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Additivity Versus Attenuation: The Role of Culture in the Resolution of Information Incongruity

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Past research on dual process models of persuasion has documented that, when faced with information incongruity, individuals tend to form product evaluations by attenuating the less diagnostic information, relying solely on the more diagnostic information. The current research suggests that this way of resolving incongruity may be culture specific. Consistent with recent research in cultural psychology, this study shows that individuals in a North American culture tend to follow the attenuation strategy, whereas individuals in an East Asian culture tend to follow an additive strategy in which both pieces of information are combined to jointly influence evaluations (Experiment 1). Experiments 2 and 3 provide further support for the proposed psychological mechanism underlying these findings and also identify boundary conditions for these findings. Implications for understanding choice mind-sets, the moderating role of justification on evaluations, and cultural limitations in incongruity resolution are discussed.

> Dealing with paradox requires that one be able to hold in the mind simultaneously two diametrically opposed ideas and not go mad. (F. Scott Fitzgerald)

> Ambiguity may be thought of as an omnipresent shroud of the unknown surrounding certain events. The Japanese have a word for it, ma, for which there is no such English translation. (*Zen and the Art of Management*)

Considerable research in social psychology and consumer behavior has examined the role of information incongruity on processes of persuasion. Much of this research adopts the perspective that incongruity presents a dilemma that must be resolved. To illustrate, balance theory (Heider, 1958) suggests that individuals have a preference for congruity or states of "balance." A dislike for incongruity or imbalance drives individuals to resolve the incongruity, often by discounting inconsistent information (Festinger, 1957; Wyer, 1970). The need to resolve incongruity can influence impression formation (e.g., Anderson & Jacobson, 1965; Maheswaran & Chaiken, 1991), as well as the extent and nature of information processing (e.g., MacInnis & Park, 1991; Srull & Wyer, 1989).

However, a need to resolve incongruity by discounting inconsistent information may not always exist. Recent research indicates that incongruity may be tolerated, even accepted, and remain unresolved in some cultural contexts. In this article, we draw on literature in cultural psychology to examine how individuals in North American versus East Asian cultures react to incongruent information en route to forming evaluations. Beyond specifying differences in processing incongruent information, we provide supportive evidence for the mechanism hypothesized to underlie these differences and also reconcile the current findings with recent research on culture and persuasion.

THEORETICAL BACKGROUND

Culture and Incongruity

Much research has focused on the extent to which particular cultures encourage distinct views of self, specifically inde-

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pendent versus interdependent selves (Markus & Kitayama, 1991; Singelis, 1994). Members of many Western cultures (such as the United States) tend to hold an independent view of the self that portrays the self as distinct from others and, consequently, emphasizes separateness, autonomy, and self-sufficiency. In contrast, members of many Eastern cultures (such as China) tend to hold an interdependent view of the self that portrays the self as interrelating to close others and, therefore, emphasizes connectedness, social context, and harmony (Singelis, 1994).

Recent research has examined the attitudinal and behavioral consequences of these distinct self construals (e.g., Aaker, in press; Iyengar & Lepper, 1999; Morris & Peng, 1994). Much of this research directly or indirectly suggests that when faced with a conflict between two opposing perspectives, individuals with more dominant independent selves tend to resolve the conflict by favoring one perspective over the other, whereas individuals with more dominant interdependent selves arrive at an additivity position by factoring in both opposing elements. For example, drawing on the heightened need for harmony in East Asian versus North American cultures, Leung (1987) demonstrated significant differences in the types of negotiating strategies preferred by Chinese versus American individuals. When asked how they would resolve a conflict scenario, undergraduate students from Hong Kong compared to American students indicated a preference for bargaining procedures that result in a compromise position that is mutually acceptable to both parties. In contrast, American students displayed a greater preference for adversarial procedures that result in win-or-lose outcomes that favor one party's point of view over the other.

More recent research suggests that the differential treatment of incongruent information also applies to information processing (Cousins, 1989; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). For example, Kitayama et al. examined how members of different cultures monitor information regarding their self. They found that for people with dominant independent self views, "self-esteem hinges primarily on identifying and expressing positive features of self while shunning and discounting negative features" (p. 1253), whereas for people with dominant interdependent self views, self-esteem hinges on the intake and incorporation of both positive and negative self information. The authors suggest that Americans have a highly elaborated concept of self-enhancement that leads to a discounting of negative information in favor of positive information, whereas the Japanese have a highly elaborate concept of self-improvement or *hansei* (meaning reflection) that leads to an intake of both types of information.

Bagozzi, Wong, and Yi (1999) provided further insight into how members of North American versus East Asian cultures treat incongruity differently by examining the structural representation of emotions. The authors found that negative and positive emotions tend to co-occur for Chinese individuals, whereas only negative or positive emotions, but not both, occur for American individuals. The authors suggest that emotions are critical for both self-definition and social interaction for those with an independent self because such experienced emotions are linked to action and are used to distinguish the self from others. Consequently, members of North American cultures are driven by a need to accurately classify their emotions into distinctly valenced categories and are less likely to tolerate conflicting emotions. In contrast, the social context, rather than self-experienced emotions, is often the basis for action for members of East Asian cultures. Therefore, it is less important to accurately classify emotions into distinct categories. As a result, members of East Asian cultures may incorporate both types of emotions simultaneously, without needing to resolve the incongruity between them; a pattern that is consistent with the approach of following a general life goal of dissolving dualities (Bagozzi et al., 1999).

These distinct streams of research suggest that members of the two cultures react differently to incongruity between opposing elements experienced internally or as percieved in the environment (e.g., personal vs. others' goals, valenced feedback about the self, and positive vs. negative emotions). Members of North American cultures tend to react to the incongruity by discounting one piece of information in favor of the other, whereas members of East Asian cultures tend to give weight to both pieces of information. Although this cultural difference has thus far been documented primarily in interpersonal contexts, we propose that differences in reactions to incongruity can transfer to noninterpersonal contexts via processes of socialization and induction (Aaker & Maheswaran, 1997; Morris & Peng, 1994). In particular, the research highlighted in this article examines the different ways in which members of North American and East Asian cultures react to information incongruity in a persuasion context.

Information Incongruity and Persuasion

Information incongruity has been defined as the orthogonality between the valence of two sources of information (Osgood & Tannenbaum, 1955). In consumer persuasion contexts, such as advertising, product information often contains incongruent or inconsistent elements. For example, the classic source–message dichotomy in persuasion research (e.g., Hovland, Janis, & Kelley, 1953) highlights situations in which the source of a message (e.g., product endorser) is perceived positively and the product attributes are perceived negatively, or vice-versa.[1] The question then arises, what is the relative impact of the source cue versus attribute informa-

[1]Another type of incongruity studied in the consumer literature deals with the deviation of a product's attributes from prior schema-based expectations (e.g., Alden, Stayman, & Hoyer, 1994; Meyers-Levy & Tybout, 1989). The current research, in contrast, focuses more on the conflict between opposing types of information.

tion on product evaluations? Research on dual process models of persuasion (elaboration likelihood model and heuristic–systematic model) indicates that, under the low involvement conditions that are typical of much consumer information processing (Krugman, 1965), product evaluations are largely based on source information, which functions as a peripheral or heuristic cue (Petty, Cacioppo, & Schumann, 1983). However, more recent research suggests that when the cue and attributes have opposing valence, information relating to the cue is often attenuated, and evaluations are based primarily on the more diagnostic attribute information, even under conditions of low involvement (Chaiken, Liberman, & Eagly, 1989).[2]

To illustrate, Maheswaran and Chaiken (1991) examined the relative impact of a heuristic cue (degree of consensus: Participants were told that 81% vs. 20% of consumers were satisfied with the product) and product attribute information (the product was described as superior vs. inferior to competitors on several attributes) for a new brand of answering machine. Under low involvement conditions, product evaluations were primarily based on the cue when the valence of the attributes and cue was congruent. However, only attribute information significantly impacted evaluations when the valence of the attributes and cue was incongruent. Process measures suggested that the observed attenuation of the cue was caused by the increase in elaboration produced by incongruity. These findings are consistent with the premise that a need for incongruity resolution leads to greater elaboration of incoming information (Heckler & Childers, 1992; Srull & Wyer, 1989). In turn, greater elaboration ensures that only the more diagnostic (attribute) information impacts product evaluations, to the relative neglect of the less diagnostic (cue) information (Chaiken et al., 1989; Petty et al., 1983).

