial analysis indicated no treatment effects for the order in which the two ads were administered (*F's* < 1). There were also no treatment effects for the two hypothetical brand names (*F's* < 1).

Manipulation Checks

Consistent with the manipulation, North American subjects evaluated the individualistic-laden advertising appeal more favorably than the collectivistic-laden advertising appeal ($M = 5.68$ versus $M = 4.60$, $F = 20.77$, $p < .01$). In contrast, Chinese subjects rated the collectivistic-laden advertising appeal more favorably than the individualistic-laden advertising appeal ($M = 5.63$ versus $M = 4.38$, $F = 37.02$, $p < .01$).

A composite score consisting of three items was derived and used to check the manipulation of arguments for the North American and Chinese subjects. For the North American subjects, the scores of the strong argument, neutral argument and weak argument significantly decreased in order ($M = 5.89$, 4.12 and 3.27, $F = 51.94$, $p < .01$). Similarly, for the Chinese subjects, the scores for the three arguments also significantly decreased in order ($M = 5.77$, 4.09 and 3.02, $F = 76.32$, $p < .01$). Overall, our advertising appeal and argument manipulations were effective for both the North American and Chinese subjects.

A composite score consisting of two items was derived and used to check the manipulation of pictures for the North American and Chinese subjects. For the North American subjects, the scores of the individualistic-laden advertising picture, neutral picture and collectivistic-laden advertising picture significantly decreased in order ($M = 5.28$, 4.93 and 4.36, $F = 14.83$, $p < .01$). For the Chinese subjects, however, the scores for the three pictures significantly increased in order ($M = 4.33$, 4.87 and 5.36, $F = 18.25$, $p < .01$). Overall, our advertising appeal and picture manipulations were effective for the two groups.

Test of Hypotheses

The extended competitive vulnerability model in Figure 1 was analyzed by using the maximum likelihood method (i.e., ML), with EQS software (Byrne, 1994). Based on the aggregate data from the two experiments, the model was first tested separately for the North

American and Chinese subjects. Secondly, a comparison between the two groups was conducted to examine whether the measurement items of the proposed model were invariant across the North American and Chinese subjects. Thirdly, further examination was done to statistically compare the parameter estimates across the two groups and determine whether the structural relationships of the proposed model were invariant.

Baseline models. Assessment of the overall proposed model fit for each group was based on: (1) the comparative fit index (CFI values > .90 are indicative of good fit, Baumgartner & Homburg, 1996), and (2) acceptability criterion for the chi-square (less than 3 times the number of degrees of freedom, Byrne, 1994). By applying the aggregate data of the two experiments, the results of the structural analyses indicate a very good performance by the proposed model. For the North American subjects, the overall fit of the model is excellent (i.e., $\chi^2 = 1700.35$, 868 df , CFI = .94, standardized RMR = .14, and RMSEA = .06). Similarly, the overall fit of the model for Chinese subjects is also excellent (i.e., $\chi^2 = 2162.74$, 868 df, CFI = .93, standardized RMR = .13, and RMSEA = .06). These results suggest that the observed structure is consistent with the proposed framework of the consumer purchase intention. Figure 2 shows the results of the two group model estimation.   --------------------------------

Insert Figure 2 about here

Given the adequate goodness of fix indexes, we processed to test our hypotheses. Hypothesis 1, which posits Cad and AFFad are positively correlated for both the focal ad and competing ad, was supported across North American and Chinese subjects (p<.01). Hypothesis 2a, which states that consumers' cognitive reactions to a focal ad and competing ads influence their attitudes toward the focal ad, was also supported across the two groups (p<.01). Hypothesis 2b was partially supported; consumers' attitudes toward a focal ad increase while their affective

responses to the same ad increase, but the relationship between consumers' attitude toward the focal ad and their affective reactions to the competing ad was not significant ($p>.01$). Hypothesis 3 was also partially supported; consumers' brand cognitions toward a brand in an ad are positively influenced by their attitudes toward the same ad ($p<.01$), although consumers' brand cognitions toward the focal brand in the focal ad may decrease while their attitude toward the competing ad increases, but only one effect was significant. We proposed in Hypotheses 4a and 4b that in addition to the direct effects on attitudes toward the focal brand, consumers' attitudes toward a focal ad have an indirect influence on their attitudes toward the focal brand through their cognitions toward the same. Consumers' attitudes toward the focal brand in the focal ad are negatively influenced by their attitudes toward the competing ad. The Chinese sample data strongly supports the two hypotheses ($p<.10$) while the North American data supports H4a ($p<.01$), not H4b ($p>.10$). We found support for Hypothesis 5 in the two groups, since consumers' confidence in evaluating a brand increases while their cognitions toward the same brand increase ($p< .05$). However, this confidence decreases while their cognitive evaluations of another brand increase ($p< .05$). Hypothesis 6a was strongly supported, since consumers' attitudes toward a brand positively influence their purchase intentions toward the same brand while their attitudes toward the competing brand negatively influence their purchase intentions toward the focal brand ($p< .01$). In addition, the results also strongly supported our H6b that consumers' confidence in a focal brand and competing brands both determine their purchase intentions toward the focal brand ($p< .01$).

