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## **Assimilation and Contrast Effects in Cultural Frame Switching: Bicultural Identity Integration and Valence of Cultural Cues**

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# ASSIMILATION AND CONTRAST EFFECTS IN CULTURAL FRAME SWITCHING

## Bicultural Identity Integration and Valence of Cultural Cues

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This study examines how the valence of cultural cues in the environment moderates the way biculturals shift between multiple cultural identities. The authors found that when exposed to positive cultural cues, biculturals who perceive their cultural identities as compatible (high bicultural identity integration, or high BII) respond in culturally congruent ways, whereas biculturals who perceive their cultural identities as conflicting (low BII) respond in culturally incongruent ways. The opposite was true for negative cultural cues. These results show that both high and low BIIs can exhibit culturally congruent or incongruent behaviors, and have implications for understanding situations where high and low BIIs might adapt differently.

**Keywords:** bicultural identity integration (BII); cultural frame switching (CFS); valence; contrast effect

**In today's world,** it is not uncommon for people to have lived in multiple countries or cultural enclaves and identify with two or more cultures. However, although extensive research has been invested in describing and understanding the differences *between* cultural groups (e.g., Markus & Kitayama, 1991; Norenzayan & Nisbett, 2000), the study of cultural processes *within* multicultural or bicultural individuals remains a neglected topic. For example, how do bicultural individuals organize and move between their various cultural orientations? How do external factors (such as cultural cues) and individual factors (such as past bicultural experiences) influence the social behavior of biculturals?

### CULTURAL FRAME SWITCHING AND BICULTURAL IDENTITY INTEGRATION

Hong, Morris, Chiu, and Benet-Martínez (2000) proposed that biculturals possess two or more cultural interpretative frames or schemas, defined as networks of discrete, specific constructs. These cultural schemas guide behaviors only when they come to the foreground in one's mind and only when they are applicable to social events that need to be judged (Hong, Benet-Martínez, Chiu, & Morris, 2003). Specifically, biculturals engage in a process called cultural frame switching (CFS), where they shift between their two cultural interpretive frames in response to cues in the social environment. To support this argument, Hong and her colleagues showed that when exposed to Chinese primes (e.g., pictures of a

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742

Chinese dragon or Chinese calligraphy), Chinese American biculturals make more external attributions, a typical Eastern attributional style. However, when they are exposed to American primes (e.g., pictures of the American flag or the White House), they make more internal attributions, a typical Western attributional style.

Recently, biculturals have been found to vary on a continuum called bicultural identity integration (BII), or the degree to which ethnic and mainstream cultural identities are perceived as compatible or in opposition to each other (Benet-Martínez, Leu, Lee, & Morris, 2002). Specifically, biculturals with higher levels of BII identify with both ethnic and mainstream cultures, see them as compatible and complementary, and see themselves as part of a combined, blended culture that encompasses elements of both. Biculturals with lower levels of BII also identify with both mainstream and ethnic cultures, but they are more likely to feel caught between the two cultures and prefer to keep them separate (Benet-Martínez & Haritatos, 2005).

Biculturals with varying levels of BII differ in meaningful ways (Benet-Martínez & Haritatos, 2005). Those with higher BII have often spent more years in the mainstream culture, have better mainstream language proficiency, and have a stronger mainstream cultural identity than those with lower BII. Those with higher BII are more open and less neurotic than those with lower BII. Biculturals with higher BII have less anxiety and depression than those with lower BII. It is important to note that although BII is an individual difference, it is not necessarily stable and unmalleable. For example, recent research found that recalling more positive acculturation experiences increased the level of BII among biculturals (Cheng, 2005).

Most importantly, the CFS process is different depending on one's level of BII. Benet-Martínez et al. (2002) found that Chinese American biculturals with higher BII exhibit an assimilation effect in response to cultural primes—they behave more like Americans (make more internal attributions) when they are exposed to American primes and behave more like Chinese (make more external attributions) when they are exposed to Chinese primes. However, Chinese American biculturals with lower BII exhibit a contrast or reverse priming effect—they behave more like Americans when they are exposed to Chinese primes and behave more like Chinese when they are exposed to American primes—exhibiting behaviors typically described in popular media and literature as “cultural reactance” (Durczak, 1997; Ogbu, 1993; O’Hearn, 1998; Roth, 1969).<sup>1</sup> These attributional differences between high and low BIIs were not found when biculturals were exposed to neutral (noncultural) primes.

#### CONTRAST EFFECTS OF LOW BIIS

As suggested by the above research, although both high and low BIIs engage in CFS, they manage this process very differently. Whereas high BIIs exhibit an assimilation effect, low BIIs exhibit a contrast effect, behaving in ways that are opposite to the cultural primes. Previous literature on contrast effects provides valuable background for understanding why low BIIs exhibit such a contrast effect.

*Antecedents of assimilation and contrast effects.* Contrast effects are known to occur when contextual primes or stimuli appear evaluatively nonrepresentative. When a prime is reasonably similar to the target, assimilation or prime-consistent effects are likely; however, if the prime and the target are disparate, contrast effects occur (Sherif & Hovland, 1961). For example, when asked to judge the size of ambiguous animals, people assimilate to the size of

the animals previously presented to them (the primes) if they are moderately small (e.g., cat) or moderately large (e.g., cow). However, people exhibit contrast effects if the previously presented animal is extremely large (e.g., whale) or extremely small (e.g., flea) (Abele & Petzold, 1998; Herr, 1986; Herr, Sherman, & Fazio, 1983; Montgomery, 1980; Mussweiler & Strack, 2000). Contrast effects also take place when the primes are seen as incongruent or disassociated with the perceiver's self-concept (Koole, Dijksterhuis, & Van Knippenberg, 2001; Spears, Gordijn, Dijksterhuis, & Stapel, 2004; Stapel & Koomen, 2000, 2001; Stapel & Blanton, 2004). For example, whereas priming a professor leads to more correct answers on a knowledge test (an assimilation effect), priming Albert Einstein, an exemplar of intelligence that is ostensibly seen as disparate from most perceivers' sense of self, leads to fewer correct answers on the same test (a contrast effect; Dijksterhuis et al., 1998). This literature on contrast effects suggests that when primes appear extreme, nonrepresentative, and self-incongruent, perceivers engage in more cognitive processing of the primes. Overprocessing and overcorrection for the effects of the primes in turn lead to contrast effects (Glaser & Banaji, 1999; Petty & Wegener, 1993; Strack, 1992; Strack & Hannover, 1996; Wegener & Petty, 1995).