Although our research focuses on cases in which cue information is less diagnostic than attribute information, we note that such is not always the case. For example, Aaker and Maheswaran (1997) found that a consensus cue is perceived to be highly diagnostic in a Chinese culture, to the extent of overshadowing attribute information even under conditions of incongruity. In contrast, we investigate more typical cues (e.g., endorser–source cues), which are generally held to be less diagnostic than attribute information (Petty et al., 1983) and, as we discuss later, do not vary in diagnosticity across cultures. Thus, instead of building on cultural differences in perceptions of cue diagnosticity (Aaker & Maheswaran, 1997), this article focuses primarily on cultural differences in the processing of incongruity between attribute information and relatively nondiagnostic cue information. In a final experiment, however, we explicitly address the role of cue diagnosticity in the context of incongruity resolution, thus enabling us to interpret the current findings and those found in Aaker and Maheswaran (1997) within a broader parsimonious dual process framework.

Culture, Incongruity, and Information Processing

Whereas research conducted in North American cultures, such as the United States, has shown that incongruity between a source cue and attribute information leads to increased elaboration, we propose that this mechanism will not hold in East Asian cultures. The extant literature in cultural psychology indicates that members of East Asian versus North American cultures are more likely to tolerate incongruity (Bagozzi et al., 1999; Kitayama et al., 1997; Leung, 1987). Consequently, whereas members of North American cultures tend to increase elaboration to resolve incongruity (Srull & Wyer, 1989), such an increase should not be observed for members of East Asian cultures who may feel less compelled to resolve the incongruity. Because increased elaboration is manifested in a greater number of total thoughts about the information (Petty & Cacioppo, 1986), we predict that more thoughts will be generated under conditions of incongruity for members of North American cultures compared to members of East Asian cultures.

The aforementioned prediction suggests a direct cross-cultural comparison of the total number of thoughts expressed under conditions of incongruity. However, such a comparison may be invalidated by the tendency for members of the two cultures to express a different number of baseline total thoughts across conditions (Alden, Stayman, & Hoyer, 1994; Douglas, 1980; Hui & Triandis, 1985). Malpass and Poortinga (1986) suggested that such a concern can be addressed by a "comparison of inferences" method, which posits that, in cases of nonequivalence across cultures, hypotheses may be tested through appropriate within-culture comparisons (Alden et al., 1994). This research applies this method by including congruity conditions (in which source and attributes possess similar valence) as a baseline for total thoughts expressed in a culture. Thus, if there is a main effect of culture on total thoughts, our prediction regarding the cultural differences in the effect of incongruity on elaboration may be tested by comparing incongruity conditions to congruity conditions within each culture. Specifically, we hypothesize the following:

H1: In conditions of low involvement, incongruity (vs. congruity) between source and attribute information will result, for members of North American cultures, but not for members of East Asian cultures, in an increase in the total number of thoughts about the product information.

[2]It should be noted that the nature of processing and the target of processing are not synonymous. That is, under certain conditions source cues (e.g., source credibility or attractiveness) can provide diagnostic information and be the target of elaborated processing (Kahle & Homer, 1985; Shavitt, Swan, Lowrey, & Wanke, 1994).

This hypothesis suggests that incongruity leads members of North American, but not East Asian, cultures to increase message elaboration. Such a cultural difference in processing should also impact how incongruity is resolved en route to forming evaluations. In particular, high elaboration raises the diagnosticity threshold for judgmental inputs (Chaiken et al., 1989; Feldman & Lynch, 1988). Accordingly, when faced with incongruity, increased elaboration should lead members of North American cultures to follow an attenuation strategy in which evaluations are influenced by the more diagnostic attribute information, but not by the less diagnostic source cue. In contrast, members of East Asian cultures should not engage in increased elaboration when faced with incongruity because they feel less compelled to resolve the incongruity. Rather, they should be more likely to simultaneously incorporate both pieces of conflicting information. Accordingly, members of East Asian cultures should follow an additivity strategy wherein evaluations are influenced by *both* attribute and source information.

H2a: In conditions of low involvement, incongruity between source and attribute information will result in evaluations being influenced primarily by attribute information, for members of North American cultures, versus both source and attribute information, for members of East Asian cultures.

Although this article focuses on cultural differences in resolving incongruity, our experimental design includes congruity as well as incongruity conditions to also investigate culture-based processing under conditions of congruity. Maheswaran and Chaiken (1991) suggest that, under conditions of low involvement and congruity between source and attributes, members of North American cultures engage in heuristic processing, relying primarily on easy-to-process cues (e.g., source cues) to form evaluations. Given that capacity constraints arising from low involvement are expected to hold across cultures (Aaker & Maheswaran, 1997), we expect that members of both cultural backgrounds will rely primarily on the source cue to form evaluations in conditions of congruity. In this research, we aim to replicate these findings. Specifically:

H2b: For members of East Asian as well as North American cultures, in conditions of low involvement, congruity between source and attribute information will result in product evaluations being influenced primarily by source information.

Furthermore, we directly test Hypothesis 2 through a series of regression analyses. Support for additivity will be found if product evaluations are predicted by thoughts about attribute information as well as thoughts about source information. In contrast, support for attenuation will be found if product evaluations are predicted solely by thoughts about attribute information.

EXPERIMENT 1: CULTURAL DIFFERENCES IN RESOLVING INCONGRUITY UNDER LOW INVOLVEMENT

Method

Design. To test the hypotheses, a 2 (culture: American vs. Chinese) × 2 (source cue: negative vs. positive) × 2 (attribute information: negative vs. positive) between-subjects design was used.

The choice of a culture. The United States and Hong Kong were selected for several reasons. First, existing research documenting attenuation under conditions of incongruity has typically been conducted with American participants, and the United States rates the highest on the individualism–collectivism dimension, which predicts whether culture encourages an independent or an interdependent self (Markus & Kitayama, 1991; Singelis, 1994). Hong Kong, on the other hand, rates near the lowest on this dimension and has been used as an example of a collectivist culture in recent research (e.g., Aaker & Maheswaran, 1997; Leung, 1987). Second, the United States and Hong Kong receive similar ratings on potentially confounding variables, such as power distance, masculinity, and uncertainty avoidance (Hofstede, 1990). Third, the choice of these two cultures ensured a high degree of participant similarity on demographic and psychographic dimensions because student participants from undergraduate programs in major universities in both cultures were used. Fourth, potential problems arising from issues of stimuli translation were avoided because students in Hong Kong universities possess high levels of English comprehension skills[3] (cf. Sengupta & Johar, 1999).

Stimulus material. Tennis racquets were chosen as the stimulus product category because the results of pretests showing that undergraduate participants in the United States and Hong Kong ($N = 54$) did not differ in their ratings of tennis racquets along dimensions of interest, likability, and familiarity (Fs < 1). A second pretest was conducted to identify important and unimportant attributes for tennis racquets, as well as positively versus negatively valenced descriptions of an endorser. Chinese and American undergraduate students ($N = 23$) were asked to rate the importance of 10 tennis racquets attributes. "Racquet weight" and "presence of shock absorbers" received the highest

[3]One limitation of relying on national cultures to test the hypothesis is that a host of underlying variables covarying with country status may account for these results rather than the underlying construct of self construal, or by other cultural differences. To address this limitation, a secondary operationalization of self construal, gender, was used because Cross and Madson (1997) showed that men tend to have a dominant independent self, whereas women tend to have an interdependent self. Although the analyses are not included because of space constraints, sex differences exactly mirrored country differences in each of the three experiments, thus reinforcing the premise that self construal is an antecedent of the findings reported here (see also Aaker, in press).

importance ratings (*M*s = 5.76 and 5.17, respectively, on a 7-point scale), whereas "number of colors in string" and "presence of an extra strap" received the lowest importance ratings (*M*s = 3.69 and 3.75, respectively), $F(1, 20) = 5.50, p < .001$. No interaction effect was found for culture (*F*s < 1).