Measurement model. The baseline models offer separate assessments of the applicability of the relationships to each group. The statistical significance of the between-group difference in the proposed model of consumer decision-making was tested in a subsequent multi-sample model,

imposing measurement equality constraints between North American and Chinese subjects. A more stringent test was imposed by holding the elements of the measurement model equal across the two groups. In this initial test of invariance, all constraints held and all the associated probabilities are greater than .05. The results clearly indicate an excellent fit (CFI= .93, standardized RMR= .28, and RMSEA= .04), with a chi-square of 3870.56 (df = 1766, p< .001). Hence, we conclude that the items comprising Cad, AFFad, Aad, Cb, Ab, CONb and PI are essentially identical for the North American and Chinese subjects.

Structural Model. In the third level of analysis, additional constraints were added to test whether the structural parameters change across the two cultures. In the subsequent test of equality (Lagrange-Multiplier tests), all invariance constraints held across North American and Chinese consumers (i.e., all probability values were > .05). The results of the aggregate-level structural analysis show a very good performance of the model (CFI= .94, standardized RMR= .14, and RMSEA= .04), with a chi-square of 3888.33 (df = 1800, p< .001).

Accordingly, these results support that consumers' cognitive responses of, and affective reactions to, a focal ad positively influence their ad attitudes, brand cognitions, brand attitudes, confidence levels and purchase intentions of the focal brand in the focal ad versus the competing brand in the competing ad. However, all the equality constraints of measurement and structural parameters held (the associated probabilities are > .05), so our H7 was not supported. In other words, the extended competitive vulnerability model of consumer decision-making process is invariant across two cultures. Overall, we conclude that all the elements of the extended competitive vulnerability model operate similarly for North American and Chinese consumers.

Discussions, Limitations and Future Research

Although prior research in advertising and consumer behavior has adopted the dual mediation model to study consumer attitude and purchase behavior, it is inappropriate to apply previously developed theoretical framework to analyze the effects of advertising on consumers' emotions and confidence in evaluating a brand in their decision-making process. The results of our study suggest that ad affect is an important determinant in the formation of ad attitude. The higher level of affective responses to an ad leads to a higher evaluation of the ad. In addition, the findings also show that one's brand cognition not only impact his/her brand attitude, but also influence his/her confidence in evaluating the brand. Confidence determines his/her purchase intention. A higher level of confidence in evaluating a brand leads to increased intention to buy the brand. In sum, these results strongly support the notion that ad affect and confidence in evaluating a brand can be incorporated into the dual mediation model.

This study also provides insight into research in information processing theory. For example, Fishbein and Ajzen (1975) argued that consumers evaluate attribute information independently for several different brands and compare the values summed across all relevant attributes. The results of this research suggest that information about a competing ad and brand is processed comparatively and that evaluations of a competing ad and brand directly affect evaluations of a focal ad and brand. Consumers' purchase intentions toward a focal brand in a focal ad are positively influenced by their attitudes toward the same brand while their purchase intentions toward the focal brand are negatively influenced by their attitudes toward the competing brands in the competing ads. Thus, this research challenges the existing information processing theory by incorporating competition into the consumer decision-making process. It helps define the theoretical constructs that influence consumer information processing, attitude, and purchase behavior in competitive environments.

Furthermore, this research sheds some light on culture and advertising. Culture is viewed as a significant variable in consumer behavior (Engel, Blackwell, and Miniard 1993), but there is still relatively little theoretical and empirical work that has been done in a cross-cultural advertising context (Lin 2001). Specifically, a study to compare the consumer decision-making process across cultures is relatively new to advertising research. It should be of interest to marketing academics because of the need to test the universality of theories developed in North America. The findings from the examination of the measurement items and structural relations of the proposed model suggest that the seven factors (Cad, AFFad, Aad, Cb, Ab, CONb and PI) of the consumer brand decision making model operate in a similar manner in both cultures. The decision-making process is invariant across North American and Chinese consumers and is independent of their cultural orientation. Therefore, the findings of the three-step structural equation modeling analyses imply that the extended competitive vulnerability model is a robust model in describing the consumer brand decision-making process across the two cultures.