*Negative cultural experiences of low BIIs.* We propose that biculturals with lower levels of BII are more likely to exhibit contrast effects because the predominantly positive cultural primes used in past research (e.g., pictures of Mickey Mouse, Statue of Liberty, Great Wall of China) can be seen as nonrepresentative and extreme, leading to increased processing and overcorrection. Recent qualitative research showed that biculturals with lower BII are more likely to claim that being bicultural is a tension-laden experience. For example, one bicultural who perceived his or her multiple cultural identities as conflicting claimed that "[having two cultures] is harder . . . I have to act a certain way [in a specific situation]. I can't talk like I want to" (Phinney & Devich-Navarro, 1997, p. 22). Another bicultural says that

You start building a home in one place within one culture, you get about so much done but do not complete it. Then you continue to build your home within another culture; you leave it there and go somewhere else. At the end, you have different pieces of home in different places. You can never put them together because they may contradict or conflict with one another. If you try to piece the parts together, you make "home" collapse. (Vivero & Jenkins, 1999, p. 13)

Similarly, Kibria (2002) reports an interview in which a Korean American stated,

There is an expectation. Soon after I came on board, I was told to try and cultivate Korean clients. They didn't tell me that in the interview, so I was a little pissed. That's not to say I mind being seen as Korean. I am actually very Korean-identified. I belong to a Korean church, a lot of my friends are Korean, and my parents are very traditional old-style Korean. But that's exactly it. I don't want to mix my business life with all that. (p. 100)

Supporting these qualitative findings, several large survey studies (Benet-Martínez & Haritatos, 2005; Haritatos & Benet-Martínez, 2002) found that biculturals with lower BII are significantly more likely to experience linguistic stress (stress from being misunderstood and negatively perceived because of one's language skills), relational stress (stress from being perceived by others as being "too mainstream" to "too ethnic"), discrimination stress (stress from being mistreated because of one's "Chinese-ness" or "American-ness"), and cultural isolation (stress from living in a community that is not culturally diverse). As a result of increased stress associated with their bicultural status, these biculturals may internalize negative stereotypes of both ethnic and mainstream cultural identities (Hogg & Turner, 1987).

Given that biculturals with lower BII have more negative cultural associations, the primes used in previous research studies on CFS—all relatively positive cultural icons—may have appeared evaluatively inconsistent and nonrepresentative (Benet-Martínez et al., 2002). When Benet-Martínez, Lee, and Leu (2006) asked Chinese American biculturals to describe the Chinese and American primes, participants mostly wrote positive descriptions. For example, American cultural primes were described as “representing freedom and liberty” or “friendly and exciting,” and Chinese cultural primes were described as “full of rich history and high achievements” or “the dominant culture of Asian regions.” These generally positive primes may have been perceived by low BIIs as incongruent with their own negative bicultural experiences, which in turn trigger a process of overprocessing and overcorrection, ultimately creating a contrast or reverse-priming effect whereby the Chinese cultural interpretative frame is activated in response to positive American cultural icons, and the American cultural interpretative frame is activated in response to positive Chinese cultural icons.

*What about high BIIs?* In contrast, biculturals with higher levels of BII may have more positive experiences as biculturals. High BIIs experience lower levels of acculturation stress, are more likely to internalize positive Chinese and American cultural stereotypes, and welcome others to see them as a mixture of multiple cultures (Benet-Martínez & Haritatos, 2005; Haritatos & Benet-Martínez, 2002; Phinney & Devich-Navarro, 1997). For example, high BIIs believe that being a bicultural means “having the best of both worlds. You have other roots you can draw from. . . . You can have a better understanding of all point [of views]” (Phinney & Devich-Navarro, 1997, p. 21).

Further, high BIIs see their bicultural identity as an asset. For example, high BII bicultural said, “I do not think there is any true blood American; people have come from all different places” (Phinney & Devich-Navarro, 1997, p. 20). Here, one’s ethnic identity actually enhances (rather than distracts from) his or her American identity. Overall, in the contrasts of these positive associations with culture, positive cultural primes would not appear extreme or unrepresentative to biculturals with higher levels of BII, and therefore they are more likely to exhibit assimilation or prime-consistent responses.

## THIS STUDY

We suggest that the findings showing low BIIs’ tendency to exhibit contrast effects in response to cultural cues stem from the predominantly positive cultural primes used in past research. According to this argument, compared to high BIIs, low BIIs are relatively more likely to process and overcorrect for positive cultural primes only, leading to contrast effects. When exposed to negative cultural primes, however, low BIIs do not necessarily engage in this same process. Because negative cultural primes appear self-congruent to low BIIs, they will assimilate to negative cultural primes. In contrast, high BIIs will assimilate to positive cultural primes (because these primes are congruent to their cultural experiences) and exhibit contrast effects with negative cultural primes (because these primes are not congruent with their own cultural experiences).

To test these propositions, we examine how the valence of cultural primes affects CFS of high and low BIIs. Specifically, we hypothesize that compared to low BIIs, high BIIs are relatively more likely to exhibit assimilation effects when exposed to positive cultural primes; and compared to high BIIs, low BIIs are relatively more likely to exhibit contrast effects when exposed to positive cultural primes. On the other hand, the opposite will be true when negative cultural primes are used—that is, compared to low BIIs, high BIIs are

relatively more likely to exhibit contrast effects when exposed to negative cultural primes; and compared to high BIIs, low BIIs are relatively more likely to exhibit assimilation effects when exposed to negative cultural primes. In short, we predict a three-way interaction between cultural prime (Asian or American), bicultural type (high or low BII), and the valence of the cultural prime (positive or negative).