In addition, participants rated a set of endorsers on 7-point liking scales (*very unfavorable–favorable, dislike–like, bad–good*; Cronbach's $\alpha = .84$). In several iterations of pretesting and pilot testing, the results indicated that source manipulation was consistently weaker than the attribute information, to the extent that the source was overwhelmed by the attributes in terms of influencing evaluations. Therefore, we drew on prior work showing that both endorser expertise (Kamins & Gupta, 1994) and intrinsic endorser attractiveness (Petty et al., 1983) contribute to endorser likability. Both factors were incorporated in the endorser likability manipulation (to be described below). On the basis of this pretest, a positively and negatively valenced endorser was chosen; the former received higher ratings on likability relative to the latter ($M = 4.69$ vs. $M = 3.70$, respectively), $F(1, 20) = 5.07, p < .001$. No cultural differences were found ($F < 1$).

A final pretest was conducted to assess perceptions of congruity between the attribute and endorser information. Chinese and American undergraduate students ($N = 84$) were exposed to one of the four possible combinations of attribute and endorser information. Participants were asked to provide congruity ratings on two 7-point scales (*low congruity–high congruity, low consistency–high consistency*; $r = .82$). As expected, higher ratings for congruity were obtained for the congruent conditions ($M = 4.42$) versus the incongruent conditions ($M = 3.41$), $F(1, 77) = 9.30, p < .001$, and no cultural differences were found ($F < 1$).

Participants and procedure. A total of 69 American participants (36 women and 33 men, mean age of 20 years) from an undergraduate program at a large West Coast university in the United States and 81 Chinese participants (63 women and 18 men, mean age of 21 years) from an undergraduate program at a large Hong Kong University were recruited to participate. All of the American participants were Anglo-American and born in the United States. Participants were asked to read the product description of a new tennis racquet called "Lightning." All participants were exposed to low involvement instructions because prior research has shown that it is under low involvement that incongruity causes an increase in elaboration among members of North American cultures, which leads to attenuation of the heuristic cue (Maheswaran & Chaiken, 1991).[4] Low involvement was induced by telling participants that the Lightning would soon be introduced on the East Coast (for American participants living on the West Coast) or in a neighboring country (for Chinese participants living in Hong Kong). Furthermore, participants were informed that as respondents in this large-scale survey, their opinions would be averaged with those of other participants and analyzed at the aggregate level. In addition, they were told that it was not necessary to take much time reading the product description; forming a quick impression of the advertised product would suffice (Petty & Cacioppo, 1986).

After these initial instructions, participants were given a two-part description of the Lightning tennis racquet. Part I focused on endorser information that manipulated both attractiveness and expertise. In the positive (negative) source cue description, the endorser, John Kains, was identified as a star tennis player (soccer player) at a top European university. The positive (negative) description also listed several likable (unlikable) traits about John Kains, such as high (limited) popularity within the community and an outstanding (weak) sense of sportsmanship and fair play. Part II focused on attribute information. Specifically, the Lightning tennis racquet was compared to leading competitive brands (in the same price range) on several major attributes by an independent market research firm, and test results were provided. Participants in the positive attribute conditions were told that the Lightning rated favorably against competitive racquets on the two important attributes, but inferior on the two unimportant attributes. In the negative attribute conditions, participants were told the converse: The Lightning was inferior on the two important attributes, but superior on the two unimportant attributes. Each attribute was described in a distinct paragraph of approximately 70 words.

Next, participants were asked for their evaluations of the new product. Subsequently, participants were given 3 minutes to list their thoughts regarding the product description, with each thought being placed in a separate box. Participants also completed a series of ancillary measures, including a set of manipulation checks and Singelis's (1994) Independent–Interdependent scale. Finally, participants responded to an open-ended suspicion probe and were thanked and debriefed.

Dependent variables. Two types of dependent variables were used. First, participants rated the extent to which they would consider purchasing the Lightning, their favorability toward the brand, and the extent to which they regarded it as useful and good. Responses to these items were averaged to form one evaluation index; coefficient alphas ranged from .89 to .97 in Experiments 1–3. Second, cognitive responses were included in the questionnaire and then categorized by two independent raters as attribute-related (A), source-related (S), or irrelevant (I) and as expressing positive (+), negative (–), or neutral (0) evaluations. The following thoughts illustrate this coding scheme: "The Lightning's shock absorber is important to me" (A+), "The Lightning doesn't come in many colors" (A–), "Where do you buy the

[4]Prior research has documented that incongruity typically does not increase elaboration beyond the levels already produced by high involvement processing, even in North American cultures (Maheswaran, Mackie, & Chaiken, 1992). Experiment 1 tests hypotheses that are based on proposed differences in incongruity-induced elaboration across cultures and, as a result, relies on low involvement. Experiments 2 and 3 provide boundary conditions by examining processing under high involvement conditions.

Lightning?" (A0), "The Kains endorsement is remarkable" (S+), "John Kains is not impressive to me" (S–), "Who is John Kains?" (S0), "Who has time to play tennis these days?" (I). Interrater agreement ranged from 91% to 94% in Experiments 1–3; discrepancies were resolved through discussion.

Results

The hypotheses were analyzed based on a 2 (culture: American vs. Chinese) × 2 (source cue: negative vs. positive) × 2 (attribute information: negative vs. positive) between-subjects analysis of variance (ANOVA) as well as regression analyses. Two American participants were excluded from the analysis because they were not native English speakers.

Manipulation checks. Several sets of manipulation checks were included in the questionnaire. First, participants rated the extent to which the attribute information portrayed the Lightning as having many (vs. few) positive features, few (vs. many) negative features, and as superior (vs. inferior) to competing brands. These three 7-point scales were averaged to form an attribute index (Cronbach's $\alpha = .89$). The ANOVA on the attribute index showed that the Lightning's attributes were perceived more favorably in conditions of positive ($M = 4.89$) versus negative ($M = 3.65$) attribute information, $F(1, 140) = 29.40$, $p < .01$. No other effects were significant.

Second, participants rated the product endorser, John Kains, on a set of three 7-point scales (*likable–unlikable*, *unfavorable–favorable*, *bad–good*), which were averaged to create an endorser likability index (Cronbach's $\alpha = .95$). As expected, only a main effect of source cue on endorser likability was significant, revealing that participants exposed to the positive source description expressed greater liking for the source ($M = 4.80$) than those exposed to the negative source description ($M = 3.26$), $F(1, 140) = 42.77$, $p < .01$.

Finally, to ensure that the culture variable was tapped through the use of American versus Chinese participants, an interdependence–independence index was created by averaging the 31 items of the Singelis (1994) scale (Cronbach's $\alpha = .91$). Only a main effect of culture occurred: American participants ($M = 5.40$) received higher independent scores and less interdependent scores than did Chinese participants ($M = 4.51$), $F(1, 140) = 10.11$, $p < .01$, which was consistent with Hofstede (1990).

Cognitive responses. A 2 × 2 × 2 ANOVA on the number of total thoughts indicated a main effect for culture. Chinese versus American participants had more total thoughts, $F(1, 140) = 9.40$, $p < .01$, which was consistent with past literature (Alden et al., 1994; Douglas, 1980). More important, the three-way interaction was significant, $F(1, 140) = 3.79$, $p < .05$, which is consistent with Hypothesis 1, suggesting that incongruity, relative to congruity, should increase the total number of thoughts for American participants, but not for Chinese participants. Indeed, follow-up contrasts showed that American participants had more total thoughts under incongruity ($M = 3.29$) versus congruity ($M = 2.55$), $F(1, 140) = 3.90$, $p < .05$. However, Chinese participants had the same number of total thoughts under incongruity ($M = 3.53$) versus congruity ($M = 3.64$; $F < 1$). No other effects in the omnibus ANOVA were significant. Thus, the pattern of total thoughts supported the premise that incongruity leads to increased elaboration for American participants, but not the Chinese participants.

