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Lost in translation:

The depleting consequences of culturally mismatched thinking styles

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Abstract

Six studies examine the consequences of engaging in culturally mismatched thinking styles, such as encountering ads that require one to think in a way that is inconsistent with one's culturally dominant thinking style. Our findings suggest that these enriching cross-cultural experiences come with self-regulatory consequences: less ability to control one's intentions, a greater likelihood of giving in to temptations, and less interest in new (vs. familiar) experiences. This is shown in terms of evaluations and actual consumption behaviors in real-life consumer settings that reflect reduced self-control, as well as choices of familiar versus novel consumer experiences. Supporting the notion that mismatch effects reflect difficulty in switching between cultural mindsets, these findings are attenuated for those who have a compatible (vs. oppositional) bicultural identity. The findings highlight the importance of understanding the effects of matched/mismatched thinking experiences on audiences of different ethnicities and cultural backgrounds.

Keywords: culture, thinking styles, self-regulation, depletion, familiarity seeking

Lost in translation: The depleting consequences of culturally mismatched thinking styles

Jane has recently arrived in Japan to spend a few months in an executive internship program with her company. Having rented a new apartment, she buys some magazines and checks the local ads to get ideas for furnishing it. Despite being fluent in Japanese, Jane has a hard time getting the point of the ads and finds she has to think about them differently than she does when reading American ads. She finds this effort tiring, eventually giving up and eating the whole pint of ice cream in her freezer, something she rarely does back home.

What are the consequences of having to think in a way that differs from one's culturally dominant thinking style? Immigrants or foreign travelers are routinely confronted by new types of advertisements or other cultural artifacts. Such mismatch experiences are quite common as people travel and migrate from culture to culture. International migration, particularly from Asian countries, is increasing very rapidly (Koser and Salt 1997; U.N. report 2003). As of 2008, the foreign-born population accounts for over 12% of the total U.S. population and almost 16% of the total civilian labor force. Moreover, according to the U.S. Census Bureau (2004), by 2050, minority ethnic groups are projected to comprise almost 50% of the U.S. population. These demographic trends suggest that intercultural contacts or experiences are increasingly common not only for immigrants or travelers but also for the general population. Thus, with increasing frequency, consumers experience and have to maneuver between different culturally linked thinking styles (Hong et al. 2000; Maheswaran and Shavitt 2000).

However, little is known about the implications of experiencing commonplace events that require a thinking style that mismatches one's own. We examine the effects of culturally

mismatched experiences, and propose that these enriching cross-cultural experiences come with self-regulatory consequences. First, we hypothesize that such (mis)mismatched experiences may affect self-regulatory resources and therefore self-regulatory performance because of the amount of effort that they require. This has implications for the evaluation and consumption of products for which self-control is relevant. Second, we hypothesize that culturally mismatched versus matched experiences lead to other choices that enhance hedonic pleasure and comfort – namely, the choice of familiar versus novel options. The findings carry significant implications for the choices consumers make in everyday settings.

Culture and Thinking Styles

Westerners in general hold an analytic world view that emphasizes the independence of individual objects, whereas East Asians tend to adopt a holistic view, emphasizing that the world is composed of interrelated elements (Nisbett et al. 2001). The analytic style of Westerners and the holistic style of East Asians have been demonstrated on various consumer behavior variables (e.g., Monga and John 2007, 2008; Ng and Houston 2006; Zhu and Meyers-Levy 2009) as well as in general cognitive domains (Nisbett et al. 2001).

Analytic versus holistic thinking styles include both perceptual processes such as visual processing and attention (Masuda and Nisbett 2001), and higher level cognitive processes such as reasoning and categorization (Choi et al. 2003; Norenzayan et al. 2002). The analytic style of attention is field independent (oriented toward an object itself) whereas holistic attention is field dependent (focused on the relationship between objects and/or the field in which they are embedded) (Ji, Peng and Nisbett 2000; Masuda and Nisbett 2006). As a result, Westerners are more accustomed to formulating rules that govern internal properties of objects and tend to

categorize things by applying those rules. In contrast, East Asians organize objects on the basis of their relationship to other objects or to the field (Ji, Zhang and Nisbett 2004).