## METHOD

Our study used a methodology similar to that of Benet-Martínez et al. (2002) in which Asian American biculturals engaged in several attribution tasks after being exposed to Asian or American cultural primes. This study differed from Benet-Martínez et al.'s in three significant ways. First, we included the valence of the cultural cue as an additional experimental condition. Thus, our participants were exposed to either positive or negative cultural primes. Second, instead of using pictures (e.g., Mickey Mouse, American flag, Great Wall of China, Chinese opera singer) as cultural primes, we used positive and negative words that are stereotypical of Asian and American cultures. Like pictures, these stereotypical descriptors are cultural symbols in that they represent a specific cultural group and can activate cultural interpretative frames. Unlike pictures, however, these words allow us to more precisely and accurately manipulate the valence of the cultural associations (see section Selecting Cultural Primes below). Third, with the goal of examining CFS beyond first-generation Chinese American biculturals, we used a more broadly defined sample of Asian American biculturals that also included second-generation Chinese Americans and non-Chinese individuals (see Selecting Cultural Primes, below).

### MEASURING BII

We measured BII by using the cultural distance scale of Bicultural Identity Integration Scale-Version 1 (BIIS-1, see Benet-Martínez & Haritatos, 2005).<sup>2</sup> The cultural distance scale of BIIS-1 contains four items that measure the degree of separation between mainstream and ethnic cultures: (1) I combine both cultures (i.e., I feel like a mixture of Asian and American); (2) I feel "Asian-American" (i.e., hyphenated, a mixture of the two); (3) I am simply an Asian in North America (i.e., I am an Asian who happens to live in the United States)(reversed scored); (4) I feel part of a combined culture. Participants rated each item on a scale of 1 (*complete disagree*) to 5 (*complete agree*). The four items were reliable ( $\alpha = .72$ ) and were averaged to form a composite. Higher score on this scale indicates a higher level of integration of the two cultural frames, and thus higher BII.

### SELECTING CULTURAL PRIMES

We used an implicit word-priming task that included one of four types of words: (a) Positive words associated with Asians, (b) negative words associated with Asians, (c) positive words associated with Americans, or (d) negative words associated with Americans. In selecting these words, we first reviewed the studies on Asian and Anglo stereotypes (Chinese Culture Connection, 1987; Karlins, Coffman, & Walters, 1969; Krueger, 1996; Ralston, Gustafson, Elsass, Cheung, & Terpstra, 1992) and found 106 words that are associated with positive and negative stereotypes of Asians and Americans. Then we asked 10 first-generation Asian Americans to rate each word on its Asian-ness,

**TABLE 1**  
**Cultural and Valenced Words in Priming Tasks**

<i>Word Valence</i>	<i>Asian Word</i>	<i>American Word</i>
Positive words	Parents	Sporty
	Disciplined	Environment
	Polite	Independent
	Hardworking	Equality
	Patient	Enjoy life
	Family	Confident
	Loyal	Success
Negative words	Superstition	Lazy
	Sheltered	Boastful
	Materialistic	Exploitative
	Revengeful	Ignorant
	Uptight	Arrogant
	Reserved	Ostentatious
	Nervous	Stubborn

American-ness, positivity, and negativity (Cronbach alphas were .75, .79, .96, and .97, respectively). Words rated above or below the median on the valence and culture scales were selected as primes. For instance, positive Asian words were rated above the median for positivity, below the median for negativity, above the median for Asian-ness, and below the median for American-ness. *Hardworking*, for example, was rated very high on positivity and Asian-ness and very low on negativity and American-ness. This word was, therefore, categorized as a positive Asian word. Using these criteria, we selected the top seven words in each of the four Culture  $\times$  Valence categories as cultural primes (see Table 1). These words were included in four different word mazes (Asian positive, Asian negative, American positive, and American negative).

These 28 words were further pretested with 112 second-generation Asian American biculturals (50 men and 62 women; mean age = 19.7,  $SD = 1.97$ ). Participants rated the 28 selected words in terms of their Asian-ness, American-ness, positivity, and negativity on a 9-point Likert-type scale (1 indicates *not at all* and 9 indicates *very much*).

Furthermore, Asian primes were rated as significantly more Asian and less American than American primes, and vice versa (all  $p$ 's < .001). Positive primes were rated as significantly more positive and less negative than negative primes and vice versa (all  $p$ 's < .001). This suggests that the cultural primes we selected based on the ratings of first-generation biculturals were perceived similarly by second-generation biculturals.

Further, we administered the cultural distance scale of BIIS-1 to these second-generation biculturals. Table 2 shows how high and low BIIs rated the valence (positivity and negativity) and culture (Asian-ness and American-ness) of the four types of cultural primes (averaged over the seven individual words within each type). The  $t$  test indicated no significant differences between high and low BIIs in valence and culture ratings for all four types of cultural primes.

## PARTICIPANTS

Our sample included 179 first-generation and 41 second-generation Asian American biculturals (126 men, 94 women; mean age = 22.3,  $SD = 11.2$ ). Participants were solicited



from large universities in the Midwest and West Coast. All the first-generation biculturals were born in East, Southeast, and South Asian countries (mainland China, Taiwan, Hong Kong, Macao, Singapore, Korea, Japan, or India) and have lived in North America for at least 5 years. All the second-generation biculturals have parents (both mother and father) who were first-generation immigrants from East, Southeast, and South Asian countries. Participants were recruited either through the introductory psychology subject pool or through campus fliers soliciting individuals who fit the above criteria. The participants received either partial course credit or payment for their participation in this study.