Further insight into cultural processing differences was provided by separately examining the pattern of source and attribute thoughts. The 2 × 2 × 2 ANOVA for attribute thoughts yielded a significant two-way interaction of attribute and source information, $F(1, 140) = 4.49$, $p < .05$, which was qualified by a three-way interaction, $F(1, 140) = 8.90$, $p < .01$. Again, follow-up contrasts supported the idea that members in the two cultures react differently to incongruity. For American participants, more attribute thoughts were found in incongruity ($M = 2.66$) versus congruity ($M = 1.60$), $F(1, 140) = 8.78$, $p < .001$, but no such increase was observed when comparing incongruity ($M = 2.25$) versus congruity ($M = 2.50$) for Chinese participants, $F(1, 140) = 1.40$, $p = .24$.

The overall 2 × 2 × 2 ANOVA for source thoughts yielded a significant main effect for culture, in which American participants had more source thoughts than Chinese participants, $F(1, 140) = 9.74$, $p < .01$. Furthermore, the three-way interaction was significant, $F(1, 140) = 5.19$, $p < .05$. As expected, follow-up contrasts showed that American participants had fewer source thoughts in conditions of incongruity ($M = .36$) versus congruity ($M = .81$), $F(1, 140) = 7.18$, $p < .01$. In contrast, source thoughts did not differ for incongruity ($M = 1.03$) versus congruity ($M = .94$; $F < 1$) for Chinese participants. Incongruity, thus, led to source attenuation for the American participants, but not for Chinese participants.

This pattern of results provides support for the premise that incongruity increases elaboration for members of North American cultures, leading to a greater focus on the more diagnostic (attribute) information and to the relative neglect of the less diagnostic (source) information. In contrast, incongruity does not raise elaboration for members of East Asian cultures. Consequently, there is no tendency to focus on one piece of information and to neglect the other, even in conditions of incongruity. Results relating to the impact of these processing differences on product evaluations are provided later. See Table 1 for means.

Product evaluations. The key hypotheses regarding the relative impact of cue and attribute information across cultures had to be tested at specific levels of evaluative congruity between the two types of information. The congruity variable, however, is created by a joint manipulation of the

TABLE 1
Incongruity Resolution Under Low Involvement: Outcome Means

	North American Sample								*Chinese Sample*							
	Positive Cue				*Negative Cue*				*Positive Cue*				*Negative Cue*			
	Strong Attributes		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Total thoughts	2.88	1.79	3.17	1.70	3.38	1.86	2.11	1.68	3.63	0.50	3.59	0.71	3.47	0.74	3.67	0.69
Attribute thoughts	1.80	1.26	2.71	1.76	2.62	2.20	1.33	1.19	2.63	0.62	2.65	1.11	1.80	1.01	2.39	1.04
Source thoughts	0.76	0.97	0.24	0.44	0.48	0.51	0.89	0.96	0.94	0.68	0.65	0.70	1.47	0.92	0.94	0.73
Evaluations	5.24	1.38	3.47	1.36	4.79	1.29	3.15	1.26	4.88	0.85	4.35	0.89	4.68	1.38	3.64	0.97

cue and attribute information. Thus, as Maheswaran and Chaiken (1991) pointed out, mediation hypotheses regarding additivity and attenuation cannot be conclusively tested through the 2 × 2 × 2 ANOVA because the two factors are perfectly confounded within each level of congruency. Therefore, after the ANOVA analyses, we move on to the regression results that allow the incongruity resolution hypotheses to be more directly tested.

A 2 × 2 × 2 ANOVA on the evaluation index indicated a main effect for both attribute information, $F(1, 140) = 42.26$, $p < .001$, and source cue, $F(1, 140) = 4.72$, $p < .05$. As expected, participants had more favorable evaluations when the attribute information was positive ($M = 4.93$) than when negative ($M = 3.64$), and when the source cue was positive ($M = 4.56$) than when negative ($M = 4.07$). In addition, the Attribute Information × Culture interaction was significant, $F(1, 140) = 5.30$, $p < .05$. This interaction effect is consistent with the pattern that should be obtained if the hypothesized cultural differences in incongruity resolution are mirrored in the outcome evaluations. Specifically, cue attenuation under incongruity for the American participants corresponds to a greater attribute impact compared to Chinese participants—for the latter group, the impact of the attributes under conditions of incongruity is diluted by the effect of the source.

This conclusion was further supported by specific comparisons of mean evaluations. Because American participants attenuate under incongruity, the effect of the source should be minimized for both incongruity conditions (termed S–A+ and S–A+, where the negative source and attributes are represented as S– and A–, respectively, and the positive source and attributes are represented as S+ and A+, respectively). Planned contrasts revealed a more favorable evaluation in the S–A+ cell ($M = 4.79$) versus the S+A– cell ($M = 3.47$) for American participants, $F(1, 140) = 11.24$, $p < .001$, whereas Chinese participants did not differ in these cells (S–A+ = 4.35, S+A– = 4.68, $F < 1$), providing further support for Hypothesis 2a.

Regression analysis. To provide a more conclusive test of the mediation hypotheses, product evaluations were regressed on the following two indexes: valenced attribute thoughts (VAT; positive minus negative attribute thoughts) and valenced cue thoughts (VCT; positive minus negative cue thoughts; Aaker & Maheswaran, 1997). Then, in subsequent steps, we included all possible interactions of these two predictors with two dummy variables, "congruity" and "culture." The congruity variable was created, as before, by combining the attribute information and source cue variables. When attribute information and source cue had the opposite valence, the congruity variable received a value of 0 (incongruity cells); when attribute information and source cue had the same valence, the congruity variable received a value of 1 (congruity cells). The culture variable received a value of 1 for the Chinese culture and a value of 0 for the North American culture.

Results from the omnibus regressions revealed that none of the interactions involving culture was significant (Fs < 1). Accordingly, following Aiken and West (1991), we tested our specific predictions through two separate sets of regressions within each culture (for the pattern of regression coefficients, see Table 2). In these regressions, product evaluations were regressed on VAT and VCT and, on subsequent steps, with the interactions of each predictor and the congruity variable. As in previous research, a significant regression coefficient for VAT (unstandardized regression coefficient) is assumed to provide direct evidence that attribute information influenced evaluations, whereas a significant coefficient for VCT (unstandardized regression coefficient) indicates that the source cue impacted evaluations. Interactions with congruity indicate that these effects vary with congruity between the source cue and attribute information.

In support of Hypothesis 2a, only the slope of the VAT index ($b = .34$, $t = 5.41$, $p < .01$) was significant for American participants, whereas the slope of the VCT index ($b = .13$, $t < 1$) was not significant in conditions of incongruity. Thus, for American participants, only attribute information impacted evaluations under incongruity. In contrast, both the slope of VAT ($b = .34$, $t = 3.69$, $p < .01$) and the slope of VCT ($b = .36$, $t = 2.51$, $p < .01$) were significant for Chinese participants in

TABLE 2
Incongruity Resolution Under Low Involvement: Regression Results (*b* Values)

	North American Sample				*Chinese Sample*			
	Congruent		*Incongruent*		*Congruent*		*Incongruent*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
VAT coefficient	0.32	0.13	0.34	0.06	0.33	0.08	0.34	0.09
VCT coefficient	1.04	0.17	0.13	0.33	0.27	0.17	0.36	0.14

Note. VAT = valenced attribute thoughts; VCT = valenced cue thoughts.

conditions of incongruity. Thus, as predicted, under conditions of incongruity, Chinese participants' evaluations were impacted by both cue and attribute information (see Table 2).[5]

In partial support of Hypothesis 2b, under congruity conditions, both the slope of VAT ($b = .32$, $t = 2.47$, $p < .01$) and the slope of VCT ($b = 1.04$, $t = 6.06$, $p < .01$) were significant for the American participants. For Chinese participants, too, the slope of VAT ($b = .33$, $t = 3.98$, $p < .01$) and the slope of VCT ($b = .27$, $t = 1.63$, $p < .05$) were significant. Hypothesis 2b was therefore not fully supported: Under congruity, although the source cue exerted an expected impact on evaluations, attribute information was also surprisingly impactful. This finding is not, however, unique to this research. For instance, Petty et al. (1983) found that attribute information had a significant impact under both low and high involvement, although a greater impact was observed for high involvement conditions. Thus, it may be too strong a test of heuristic processing to posit that attribute information should have no effect under conditions (such as low involvement) that are conducive to such processing.[6]

Discussion

Although our results for congruity conditions were not fully consistent with our expectations, the cultural differences in processing documented under conditions of incongruity constitute an interesting and novel finding. When members of a North American culture were faced with incongruity between a source cue and attribute information, they attenuated the source in favor of the more diagnostic attribute information. Members of an East Asian culture, however, appeared to use an additivity rather than an attenuation strategy when faced with incongruity: Both the source cue and attribute information influenced their product evaluations.