It should be noted that although an analytic thinking style is dominant in Western cultures whereas a holistic thinking style is dominant in Asian cultures, individual differences exist within each culture and can be measured using the Analysis-Holism Scale (AHS; Choi, Koo and Choi 2007). It has been shown that differences at both the individual and the cultural level have predictive validity.

Such differences have key implications for the way people organize and store brand information (Monga and John 2007; Ng and Houston 2006; Zhu and Meyers-Levy 2009). For example, compared to Westerners, Asians tend to perceive a higher degree of fit between a parent brand and its brand extension, and to evaluate the brand extension more positively because they are more likely to perceive a relation between items that share a brand name (Monga and John 2007). Similarly, in explaining causality of a phenomenon, holistic thinkers tend to consider a broader set of reasons and contextual information than analytic thinkers do (Morris and Peng 1994), and therefore, negative publicity influences analytic (versus holistic) thinkers' beliefs about a brand to a greater degree (Monga and John 2008).

Although research has revealed important antecedents and consequences of cultural differences in thinking styles, little attention has been paid to the consequences of engaging in culturally mismatched thinking styles. This is our focus. Rather than examining the impact of one or another thinking style, we examine the impact of having to perform a task that mismatches (versus matches) one's dominant style.

When a given task calls for processing that is not in line with one's culturally dominant thinking style, self-regulation is required. That is because engaging in a non-dominant thinking

style requires more effort, just as using a non-dominant hand is more effortful. For instance, if a person is usually a holistic thinker and now is asked to focus on individual details, that person needs to direct efforts toward finding details, a relatively unfamiliar process. Engaging in effortful tasks is known to reduce self-regulatory resources (see Baumeister, Schmeichel and Vohs 2007).

Self-Regulation

Self-regulation, also known as self-control, refers to “the self’s capacity to alter its own states and responses” (Baumeister 2002). This capacity draws on resources similar to energy or strength (Muraven and Baumeister 2000). Such resources are limited and exhaustible, therefore it is well established that self-regulatory performance in one domain can be impaired by prior activities that required self-regulation in other domains (e.g., Pocheptsova et al. 2009; Vohs, Baumeister and Ciarocco 2005; for an extensive review, see Baumeister, et al. 2007).

Responses that require self-regulation include controlling one’s thoughts, controlling attention, and overriding dominant behaviors (Baumeister et al. 2007). These and other outcomes are influenced by self-regulation because they reflect successful focusing of one’s energy to expend effort on a challenging or unpleasant task. The self-regulation of one’s thinking style should result in depletion of those resources.

Hypothesis 1: Engaging in a culturally mismatched (vs. matched) thinking style depletes one’s self-regulatory resources, impairing self-control.

Self-regulation has also been examined in the consumer behavior arena, including the field of food consumption. When self-regulatory resources are depleted, people are less likely to make effortful and deliberative purchase decisions (Pocheptsova et al. 2009). They are also more vulnerable to impulsive or compulsive buying, and are more willing to pay higher prices

for the same products (Faber and Vohs 2004). For example, after being depleted, participants endorsed an impulsive-purchasing style as evidenced by higher scores on an impulsive-buying scale (Vohs and Faber 2002). Moreover, when ten dollars was provided to participants who were then given the option of keeping the cash or spending the money in a bookstore, those who were depleted were more vulnerable to spontaneous buying than those who were not depleted (Vohs and Faber 2007).

To our knowledge, no research has examined the possibility that experiencing culturally mismatched thinking styles is associated with such self-regulatory costs. Yet, this is a novel and important possibility for a number of reasons, 1) the commonplace nature of such experiences, 2) the potential for predicting *a priori* the impact of any such experience based on available knowledge of target consumers' ethnicity or cultural background and thus, 3) the implications for understanding the effects of persuasive appeals. If appeals are designed and targeted to match or mismatch the likely cultural thinking style of a target audience, based on readily available information about that audience, we propose that this will directly impact the target audience's subsequent efforts at self-regulation.

Hypothesis 2: Engaging in a culturally mismatched (vs. matched) thinking style affects evaluation and actual consumption of products for which self-control is relevant. Specifically, a culturally mismatched (vs. matched) thinking style leads to more positive evaluations and behaviors toward tempting (vs. non-tempting) foods.