## PROCEDURE

Participants were first asked to complete a word maze. Each participant was randomly assigned to complete one of the four word mazes (positive Asian, positive American, negative Asian, or negative American). Each maze included 10 words. Seven of the 10 words were target words (see Table 1)<sup>3</sup> and the other three words were neutral (*excited*, *fast*, and *fatigue*). Participants were asked to circle the words in the word maze as quickly as possible.

After completing the word maze, participants engaged in an allegedly unrelated inferential task where they were shown three computer-generated animation displays. Each display showed a single fish swimming in front of a school of fish (see Benet-Martínez et al., 2002, and Hong et al., 2000, for other studies using the same inferential task). The three displays only differed in the colors used to differentiate between the single fish and the school. After watching each display, the participants evaluated the statement, "The one fish is being influenced by the group (e.g., is being chased, teased, or pressured by others)," using a 7-point Likert-type scale. These ratings were used to measure external attributions; higher levels indicate a more typical Asian attributional style. (Recent research has shown that when asked to offer an explanation for social events, East Asians are more likely to make situational inferences [external attributions] than Westerners. In contrast, East-West differences are not consistently apparent in internal attributions or dispositional inferences [Choi, Nisbett, & Norenzayan, 1999; Norenzayan, Choi, & Nisbett, 2002; Norenzayan & Nisbett, 2000]. External attribution in inferential tasks is thus a better and more reliable indicator of whether individuals have adopted an Eastern cultural interpretative frame [more external attributions] or a Western cultural interpretative frame [less external attributions]. Based on this research, we only measured the participants' external attributions.)

After the inferential task, participants completed a demographic questionnaire that included questions regarding their sex, age, country of birth, the number of years they had lived in the United States and in an Asian country, English and Asian language proficiency, and cultural identity (see Benet-Martínez et al., 2002, for a detailed description of the language proficiency and cultural identity scales). Participants also completed Berry, Kim, Power, Young, and Bujaki's (1989) measure of acculturation strategies and the cultural distance scale of BIIS-1 (see earlier section on Measuring BII for details).

## RESULTS

### PRELIMINARY CONSIDERATIONS

The participants' scores on the BII cultural distance scale were normally distributed ( $M = 3.27$ ,  $SD = 1.41$ ,  $Mdn = 3.5$ ). To better understand BII, we examined our sample

**TABLE 2**  
**Ratings of High and Low Bicultural Identity Integration (BII)**  
**Participants on Valence and Cultural Content of Primes**

	<i>High BII</i>		<i>Low BII</i>	
	M	SD	M	SD
Asian-ness				
Positive Asian words	5.57	0.82	5.20	1.15
Negative Asian words	4.96 <sup>a</sup>	0.71	4.97 <sup>a</sup>	0.83
American-ness				
Positive American words	5.65 <sup>b</sup>	0.75	5.39 <sup>b</sup>	0.80
Negative American words	5.00 <sup>a</sup>	0.77	5.00 <sup>a</sup>	0.82
Positivity				
Positive Asian words	5.87	0.88	5.60	1.08
Positive American words	5.89 <sup>a</sup>	0.91	5.50 <sup>a</sup>	1.06
Negativity				
Negative Asian words	5.17 <sup>b</sup>	1.08	4.95 <sup>b</sup>	1.34
Negative American words	5.32 <sup>a</sup>	1.24	5.24 <sup>a</sup>	1.38

NOTE:  $n = 112$  second-generation Asian American biculturals. High and low BIIs were divided using the scale midpoint (3).  $n = 70$  high BIIs and  $n = 42$  low BIIs. None of the  $t$  test results comparing high BII with low BII are significant, all  $p$ 's  $> .05$ .

a. Comparison within the same category (e.g., comparison between positive and negative Asian words on Asian-ness and comparison between positive Asian words and positive American words on positivity), and none of the  $t$  test results are significant.

b. Comparison between different categories (e.g., comparisons between positive Asian words and positive American words on Asian-ness and American-ness and comparisons between positive Asian words and negative Asian words on positivity and negativity), and all of the  $t$  test results are significant,  $p < .001$ .

separately for high and low BIIs (using the scale midpoint 3 split). Descriptive statistics of our high and low BII sample are shown in Table 3. Compared to low BIIs, high BIIs have lived in the United States longer;  $t(177) = 5.00$ ,  $p < .001$ , speak better English;  $t(215) = 3.96$ ,  $p < .001$ , and have stronger identification with U.S. culture;  $t(211) = 6.49$ ,  $p < .001$ , which are consistent with previous findings (Benet-Martínez & Haritatos, 2005). The differences between high and low BIIs, however, do not undermine the bicultural status of low BIIs. Using Berry et al.'s (1989) measure of acculturation strategies, both low and high BIIs endorse the integration strategy over separation, assimilation, and marginalization (see Table 3). This suggests that both low and high BIIs are indeed bicultural in that they identify with both cultures. Furthermore, none of the differences between high and low BIIs—English and ethnic language abilities, American and Asian identities, and the years they lived in Asia and the United States—significantly predicted the dependent variable of external attributions (all  $\beta$ s are  $ns$ )  $F(6, 213) = 1.11$ ,  $p = .53$ . Descriptive statistics of first- and second-generation participants are reported in Table 4.

Even so, high BIIs showed stronger identification with U.S. culture than low BIIs did. Given that identification with both cultures is an important part of being bicultural, identification with the U.S. culture is included in all subsequent analyses. Because the participants' scores on BII were normally distributed, we treated BII as a continuous variable in the subsequent analysis. The correlation between BII and other variables is shown in Table 5.