Also, the results of our research have significant implications for marketers and advertisers. "Competitive effects are present at all stages in the consumer decision process" (Laroche 2002, p.15). A marketer should not only pay attention to his/her own ads and products, but also intimately understand his/her competitors' ads and products. Constantly monitoring what competitors are doing is of prime importance. Ideally, an ad builds certain mental associations with and beliefs about a brand in the ad, and leads consumers to buy that brand, by creating a more favorable ad attitude that enhances brand evaluations and purchase intentions. In other words, advertising can bias brand evaluations by establishing conditions that cause consumers to view the advertised brand more favorably than they would otherwise. To affect consumers' evaluations of competing brands, therefore, a marketer has to influence the perceived

benefits of the competing brands. If an ad succeeds in creating a highly favorable brand attitude (i.e., enhances the perceived utility of a brand relative to competing brands), it should decrease consumers' evaluations of those competing brands (i.e., reduce perceived benefits of the competing brands). Subsequently, consumers' cognitions and attitudes toward, as well as confidence in evaluating, the competing brand will be lower. As a result, they will choose the marketer's brand. Therefore, for marketers who are attempting to change consumers' ad and brand attitudes, and ultimately influence their purchase intentions, our study provides interesting and applicable solutions. Furthermore, the invariance of the extended competitive vulnerability model suggests that consumers follow the same brand decision-making process regardless of their cultural orientation. This gives marketers the freedom to play with ad cognition and ad affect variations, while being mindful of the local business environment.

There are several limitations of this research that deserve future attention. For example, two hypothetical brands were considered in our study. In reality, consumers may face many alternatives while processing brand information comparatively (Laroche 2002). Future research should replicate this study using realistic brands in order to generalize our findings. Specifically, expanding research to a variety of product categories across North American and Chinese cultures will improve the generalizability of this study.

Further research is needed to broaden our understanding of the consumer decision-making process across cultures, since our study covered only two cultures across North American and Chinese consumers, at least one more culture must be added to the study in order to achieve cultural triangulation and further improve the generalizability of our findings.

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Fig. 1. Extended Competitive Vulnerability Model
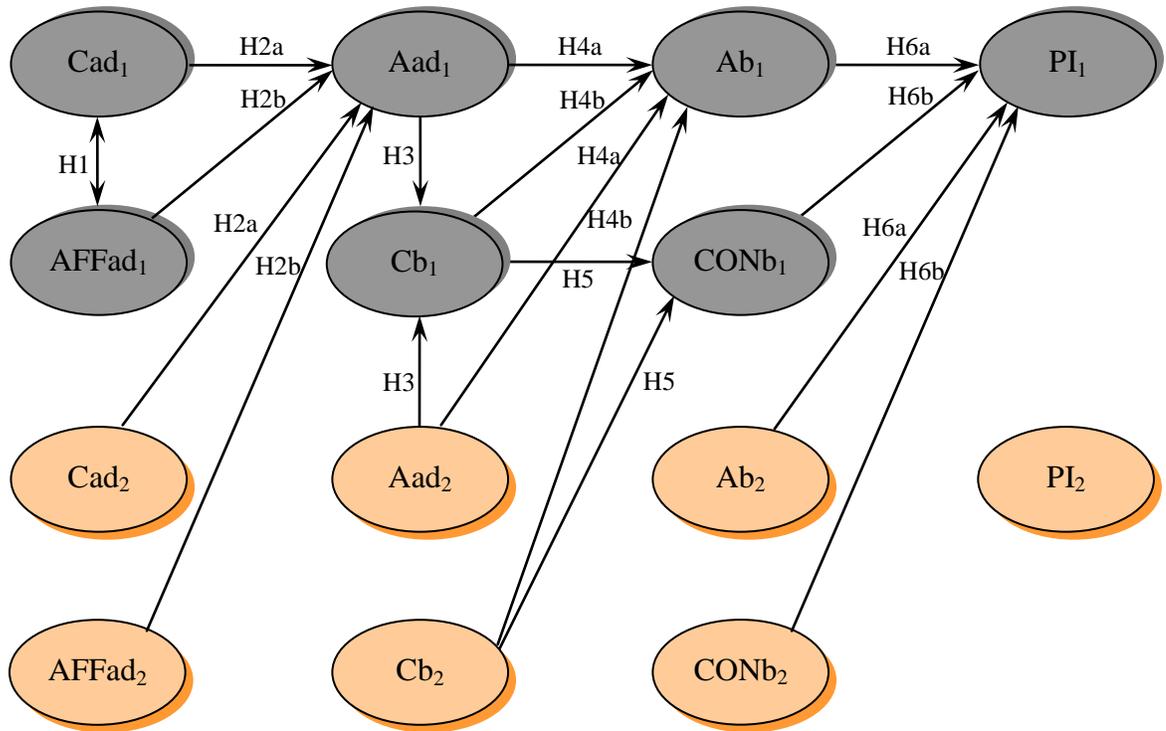
Notes: Cad_1=Ad Cognition for ad1; $AFFad_1$=Ad affect for ad1; Aad_1=Attitude toward ad1; Cb_1=Brand cognition for brand1; Ab_1=Attitude toward brand1; $CONb_1$=Confidence in evaluating brand1; PI_1=Purchase intention toward brand1. In order to simplify the proposed model, figure 1 only shows the competitive effects of a competing ad (2) and brand (2) on a focal ad (1) and brand (1).