The mechanism hypothesized to be driving the differences in incongruity resolution was based on elaboration differences between the two cultures. That is, faced with incongruity, members of North American cultures are more motivated to resolve the incongruity to arrive at the "truth" and consequently engage in increased elaboration on the incongruent information (Srull & Wyer, 1989). Increased elaboration leads to a greater impact of the more diagnostic attribute information on evaluations, to the relative neglect of the less diagnostic source information. In contrast, members of an East Asian culture are less impelled to resolve the incongruity and hence do not increase elaboration. Rather, they are willing to let their judgments reflect the different, opposing facets of the external information. Thus, Chinese participants' evaluations incorporate the impact of both the source and attribute information.

Support for the mediating role of elaboration derives from the thought protocols used in Experiment 1. These measures revealed that incongruity led to increased elaboration for members of North American cultures. Furthermore, incongruity produced an increase in attribute-related thoughts and a decrease in source-related thoughts for members of the North American culture, thus supporting the premise that incongruity-induced elaboration led to a greater focus on the more diagnostic information. Members of the East Asian culture, on the other hand, did not exhibit any change in total thoughts, source-related thoughts, or attribute-related thoughts in conditions of incongruity versus congruity, which is consistent with the premise that incongruity does not lead to greater elaboration for members of East Asian cultures.

However, more complete support for the proposed role of elaboration would be obtained by examining the flip side of the involvement coin. Keeping in mind that Experiment 1 was carried out under the low elaboration conditions induced by low involvement, the aforementioned rationale delineated suggests that the observed cultural differences should be diluted if members of both cultures were to process incongruent information under high elaboration conditions. High involvement produces increased elaboration in both North American cultures (Maheswaran & Chaiken, 1991) and East Asian cultures (Aaker & Maheswaran, 1997). Accordingly, under high involvement, we expect no differences in elaboration for members of North American versus East Asian cultures in the processing of incongruent information, particularly in light of findings showing that incongruity does not increase elaboration over the levels already produced by high involvement in North American cultures (Maheswaran & Chaiken, 1991).

Furthermore, given similar high levels of elaboration, we expect individuals in both cultures to rely on more diagnostic (attribute) information when forming judgments, to

[5]In all the experiments reported here, the pattern of results remained the same when each incongruity cell was analyzed separately (positive source–negative attribute and negative source–positive attribute).

[6]This point is particularly relevant to the current research in light of the pretest findings that showed that the attribute manipulation was constantly held by participants to be a stronger manipulation than the source cue manipulation. As discussed earlier, it was to tackle this calibration issue that we strengthened the source manipulation by incorporating both liking and expertise factors in the source description. However, our regression findings indicated that the attribute manipulation may still have remained relatively strong, thus influencing evaluations even under conditions of low involvement congruity.

the relative neglect of less diagnostic (cue) information. More formally:

H3a: Under conditions of high involvement, incongruity between the source and attribute information will result in evaluations by members of both East Asian and North American cultures being influenced solely by attribute information.

As in Experiment 1, this study focuses primarily on incongruity resolution across cultures. However, the experimental design also allows us to examine culture-based processing under conditions of congruity between source and attribute information. Prior research indicates that under high involvement conditions, both members of North American and East Asian cultures use an additivity strategy to arrive at product evaluations (Aaker & Maheswaran, 1997; Maheswaran & Chaiken, 1991)—that is, members of both cultures incorporate diagnostic as well as nondiagnostic information in their evaluations. We seek to replicate these findings in Experiment 2.

H3b: Under conditions of high involvement, congruity between the source and attribute information will result in evaluations by members of both East Asian and North American cultures being influenced by source as well as attribute information.

EXPERIMENT 2: CULTURAL SIMILARITIES IN RESOLVING INCONGRUITY UNDER HIGH INVOLVEMENT

Method

Design. A 2 (culture: American vs. Chinese) × 2 (source cue: negative vs. positive) × 2 (attribute information: negative vs. positive), between-subjects design was used.

Stimulus materials. A pretest was conducted to ensure that the operationalization of high involvement used in Experiment 2 would lead to higher levels of elaboration than did the low involvement operationalization used in Experiment 1. Chinese and American undergraduate students (N = 88) were exposed to either a congruent (source–attribute similarly valenced) or incongruent (source–attribute differently valenced) product description. Half of the participants each received the low involvement instructions (as in Experiment 1); the other half received high involvement instructions (described later). Next, they were asked to rate how involved they were in reading the product description (not at all vs. very involved, motivated, interested; Cronbach's $\alpha = .89$). No interactive effects of culture or congruity were found (Fs < 1). As expected, significantly higher ratings were obtained for high involvement (M = 4.62) versus low involvement (M = 3.32), $F(1, 81) = 3.81$, $p < .01$.

Participants and procedure. A total of 87 American participants (47 women and 40 men, mean age of 20 years) from an undergraduate program at a large West Coast university in the United States and 69 Chinese participants (56 women and 13 men, mean age of 20 years) from an undergraduate program at a large Hong Kong University were recruited. Again, all American participants were Anglo-American and born in the United States. The same procedure used in Experiment 1 was used in Experiment 2 with one exception: Instead of being exposed to low involvement instructions, participants were exposed to high involvement instructions. They were told that the Lightning would soon be introduced on the West Coast (for American participants living on the West Coast) or in Hong Kong (for Chinese participants living in Hong Kong). In addition, participants were told that their opinions were extremely important and would be analyzed individually by the marketers of the product. Accordingly, participants were instructed to take their time reading the product description and form a careful impression of the advertised product.

Results

The analysis relied on a 2 (culture: American vs. Chinese) × 2 (source cue: negative vs. positive) × 2 (attribute information: negative vs. positive), between-subjects ANOVA.

Manipulation checks. As intended, a check on the attribute index (Cronbach's $\alpha = .80$) indicated that participants who received the positive ($M = 4.62$) versus the negative (M = 3.56) attribute information correctly perceived it as favoring the Lightning over its competitors, $F(1, 148) = 30.30$, $p < .01$. A check on the endorser likability index (Cronbach's $\alpha = .93$) showed that the positive source ($M = 4.80$) was more likable than the negative source (M =2.69), $F(1, 148) = 118.31$, $p <$ .01. Also as expected, American participants ($M = 4.84$) received higher independent and less interdependent scores than did Chinese participants ($M = 4.46$), $F(1, 148) = 2.68$, $p <$ .05, on the Singelis (1994) Independent–Interdependent scale. No other effects were significant in the previously mentioned analyses. Finally, interrater agreement for the thought coding was 90%.

Cognitive responses. The results of the 2 × 2 × 2 ANOVA on the number of thoughts indicated a main effect for culture—Chinese versus American participants had

more total thoughts (M = 3.56 versus 3.14, respectively), $F(1, 148) = 6.95, p < .01$. As expected, neither the three-way interaction nor any other effects were significant. Indeed, when follow-up contrasts were conducted, the results showed that exposure to the incongruity (vs. congruity) conditions did not lead to an increase in total thoughts for American versus Chinese participants (Fs < 1), which was consistent with the expectation that incongruity under high involvement would not lead to increased elaboration for either culture. See Table 3 for means.

A similar pattern held for attribute thoughts. The 2 × 2 × 2 ANOVA yielded only a main effect for culture, $F(1, 148) = 8.24, p < .01$. Follow-up contrasts indicated that, for American participants, attribute thoughts did not increase under conditions of incongruity (M = 2.02) versus congruity (M = 2.07; $F < 1$). For Chinese participants, although the number of attribute thoughts was directionally higher under incongruity (M = 2.70) versus congruity (M = 2.31), this difference was not significant, $F(1, 148) = 3.45, p = .11$.