**TABLE 3**  
**Descriptive Statistics for High and Low Bicultural**  
**Identity Integration (BII) Participants**

<i>Demographic</i>	<i>High BII</i>		<i>Low BII</i>		<i>t Test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Years in U.S.	9.05	5.70	5.05	3.55	*
Years in East Asia	15.63	11.97	16.88	8.34	
English language	4.18	0.92	3.63	1.00	*
Ethnic language	3.83	1.10	4.13	1.20	
U.S. identification	4.15	1.27	2.81	1.60	*
Asian identification	4.60	1.23	4.73	1.44	
Acculturation attitudes					
Integration	4.09	0.46	3.74	0.52	*
Assimilation	2.16 <sup>a</sup>	0.55	2.53 <sup>a</sup>	0.56	*
Separation	2.26 <sup>a</sup>	0.52	1.91 <sup>a</sup>	0.69	*
Marginalization	1.46 <sup>a</sup>	0.39	1.58 <sup>a</sup>	0.45	

NOTE:  $n = 220$  Asian American biculturals.  $n = 155$  high BIIs and  $n = 65$  low BIIs.

a. Significantly different from integration,  $p < .001$ .

\* $p < .001$ .

## HYPOTHESIS TESTING

Ten participants were dropped in this analysis because they did not fully complete the experiment. A multivariate general linear model (GLM) with four independent variables (prime culture: Asian vs. American, prime valence: positive vs. negative, level of BII, and the strength of identification with the United States) was conducted on the dependent variable: the participants' average external attribution ratings of the three fish displays. The reliability of the external attribution ratings of the three fish displays was high (Cronbach  $\alpha = .74$ ). The level of BII and the strength of identification with the United States were mean-centered (see Aiken & West, 1991; West, Aiken, & Krull, 1996). The testing model was entered into the GLM with all the main effects, the two-way interactions, the predicted three-way interaction of Prime Culture  $\times$  Prime Valence  $\times$  BII, and the three-way interaction of Prime Culture  $\times$  Prime Valence  $\times$  Identification With the United States. (The full GLM model with all the three-way interactions and the four-way interaction included yielded identical results; none of these interactions were significant. An ANCOVA with BII as a categorical variable also yielded identical results.)

The analysis revealed a significant main effect for the prime valence;  $F(1, 197) = 6.73$ ,  $p = .010$ ,  $\eta_p^2 = .033$ . Participants in the positive valence condition made less external attributions ( $M = 3.38$ ,  $SD = 1.54$ ) than participants in the negative valence condition ( $M = 3.85$ ,  $SD = 1.37$ ). There were no main effects for cultural prime;  $F(1, 197) = .47$ ,  $p = .50$ ,  $\eta_p^2 = .002$ , level of BII;  $F(1, 197) = .82$ ,  $p = .37$ ,  $\eta_p^2 = .004$ , or strength of identification with the United States;  $F(1, 197) = .14$ ,  $p = .71$ ,  $\eta_p^2 = .001$ . There were no significant two-way interaction effects.

As we predicted, the three-way interaction between cultural prime, prime valence, and the level of BII was significant;  $F(1, 197) = 8.14$ ,  $p = .005$ ,  $\eta_p^2 = .040$ . The means and standard

**TABLE 4**  
**Descriptive Statistics for First- and Second-Generation Participants**

	<i>First Generation</i>		<i>Second Generation</i>	
	M	SD	M	SD
Years in U.S.	7.62	5.33	18.76	1.46
Years in East Asia	16.23	10.8	—	—
English language	3.83	0.97	4.85	0.43
Ethnic language	4.15	1.00	2.87	1.15
U.S. identification	3.47	1.47	4.98	0.91
Asian identification	4.82	1.21	3.84	1.39
Integration	4.02	0.46	3.90	0.57
Assimilation	2.05	0.55	2.38	0.63
Separation	2.35	0.56	2.09	0.57
Marginalization	1.46	0.42	1.56	0.39
No. of low BII, first generation = 47 (26%)				
No. of low BII, second generation = 4 (10%)				
No. of high BII, first generation = 132 (74%)				
No. of high BII, second generation = 37 (90%)				

NOTE:  $n = 179$  first-generation biculturals.  $n = 41$  second-generation biculturals.

**TABLE 5**  
**Correlation Coefficients Between Bicultural Identity Integration (BII) and Other Key Variables**

	1	2	3	4	5	6	7	8	9	10	11
1 BII	—										
2 U.S. identification	.47**	—									
3 Asian identification	-.027	-.22**	—								
4 English	.38**	.42**	-.21**	—							
5 Ethnic language	-.125	-.34**	.41**	-.28**	—						
6 Generation	.23**	.40**	-.29**	.41**	-.43**	—					
7 Years in U.S.	.40**	.34**	-.001	.31**	-.19**	.19**	—				
8 Years in Asia	.015	-.27**	.18*	-.43**	.37**	-.16*	-.14	—			
9 Integration	.35**	.065	.11	.10	.22*	-.12	-.003	.08	—		
10 Assimilation	.27**	.49**	-.31**	.35**	-.36**	.26**	.29**	-.08	-.002	—	
11 Separation	-.30	-.31**	.20*	-.33**	.40**	-.21*	-.25*	.16	-.13	-.24**	—
12 Marginalization	-.043	.094	-.19*	.018	-.18*	.11	.11	.04	-.23**	.02	-.064

\* $p < .05$ . \*\* $p < .001$ .

deviations for each group divided by high and low BIIs are reported in Table 6. As Rosenthal and Rosnow (1991) suggested, Figure 1 shows the interaction residuals with main effects, two-way interactions, and grand mean subtracted. As Figure 1 shows, when exposed to *positive* primes, biculturals with high BII exhibited a relatively stronger assimilation effect than those with low BII, making more external attributions in the Asian prime condition and making less external attributions in the American prime condition. Meanwhile, biculturals with low BII exhibited a relatively stronger contrast effect than those with high BII, making

more external attributions in the American prime condition and making less external attributions in the Asian prime condition. A post hoc analysis of the two-way interaction between cultural prime and BII for the positive valence condition was significant;  $F(1, 102) = 4.89$ ,  $p = .029$ ,  $\eta_p^2 = .046$ .