Fig. 2. Standardized Estimates for the Baseline Models across Two Cultures
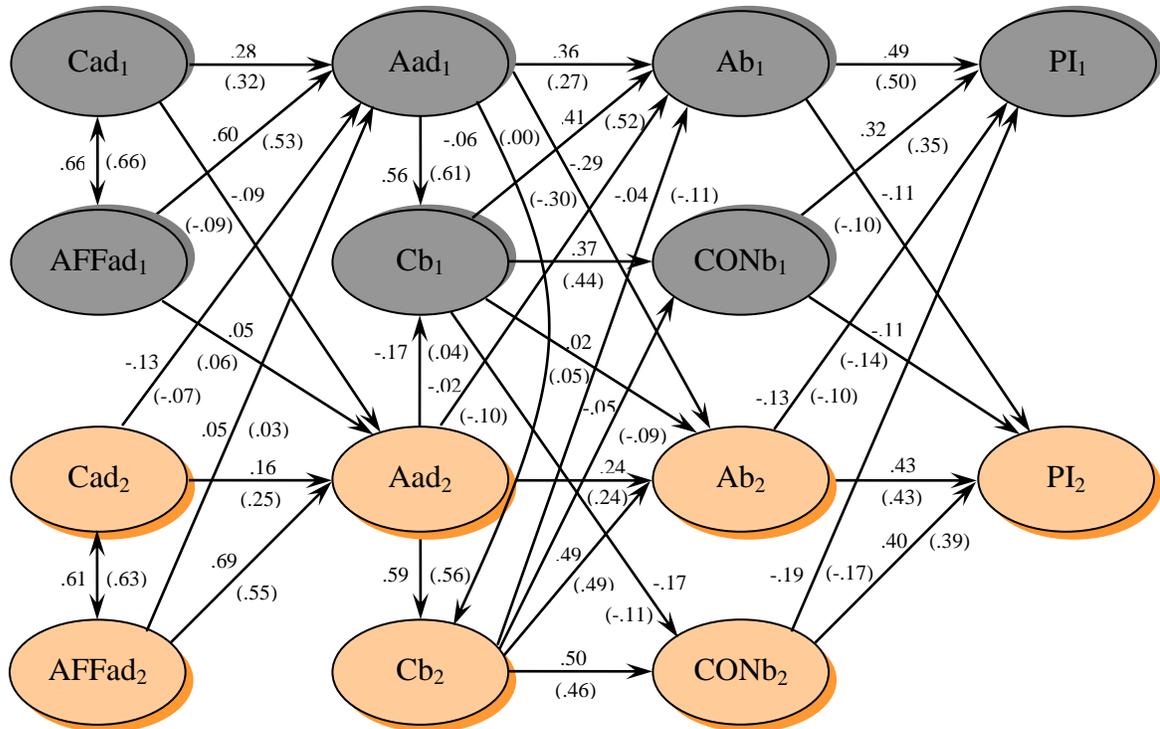
Notes: The first number represents N.A. consumers and the one in parentheses represents Chinese consumers. Cad_1=Ad Cognition for ad1; $AFFad_1$=Ad affect for ad1; Aad_1=Attitude toward ad1; Cb_1=Brand cognition for brand1; Ab_1=Attitude toward brand1; $CONb_1$=Confidence in evaluating brand1; PI_1=Purchase intention toward brand1;