For source thoughts, the 2 × 2 × 2 ANOVA yielded only a significant Attribute Information × Source Cue interaction, $F(1, 148) = 4.78, p < .05$. Contrasts showed that source thoughts were lower in conditions of incongruity versus congruity (M = .66 versus .83, respectively), $F(1, 148) = 4.93, p < .05$. This effect held for both Chinese and American participants; the three-way interaction was not significant ($F < 1$). This pattern of results is consistent with source attenuation for both cultures under conditions of incongruity.

Product evaluations. A 2 × 2 × 2 ANOVA on the evaluation index indicated only a main effect for attribute information, $F(1, 148) = 27.29, p < .001$; participants had more favorable evaluations when the attribute information was positive than when it was negative. This result may be contrasted with the low involvement findings observed in Experiment 1, in which both source and attribute information had a main effect on product evaluations. The absence of a source effect in this experiment is consistent with the premise that high involvement is likely to lead to source attenuation in both cultures. In particular, we expected such attenuation under conditions of incongruity. Attenuation would predict a more favorable evaluation in the former compared to the latter condition because attribute information goes from positive to negative. Higher evaluations were obtained in the former condition for American participants, S–A+ = 4.64, S+A– = 4.00; $F(1, 148) = 3.16, p < .05$, and Chinese participants, S–A+ = 4.65, S+A– = 3.39; $F(1, 148) = 14.11, p < .001$, which was consistent with expectations.

Regression analysis. After Experiment 1, an omnibus analysis in which evaluations were regressed against the valenced indexes, as well as the interactions of these predictors with congruity and culture, was conducted. The results were consistent with the prediction of similar processing across cultures under high involvement conditions because none of the interaction effects with culture were significant (Fs < 1). The only significant effect emerging from the overall regression related to the two-way interaction of VCT and congruity ($t = 2.26, p < .05$). This finding is consistent with the expectation that the source cue would have an impact under conditions of congruity, but not under conditions of incongruity, in both cultures.

Specific tests of our hypotheses were carried out through separate sets of regression analyses within each culture (see Table 4 for the pattern of regression coefficients). In support of Hypothesis 3a, the results of simple effects tests for American participants showed that the VCT index was only significant in conditions of congruity ($b = .50, t = 2.87, p < .01$), but not under incongruity ($b = .20, t < 1$). Furthermore, there was a significant main effect for the VAT index under conditions of incongruity ($b = .36, t = 5.41, p < .01$) as well as congruity ($b = .32, t = 3.17, p < .01$). A similar pattern was observed for the Chinese participants: The VCT main effect was not significant in conditions of incongruity ($b = -.22, t < 1$), but was significant in conditions of congruity ($b = .51, t = 2.61, p < .01$). Furthermore, the slope of VAT was significant in conditions of incongruity ($b = .43, t = 4.99, p < .01$) and marginally significant in conditions of congruity ($b = .15, t = 1.35, p < .09$).

In sum, under high involvement conditions, members of the East Asian culture followed the same processing

TABLE 3
Incongruity Resolution Under High Involvement: Outcome Means

	North American Sample								*Chinese Sample*							
	Positive Cue				*Negative Cue*				*Positive Cue*				*Negative Cue*			
	Strong Attributes		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*		*Strong Attributes*		*Weak Attributes*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Total thoughts	3.21	0.98	3.13	1.25	2.83	1.23	3.41	1.30	3.61	0.70	3.69	0.48	3.39	0.78	3.59	0.62
Attribute thoughts	1.89	0.88	2.04	1.19	2.00	1.21	2.23	1.15	2.22	0.94	2.88	0.81	2.56	0.98	2.41	0.80
Source thoughts	0.74	0.65	0.65	0.71	0.70	0.56	0.91	0.61	0.94	0.64	0.56	0.51	0.61	0.61	0.82	0.64
Evaluations	4.70	1.00	4.00	1.36	4.64	1.27	3.51	1.20	4.46	1.03	3.39	1.12	4.65	0.68	3.72	1.04

TABLE 4
Incongruity Resolution Under High Involvement: Regression Results (*b* Values)

	North American Sample				*Chinese Sample*			
	Congruent		*Incongruent*		*Congruent*		*Incongruent*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
VAT coefficient	0.32	0.10	0.36	0.11	0.15	0.11	0.43	0.09
VCT coefficient	0.50	0.17	0.20	0.24	0.51	0.14	−0.22	0.24

Note. VAT = valenced attribute thoughts; VCT = valenced cue thoughts.

strategy as did the members of the North American culture. Under conditions of incongruity, only the attribute information impacted evaluations, supporting Hypothesis 3a. Also as predicted by Hypothesis 3b, both source cue and attribute information influenced evaluations under conditions of congruity.

Discussion

Experiment 2 revealed that members of both cultures react similarly to incongruity between source and attribute information under high involvement conditions, both in terms of information processing and product evaluations. These results lend increased support to the role of elaboration in explaining the cultural differences found in Experiment 1. The reason suggested for the American participants' use of an attenuation strategy (vs. the additivity strategy adopted by Chinese participants) was that members of North American cultures, when faced with incongruity, engage in more elaboration, whereas members of East Asian cultures do not. This argument implies that Chinese participants should also follow an attenuation strategy under conditions of high elaboration, such as those induced by high involvement processing. In showing that Chinese participants did attenuate the source cue in favor of attribute information under high elaboration conditions, Experiment 2 provides further support for the mechanism underlying the results found in Experiment 1.

It should be noted that, although Chinese participants engaged in attenuation in Experiment 2 versus additivity in Experiment 1, total number of thoughts did not differ in the two experiments (Experiment 1, 3.59; Experiment 2, 3.56; $F < 1$). Although surprising, this result is consistent with Alden et al.'s (1994) study, which found that in an East Asian culture (Thailand), increasing involvement did not result in more total thoughts, although a more sensitive measure (processing time) provided strong evidence of greater elaboration under high involvement. In this study, evidence of different elaboration levels across different involvement conditions is provided by another measure—namely, source thoughts. Participants in the East Asian culture had fewer source thoughts in Experiment 2 ($M = .73$) compared to Experiment 1 ($M = .98$), $F(1, 148) = 4.25$, $p < .05$, which was consistent with the premise that higher levels of involvement and elaboration are generally accompanied by fewer thoughts about the source (Petty & Cacioppo, 1986). The results of the involvement pretest also provide support for this perspective, with the instructions used in Experiment 2 leading to higher involvement for the participants in the East Asian culture ($M = 4.50$) versus instructions used in Experiment 1 ($M = 3.11$), $F(1, 148) = 3.60$, $p < .01$ (for a similar manipulation of elaboration with a similar Hong Kong sample, see Aaker & Maheswaran, 1997). The evidence, thus, suggests that the different evaluation strategies used by members of the East Asian culture in the two experiments were accompanied by different levels of elaboration. Additional support for this conclusion is provided by Experiment 3, in which involvement levels are manipulated in the context of a single experiment.

The role of cue diagnosticity: Different processes versus different perceptions. Together the results of Experiments 1 and 2 provide an interesting contrast to recent results reported by Aaker and Maheswaran (1997), who examined the influence of a consensus cue on evaluations of an electronic product by Chinese individuals living in Hong Kong. Consensus was manipulated by telling participants that 81% (positive consensus) versus less than 20% (negative consensus) of consumers were extremely satisfied with the product. Under both low and high involvement conditions, incongruity between the consensus cue and attribute information led Chinese participants to rely primarily on the consensus cue, rather than attribute information, when forming product evaluations. The authors suggest that these results derive from the fact that, unlike conventional heuristic cues that tend to be relatively nondiagnostic across individuals, a consensus cue is perceived by members of East Asian cultures to be highly diagnostic. Such an explanation is consistent with the premise that the opinions of a group are particularly important in more East Asian cultures (Triandis, 1989). On the other hand, group opinions are relatively less important in North American cultures, thus explaining why American individuals tend to attenuate a consensus cue under conditions of incongruity for both low and high involvement cases.