On the other hand, when the primes were *negative*, the opposite trend was true: High BIIs exhibited a relatively stronger contrast effect than low BIIs, making less external attributions in the Asian prime condition and making more external attributions in the American prime condition. Meanwhile, low BIIs exhibited a relatively stronger assimilation effect than high BIIs, making less external attributions in the American prime conditions and making more external attributions in the Asian prime conditions. A post hoc analysis of the two-way interaction between cultural prime and BII for the negative valence condition was marginally significant;  $F(1,94) = 3.15$ ,  $p = .079$ ,  $\eta_p^2 = .032$ .

There was also a significant three-way interaction between cultural prime, prime valence, and identification with the United States;  $F(1, 197) = 4.19$ ,  $p = .042$ ,  $\eta_p^2 = .021$ . The means and standard deviations are reported in Table 6, and the interaction residuals are illustrated in Figure 2. Figure 2 shows that under both positive and negative prime conditions, participants with high U.S. identification exhibited weak cultural assimilation effects, making slightly more external attributions when exposed to Asian prime conditions and making slightly less external attributions when exposed to American prime conditions. Those with low U.S. identification exhibited cultural contrast effects, making less external attributions when exposed to Asian primes and making more external attributions when exposed to American primes. Post hoc analyses of the two-way interaction between cultural prime and U.S. identification were conducted for the two valence conditions separately; neither effect was significant;  $F(1, 102) = 1.53$ ,  $p = .22$ ,  $\eta_p^2 = .015$  for positive valence condition, and  $F(1,94) = 2.64$ ,  $p = .11$ ,  $\eta_p^2 = .027$  for the negative valence condition.

## DISCUSSION

The goal of this article is to examine how individuals with varying levels of BII react differently to positive and negative cultural cues. We found that compared to those with lower BII, those with higher BII were relatively more likely to exhibit an assimilation effect (making prime-consistent attributions) when they were exposed to positive cultural primes, and relatively more likely to exhibit a contrast effect (making prime-inconsistent attribution) when they were exposed to negative cultural primes. Meanwhile, compared to those with higher BII, those with lower BII were relatively more likely to exhibit a contrast effect when they were exposed to positive cultural primes and relatively more likely to exhibit an assimilation effect when they were exposed to negative cultural primes.

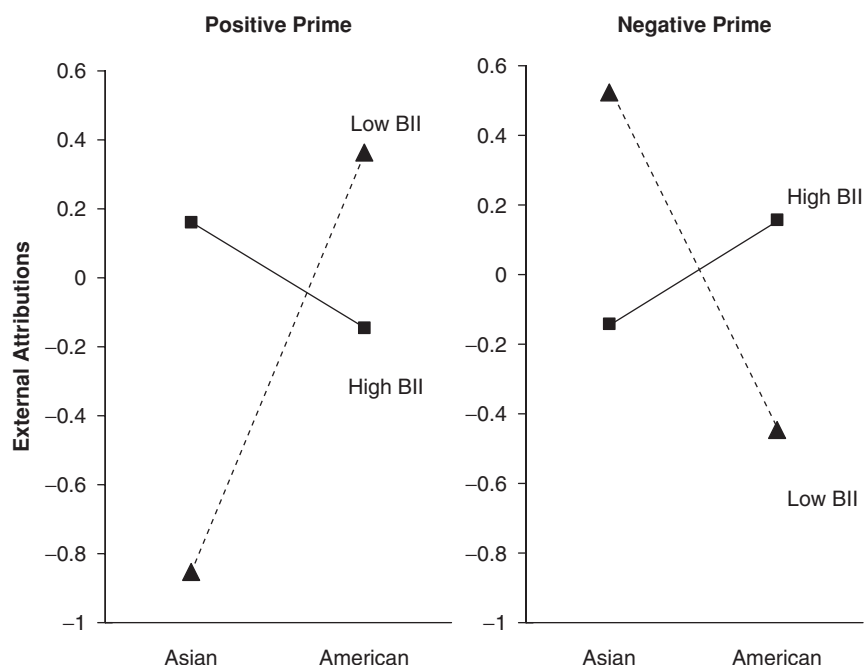
### CFS AMONG HIGH AND LOW BIIS

Our findings illuminate the CFS process and, in particular, the phenomenon of “cultural reactance,” a contrast effect where behaviors are incongruent with the dominant cultural context (Durczak, 1997; Ogbu, 1993; O’Hearn, 1998). Benet-Martínez et al. (2002) initially suggested that low BIIs might exhibit contrast effects because they generally exert more cognitive effort in processing cultural primes or cues in the environment. Specifically, Benet-Martínez et al. argued that perhaps the cultural tension perceived by low BIIs led them to be more vigilant in detecting, processing, and responding to cultural cues in the environment in an effort

TABLE 6  
External Attributions Means and Standard Deviations in Each Experimental Condition

<i>Prime Valence</i>	M	SD	<i>Prime Culture</i>	M	SD	<i>BII</i>	M	SD	<i>USID</i>	M	SD
Positive prime	3.38	1.54	Asian	3.27	1.4	High BII	3.47	1.34	High USID	3.42	1.52
						Low BII	2.61	1.46	Low USID	2.96	1.18
						High BII	3.31	1.74	High USID	3.71	1.59
Negative Prime	3.85	1.37	Asian	3.88	1.44	Low BII	3.83	1.45	Low USID	3.19	1.72
						High BII	3.78	1.59	High USID	3.92	1.52
			American	3.81	1.29	Low BII	4.13	1.3	Low USID	3.82	1.24
						High BII	3.96	1.36	High USID	3.68	1.41
						Low BII	3.47	1.11	Low USID	4.11	1.12

NOTE: BII = bicultural identity integration; USID = U.S. identification.