Therefore, similar to the results of Experiment 1, Aaker and Maheswaran's (1997) findings also indicate that, under conditions of incongruity, members of East Asian cultures may arrive at different product evaluations compared to those made by members of North American cultures. Beyond this broad similarity, however, the two sets of results document discrepant findings. Experiment 1 in the current research shows members of East Asian cultures tend to use an additivity strategy under low involvement and a cue attenuation strategy under high in-

volvement. In contrast, on the basis of the idea that a consensus cue is perceived to be significantly more diagnostic by members of East Asian than North American cultures, Aaker and Maheswaran document attribute attenuation for members of an East Asian culture under both low and high involvement. One possible explanation for this discrepancy is based on differences in the diagnosticity of the cue employed. Whereas the consensus cue tends to be highly diagnostic for Chinese individuals (but not American individuals), we posit that the endorser cue studied in this research is relatively nondiagnostic in East Asian cultures, just as it has previously been found to be nondiagnostic in North American cultures (Petty et al., 1983). Thus, although both sets of results document cross-cultural differences, the differences documented in this study arise from different underlying processes (additivity vs. attenuation) rather than different perceptions of cue diagnosticity across the two cultures.

Experiment 3 was run to test this premise. First, a pretest was conducted to determine whether the consensus cue does indeed vary in diagnosticity across cultures. The pretest was also used to check that the endorser cue used in this study does not differ in perceived diagnosticity across the two cultures. On the basis of the results of the pretest, we attempted to replicate the results in Aaker and Maheswaran (1997) by showing that members of East Asian cultures engage in an attenuation strategy (attribute attenuation) across involvement conditions when cue information is highly diagnostic. In contrast, when the cue is relatively nondiagnostic, we should replicate the results in this study: Members of the East Asian culture should engage in an additivity strategy under low involvement and cue attenuation under high involvement. More formally:

H4a: In conditions where a cue is low in diagnosticity, incongruity between the cue and attribute information will result in evaluations by members of East Asian cultures being influenced by both cue and attribute information under low involvement and solely by attribute information under high involvement.

H4b: In conditions where a cue is high in diagnosticity, incongruity between the cue and attribute information will result in evaluations by members of East Asian cultures being influenced solely by the cue information, under both low and high involvement.

EXPERIMENT 3: EXAMINING THE ROLE OF CUE DIAGNOSTICITY

Method

Design. A 2 (cue diagnosticity: high vs. low) × 2 (involvement type: high vs. low), between-subjects design was used, with only a sample of Chinese participants.[7] The cue diagnosticity manipulation relied on the consensus cue (high diagnosticity) versus the endorser cue (low diagnosticity), thereby providing a partial replication of the incongruity conditions tested in Aaker and Maheswaran (1997) as well as that in this study. Because only positive versions of both cues were used in this experiment, participants in all conditions were exposed to only the negative attributes for Lightning racquets.[8]

Stimulus materials. A diagnosticity pretest was conducted with both Chinese and American participants ($N = 31$) who were asked to rate a positive consensus cue (i.e., 81% of consumers are satisfied with the product) and the positive endorser cue from these experiments (the positive description of John Kains) on three scales tapping into cue diagnosticity in relation to purchasing the Lightning racquet (important–unimportant; relevant–irrelevant; $r = .86$). As expected, a significant interaction effect was found, $F(1, 28) = 18.11$, $p < .001$. Although members of both cultures rated the endorser cue similarly ($M = 3.69$ vs. 3.67 for Chinese and American participants, respectively; $F < 1$), Chinese versus American participants rated the consensus cue as significantly more diagnostic (Ms = 5.27 vs. 3.50, respectively), $F(1, 28) = 5.00$, $p < .001$. Thus, the pretest confirmed our expectations regarding the perceived diagnosticity of the two cues under discussion. These cues were, accordingly, used in the main experiment, which focused on the nature of incongruity processing for Chinese individuals based on the two different cues.

Participants and procedure. Fifty-nine Chinese participants (27 women and 32 men, mean age = 22 years) participated in the study. A similar procedure as that in Experiments 1 and 2 was used, but involvement was manipulated within the context of one experiment. Half of the participants were exposed to low involvement instructions, whereas the other half were exposed to high involvement instructions. Although all participants received the negative attribute information, half of the participants received the consensus cue

[7]These Chinese participants were from Taiwan and mainland China and were visiting the United States on exchange for 1 year. The reason for selecting this set of participants was two-fold: First, data collection in Experiments 1 and 2 preceded the Hong Kong handover, but Experiment 3 did not. First, therefore, there was concern with the shifting values and, thus, the independent versus the interdependent profile of the participants may have changed (Raghubir & Johar, in press). Second, the use of a distinct participant pool helps to increase the generalizability of our findings.

[8]Because of experimental constraints, Experiment 3 attempted only a partial replication of earlier research: Given the focus of our study on incongruity resolution, only incongruity cells were examined (positive cue and negative attributes). Results from our earlier experiments were reassuring in regard to the similarity of processing for different incongruity cells across both cultures.

manipulation (positively valenced), whereas the other half received the endorser cue manipulation (also positively valenced). Following exposure to product information, participants completed the same dependent variables (product evaluations and thoughts) as in the first two experiments. Furthermore, Experiment 3 included manipulation checks for involvement (participants were asked how interested or involved they were in reading the product description; $r = .90$) and cue diagnosticity (not at all vs. very relevant, important, $r = .82$).

Results

Manipulation checks. The manipulation checks were tested on the basis of a 2 (cue diagnosticity: high vs. low) × 2 (involvement type: high vs. low), between-subjects ANOVA. A check on cue diagnosticity showed that participants perceived the consensus cue ($M = 5.12$) to be more diagnostic than the endorser cue ($M = 3.12$), $F(1, 55) = 15.26$, $p < .01$. Furthermore, scores on the involvement check revealed that those in the high involvement versus low involvement condition were more involved ($M = 4.18$ vs. 3.55, respectively), $F(1, 55) = 3.02$, $p < .04$. No other effects were significant.

Cognitive responses. The 2 × 2 ANOVA on total thoughts yielded no significant effects. Furthermore, the ANOVA on attribute thoughts yielded only a significant main effect of cue diagnosticity, $F(1, 55) = 9.56$, $p < .01$. This effect was consistent with the expectation that, across involvement conditions, Chinese participants would generate fewer attribute thoughts in the consensus cue condition ($M = 1.89$) versus the endorser cue condition ($M = 2.71$) because the cue should dominate the attribute information in the former case, but not in the latter. On the flip side, we expected the reverse effect for source thoughts: Participants in the consensus cue condition should focus more on the cue relative to participants in the endorser cue condition. Accordingly, the ANOVA on source thoughts yielded only a significant cue diagnosticity main effect, $F(1, 55) = 5.02$, $p < .05$, that was manifested in a greater number of source thoughts for the consensus cue ($M = 1.11$) relative to those for the endorser cue ($M = .64$).

Product evaluations. The 2 × 2 ANOVA on evaluations yielded a significant cue diagnosticity main effect, $F(1, 55) = 5.12$, $p < .05$, with higher evaluations being observed for the consensus cue ($M = 4.60$) versus the source cue ($M = 3.95$). This effect was consistent with the predicted evaluation strategies. A priori, we expected that the lowest evaluations would be observed in the high motivation–endorser cue condition because this was the cell in which evaluations should be based solely on product attributes (which were negatively valenced). In all other conditions, we expected the (positively valenced) cue to have a significant impact on product evaluations. The results were consistent with this pattern: A planned contrast revealed that the mean product evaluation in the high motivation–endorser cue condition ($M = 3.52$) was significantly lower, $F(1, 55) = 10.74$, $p < .01$, than the pooled means of the other three conditions: low motivation–consensus cue ($M = 4.54$), low motivation–endorser cue ($M = 4.43$), and high motivation–consensus cue ($M = 4.66$).

Regression analysis. After Experiments 1 and 2, valenced thought indexes were used as proxies for the influence of attribute information and source cue. In an omnibus analysis, evaluations were regressed against these indexes, as well as the interactions with motivation. Results from the omnibus regressions revealed no significant effects (Fs < 1). Accordingly, following Aiken and West (1991), we tested the specific predictions through two separate sets of regressions. The results were consistent with these findings; the endorser source cue led Chinese participants to use an additivity strategy under low involvement (VAT = .23, $t = 2.48$, $p < .05$; VCT = .49, $t = 2.20$, $p < .05$) and an attenuation strategy under high involvement conditions (VAT = .40, $t = 2.73$, $p < .05$; VCT = –.16, $t < 1$), thereby providing support for Hypothesis 4a. Furthermore, the use of the consensus cue led Chinese participants to rely only on the cue under both low involvement conditions (VAT = .26, $t = 1.12$, $p > .20$; VCT = .58, $t = 2.00$, $p < .05$) and high involvement conditions (VAT = .14, $t = 1.28$, $p > .20$; VCT = .36, $t = 2.50$, $p < .05$) was also consistent with Aaker and Maheswaran (1997), thereby providing support for Hypothesis 4b.

Discussion

The results obtained in Experiment 3 help to reconcile our earlier results with those obtained by Aaker and Maheswaran (1997), regarding incongruity resolution by members of the East Asian culture, and shed insight on the different processes that may occur under conditions of incongruity. Although our findings appear to be valid for conventional heuristic cues that are relatively nondiagnostic, Aaker and Maheswaran's findings apply to cases in which the cue (e.g., a consensus cue) is perceived as highly diagnostic. Given such high cue diagnosticity, members of East Asian cultures attenuate attribute information under both low and high involvement. When the cue is relatively nondiagnostic, they employ an additivity strategy under low involvement and a cue attenuation strategy under high involvement.

It is interesting that both sets of research suggest that members of East Asian cultures differ from members of North American cultures in forming product evaluations. Thus, Aaker and Maheswaran's (1997) findings contrast with earlier results (Maheswaran & Chaiken, 1991), showing that members of North American cultures attenuate the consensus cue under both low and high involvement. On the other hand, this study shows that under low involvement conditions,

members of East Asian cultures rely on additivity, whereas members of North American cultures tend to attenuate the cue. However, the cultural differences explicated in two sets of studies stem from different underlying causes. Whereas the findings of Aaker and Maheswaran are based on differences in cue perception across cultures, these findings are driven by differences in culture-based processing strategies (additivity vs. attenuation) under low involvement conditions, even when the cue is being perceived as being equally nondiagnostic across the two cultures.

GENERAL DISCUSSION

The results reported in this article make several theoretical contributions. Drawing on literature in cultural psychology, we postulate and find that under the low involvement conditions that often prevail in consumer information processing contexts, members of East Asian versus North American cultures react differently to information incongruity. When faced with incongruity between source and attribute information, members of a North American culture tend to base evaluations solely on attribute information—for example, they follow an attenuation strategy. Members of an East Asian culture, on the other hand, incorporate both source and attribute information—for example, they follow an additivity strategy. Note that members of both cultures resolve incongruity; they simply do so in different ways. This basic finding adds to the growing body of work identifying contexts in which information processing differs across cultures and provides further support for the notion, already suggested in several distinct research streams, that members of East Asian versus North American cultures are more likely to simultaneously represent divergences in opinions, information, or emotions (Bagozzi et al., 1999; Cousins, 1989; Kitayama et al., 1997; Leung, 1987).

In addition, the results of Experiment 2 add insight into an elaboration-based mechanism underlying the differences in evaluation strategies adopted by members of the two cultures. That is, whereas Experiment 1 showed that the attenuation strategy adopted by American participants is accompanied by greater elaboration compared to the additivity strategy used by Chinese participants, Experiment 2 provided further support for the mediating role of elaboration by demonstrating that under conditions of high elaboration, Chinese participants also follow an attenuation strategy. Knowledge of the underlying process provides a clearer understanding of the cultural differences in reactions to and representations of incongruity. Experiment 3 further clarified the underlying mechanism by examining incongruity resolution for two types of cues: Results indicate that the cultural differences observed in Experiment 1 are due to variations in processing strategies and are not based simply on different perceptions of cue diagnosticity across cultures.

Despite these contributions, this research has limitations that highlight areas for future research. One promising avenue lies in exploring why members of North American cultures (but not members of East Asian cultures) are driven to elaborate in the face of incongruity. This work draws on several streams of research that suggest members of the two cultures are more likely to simultaneously incorporate opposing elements of information. However, we focused on the mediating role of elaboration and the consequences of this difference, rather than on determining why this tendency arises. Iyengar & Lepper (1999) provided one rationale that holds intuitive appeal (see also Kitayama et al., 1997). Their findings suggest that individuals with a dominant independent self are acculturated to follow a decision-making style that necessitates choosing between options. That is, relative to individuals with a dominant interdependent self, independent individuals approach many situations with a mind-set that impels them to choose one alternative over another. When faced with information incongruity, such a mind-set may be more conducive to an attenuation strategy in which one piece of information is rejected in favor of another. This rationale suggests that members of East Asian cultures may also follow an attenuation strategy if they adopt a "choice" mind-set, as opposed to this evaluation context.

Another direction for future research involves obtaining a deeper understanding of the additivity process of members of East Asian cultures. For example, to what extent do both pieces of incongruent information remain accessible in memory? Bagozzi et al. (1999) suggest that although members of East Asian cultures are typically able to simultaneously incorporate negative and positive emotions, retrieval errors may cause even interdependent individuals to recall only positive or negative emotions after a delay. How would such a time delay between information exposure and product evaluation, which is often the norm in persuasion contexts (Sengupta, Goodstein, & Boninger, 1997), effect evaluation strategies? If the incongruent information is equally weighted and processed, time delays should have little impact on recall and, therefore, on the attitudinal outcomes (relative to those found in this research). Alternatively, a bias may occur, leading interdependent individuals to attenuate in favor of negative versus positive information (Kitayama et al., 1997).

The notion that individuals with a dominant independent self might engage in attenuation is consistent with current findings (Experiment 2) that indicate that the two evaluation strategies documented in Experiment 1 (additivity and attenuation) are not hardwired to particular cultures. The question then arises, are there conditions under which members of both cultures will engage in an additivity strategy when faced with incongruity? Research on the effects of accountability suggests one possible answer (Simonson & Nowlis, 1998; Tetlock, 1983; Tetlock & Boettger, 1989). When American individuals are told they will have to justify their views and process information particularly carefully, complexity of thought is heightened, and the probability of judgment biases often decreases (Tetlock, 1985). Thus, accountability produces consequences similar to those resulting from high in-

volvement (Alba, Marmorstein, & Chattopadhyay, 1992), but with one important difference. Accountability magnifies the dilution effect, a phenomenon wherein the impact of diagnostic information on evaluations is diluted by the influence of relatively nondiagnostic information because it leads individuals to use a wider range of information in forming their views without making them more discriminating about the diagnosticity of the added information (in contrast to the effects of high involvement).

Building on this research, Sengupta and Aaker (2000) showed that accountability leads members of North American as well as East Asian cultures to employ an additivity strategy when faced with incongruity, even under the high involvement conditions that typically lead to attenuation across cultures. Specifically, when faced with incongruent diagnostic attribute and relatively nondiagnostic source information, both American and Chinese participants, who were told that they would later have to justify their judgments, incorporated attribute and source information into their product evaluations. Thus, accountability represents another context in which the cultural differences documented in Experiment 1 may be diluted (see also Briley, Morris, & Simonson, in press).

A final avenue for future research lies in extending the current results to different types of information incongruity. Research by Alden et al. (1994) suggested that the cultural differences in reactions to incongruity that were depicted in this article may not extend to all incongruity types. They found that when attribute information differed from category expectations (e.g., a sports car with four doors), consumers in both the United States and Thailand engaged in elaboration and based their evaluations primarily on attribute information, suggesting that some types of incongruity might lead members of East Asian cultures to engage in an attenuation strategy. Because a category expectation is typically stored in memory after experience with the category, consumers may be more sensitive to deviations from such expectations relative to the case in which both pieces of incongruent information are being encountered for the first time. Future research that manipulates information incongruity in different ways and to different degrees is needed to clearly outline the limiting conditions under which cultural differences in incongruity resolution exist.

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