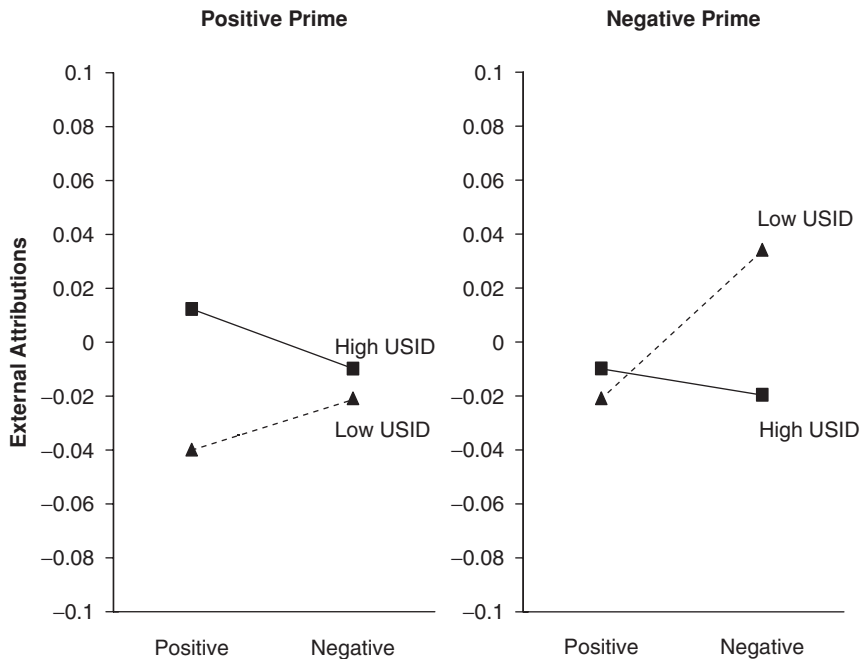


**Figure 1: Interaction Residuals for Culture  $\times$  Valence  $\times$  Bicultural Identity Integration (BII)**

to avoid activating the wrong cultural schema. Our study does not support this argument. We find that biculturals with lower BII did not exhibit a contrast effect in response to *all* cultural cues, only to the positively valenced cultural cues. When the cultural cues were negative, biculturals with lower BII were relatively more likely to exhibit assimilation effects whereas those with higher BII were relatively more likely to exhibit contrast effects. This suggests that the phenomenon of cultural reactance is not restricted to individuals with conflicting, oppositional cultural identities. Rather, cultural reactance stems from a perceived dissonance between external cultural cues and internal cultural associations.

We found evidence supporting predicted interaction between cultural prime, prime valence, and BII even when the BII was treated as a continuous variable, and when identification with U.S. culture was controlled. Without controlling for identification with the U.S. culture, one could argue that our findings merely reflect an ethnic affirmation effect (Bond, 1982, 1984; Ogbu, 1993; Yang & Bond, 1980), where biculturals who do not strongly identify with mainstream culture affirm their ethnic identity when the ethnic culture is negatively portrayed or when mainstream culture is positively portrayed. Indeed, evidence for the ethnic affirmation effect is found in the significant three-way interaction effect between cultural prime, prime valence, and identification with the United States. Our results, however, showed that the predicted interaction between cultural prime, prime valence, and BII emerged even when identification with the United States was included in the analysis (as a covariate). Although our results do not rule out the ethnic affirmation effect, they do show that identity integration moderates the CFS process above and beyond what can be explained by ethnic affirmation.

Our findings also support many prior findings related to biculturals. The predicted three-way interaction between cultural prime, prime valence, and BII lends support to past



**Figure 2: Interaction Residuals for Culture  $\times$  Valence  $\times$  Identification With the United States (USID)**

NOTE: Interaction residuals for Culture  $\times$  Valence  $\times$  USID. The results indicate that biculturals with high and low USID exhibit different trend of external attributional behaviors when exposed to positive and negative cultural primes. Specifically, biculturals with low USID exhibit cultural contrast effects when exposed to negative cultural primes.

research suggesting that high BIIs generally have more positive experiences as biculturals than low BIIs (Benet-Martínez & Haritatos, 2005; Haritatos & Benet-Martínez, 2002; Phinney & Devich-Navarro, 1997; Vivero & Jenkins, 1999). The findings also support the general notion that cultural systems are dynamic, changing in response to individual characteristics such as BII as well as situational variables such as the content and valence of cultural cues (Benet-Martínez et al., 2002; Hong et al., 2000).

The present findings also have implications for understanding the social adjustment of biculturals. First, if biculturals with higher levels of BII encounter negative stereotypes (such as "Asians are superstitious") or those with lower BII encounter positive stereotypes (such as "Asians are high academic achievers"), they may spend more cognitive and emotional resources in processing these cues, depleting resources they may otherwise need for other tasks. In short, one might expect the performance of high and low BIIs on various cognitive tasks to differ depending on the cultural favorability of the social context. Second, Benet-Martínez et al. (2002) argued that culturally incongruent behaviors may be maladaptive because these behaviors may elicit negative social feedback or rejection. According to our findings, both biculturals with lower and higher BII may experience these negative outcomes, albeit under different social contexts where positive or negative cultural cues are salient. Although those with higher BII are more likely to suffer the negative effects of cultural reactance when the cultural environment is hostile, those with lower BII may suffer more when the cultural environment is supportive. That the integration of cultural identities may be differentially effective and



adaptive in different social contexts can affect the way we design and implement interventions that would facilitate the acculturation of immigrants and ethnic minorities.

### IMPLICATIONS FOR FUTURE RESEARCH

One important direction for future research is understanding the antecedents and stability of BII as an individual difference. Past research shows that higher levels of BII are associated with more positive acculturation experiences (Benet-Martínez & Haritatos, 2005; Haritatos & Benet-Martínez, 2002; Phinney & Devich-Navarro, 1997; Vivero & Jenkins, 1999). Recalling more past positive cultural experiences also increases the level of BII (Cheng, 2005). This suggests that external conditions that generate or make salience positive bicultural experiences may increase the level of BII. Meanwhile, individual differences such as openness (to multicultural experiences) or resilience (to acculturation stresses such as language difficulties or discrimination) can also shape the positivity of one's bicultural experiences, and in turn influence the level of BII. This initial work suggests that BII, rather than a stable or categorical variable, may be better conceptualized as an individual difference that varies across situations and individuals. Future research is needed to for example through longitudinal designs that examine changes in BII over time, or through examining how BII changes across different social situations.

The main finding of this study shows that biculturals with lower levels of BII were relatively more likely to exhibit contrast effects when exposed to positive primes and relatively more likely to exhibit assimilation effects when exposed to negative primes, though the opposite was true for biculturals with higher levels of BII. Although we formulated a plausible explanation for this finding—that primes that are inconsistent with one's cultural associations lead to overprocessing of the cultural cues—it is important to note that we did not directly measure the participants' internal cultural associations nor their level of cognitive processing of cultural primes. Future research could, for example, use recall or reaction time measures to examine if high BIIs pay more attention to negative cultural primes and low BIIs pay more attention to positive cultural primes. Or, because contrast effect requires more cognitive effort than assimilation effect, future studies might examine whether the observed effects in this study might be attenuated when participants are under a heavy cognitive load (Dijksterhuis, Spears, & Lepinasse, 2001; Martin, Seta, & Crelia, 1990). In short, one might expect the contrast effects observed in this study to be reduced when participants engage in inferential tasks under a cognitive load. Future studies should also examine whether past positive and negative cultural experiences mediate the three-way interaction effect found in our study.

Last, although this study manipulated cultural primes using positively and negatively stereotyped words, more research is needed to understand the types of positive and negative cultural cues that might affect CFS in real life. For example, Asian American biculturals might encounter more negative American stereotypes at home where Asian culture is more dominant, and they might encounter more negative Asian stereotypes at work or at school where American culture is more dominant. To the extent that these stereotypes also act as cultural primes, they might elicit different types of CFS processes in high and low BIIs.

### OTHER FINDINGS

In addition to our hypothesized effects, we also found a main effect for the prime valence. Participants in the positive valence group made less external attributions than those in the negative valence group. Although we did not predict this main effect, it is consistent

with the positivity bias, or people's overall propensity to evaluate others favorably (Smith & Whitehead, 1984; Smith, Whitehead, & Sussman, 1990; Taylor & Koivumaki, 1976). In attributional terms, this refers to the tendency to attribute others' positive behaviors to internal factors and negative behaviors to external factors (Hallahan, Lee, & Herzog, 1997). Positive primes might make the single fish's ambiguous behavior appear more positive to the participants, leading to less external (or more internal) attributions for the fish's behavior. In the same vein, negative primes might make the single fish's behavior appear more negative to the participants, leading to more external attributions for the fish's behavior.

Furthermore, although we did not have enough data to compare the differences in CFS between first- and second-generation participants, the descriptive statistics provided meaningful information about the relationship between generation and BII. First, although past studies have shown that different generations of immigrants have different meanings of "being ethnic" and "being American" (Tsai, Ying, & Lee, 2000), we found that first- and second-generation immigrants have similar perceptions of prevalent cultural stereotypes, and their ratings of the valence and cultural content of the word primes were similar. One plausible explanation is that the stereotypes we used in our study are prevalent and well known such that there is little room for subjective interpretation.

Third, we found comparatively more low BIIs and less high BIIs in first-generation participants than in second-generation participants. This is not surprising, because first-generation immigrants usually experience more acculturation stress and difficulties, which are plausible antecedents of low BII (Benet-Martínez & Haritatos, 2005). Nevertheless, we also found evidence that, despite considerable acculturation stress and language difficulties, integration was the most highly endorsed acculturation strategy among our first-generation participants, and a sizeable proportion of them perceive a high level of integration between the cultural identities.

## CONCLUSION

According to past research, high and low BIIs have internalized positive and negative cultural meanings, respectively, that are related to their own bicultural experiences. These associations, in turn, may play a role in the CFS process. Specifically, when the cultural context is positive, biculturals with higher levels of BII display culturally congruent behaviors, whereas biculturals with lower levels of BII display culturally reactive responses. When the cultural context is negative, the behaviors of biculturals with higher and lower levels of BIIs show the reverse effect. In short, all biculturals, regardless of their level of integration between the two bicultural identities, can exhibit either culturally congruent or culturally incongruent behaviors. These findings suggest that dissonance between one's own bicultural associations and the cultural context drives the CFS process. These findings also have implications for understanding situations where high and low BII biculturals might perform and adapt differently. Indeed, these findings further emphasize the complexity of culture and cultural identity, specifically showing that biculturalism is a highly dynamic and layered process and that "there is not just one way of being bicultural" (Phinney & Devich-Navarro, 1997, p. 19).

## NOTES

1. For instance, in Philip Roth's (1969) novel *Portnoy's Complaint*, the culturally conflicted Jewish American narrator reports the experience of feeling and acting more Jewish when traveling to the Midwest and feeling and acting less Jewish when visiting Israel.

2. The BIIS-1 has two subscales, one to measure perceived distance between two cultures, one to measure perceived conflict between two cultures. We included both the cultural distance and conflict scales of the BIIS-1, but the cultural conflict scale was not reliable ( $\alpha = .45$ ). Thus we excluded the cultural conflict scale. In short, BII is measured only using the cultural distance scale from the BIIS-1.

3. To make the priming words shorter to fit in the maze, we changed some adjectives to nouns. For example, we changed *family-oriented* into *family*. The reason for not having a set of neutral priming words as a control condition is because most of the stereotypes are strongly emotional and are attached with valence. In other words, it is hard to find a set of neutral stereotypical adjectives to compose a neutral priming words condition.

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