To test the first two hypotheses, we conducted three studies (Studies 1-3) that provided evidence that experiencing culturally mismatched thinking styles can be an important source of self-regulation depletion and thus can impact self-control, subsequent product evaluations, as well as actual consumption behaviors. Our findings, including field data of actual consumption,

indicate that the effects can be generalized to real-life settings. Therefore, they offer significant implications for understanding the effects of advertisements and consumer experiences on target audiences of differing ethnicities and cultural backgrounds.

If engaging in a mismatched (versus matched) thinking style leads to reduced self-control and increased indulgence, it may also be expected to lead consumers to make other choices that reflect depletion. In particular, we propose that consumers engaging in a mismatched thinking style are more likely to make other types of hedonically pleasant choices. Specifically, we hypothesize that experiencing mismatched thinking will enhance the general tendency to prefer familiar objects to unfamiliar ones (Zajonc and Markus 1982). Familiar objects of every kind elicit more positive feelings (e.g., Capaldi 1996; Janiszewski 1993). That is, all else being equal, features that elicit positive feelings are more likely to come to mind for a familiar option than for a new one. Thus, for instance, if one plans on going to a previously visited destination, thinking about staying at a familiar hotel may elicit feelings of greater pleasure and comfort than thinking about staying at a new hotel, an assumption that is validated in our research. This means that familiar options should be more appealing to depleted consumers.

Indirect evidence supports our prediction, finding that felt pressure such as time constraint increases preferences for familiar options (Litt, Reich, Maymin and Shiv, 2011). Previous research has examined the consequences of self-regulatory resource depletion on decision making, establishing that depleted people are more likely to rely on intuitive processing and less likely to engage in effortful decision-making processes (Pocheptsova et al. 2009). However, to our knowledge, research has yet to examine the impact of self-regulatory resources on familiarity seeking.

Hypothesis 3: Engaging in culturally mismatched thinking styles increases the likelihood of opting for hedonically pleasant and comfortable choices, increasing the preference for familiar versus novel options.

To test this hypothesis, participants made choices about hospitality services (Study 4) and retail store options (Study 5). We found evidence that experiencing a mismatched versus matched thinking style leads to choosing more familiar options. This has broad implications for understanding the impact of self-regulatory resources on consumer choice.

Finally, if engaging in culturally mismatched versus matched thinking styles depletes self-regulatory resources and impairs self-control, such experiences should have less impact on individuals who are adept at switching from one cultural mindset to another. The nature of one's bicultural identity is of particular relevance here. Although all biculturals have more than one cultural origin by definition, they differ in the degree to which they identify with the mainstream culture. Benet-Martinez et al. (2002) termed this individual difference *bicultural identity integration* (BII), and showed that those who view their culture of origin and the mainstream culture to be oppositional tend to experience more difficulty responding in culturally appropriate ways when primed with a culturally relevant cue than those who view their two cultures as compatible. This could be because those who have difficulty integrating two cultures into their identity are cognitively less flexible as they are less open to new experiences than those who readily integrate their cultures into their identity (Benet-Martinez and Haritatos 2005). If so, one would expect oppositional biculturals to be especially prone to the effects of (mis)matched thinking styles, whereas compatible biculturals may not be impacted by such experiences.

Hypothesis 4: Engaging in culturally (mis)matched thinking styles will have stronger effects on those who have difficulty switching between different cultural mindsets than on those who are adept at doing so.

To examine directly the role of bicultural identities, we recruited bicultural U.S. participants from a panel, and compared those who view their culture of origin to be compatible with American mainstream culture to those with a view oppositional to the American mainstream culture (Benet-Martinez et al. 2002). Supporting our hypothesis, those who have an oppositional bicultural identity, who thus view their culture of origin and the mainstream culture to be in conflict, were affected by a culturally mismatched thinking style to a greater degree than those who have a compatible bicultural identity.

Overall, our findings suggest that culturally mismatched versus matched experiences are more effortful and this has an impact particularly on those who are not prepared to adopt different cultural mindsets. Previous research on self-regulation has primarily focused on antecedents and consequences of self-regulatory resource availability. Our findings offer important theoretical implications by revealing a new yet important moderator of the self-regulatory impact of culturally (mis)matched experiences, as well as practical implications for understanding bicultural or immigrant consumers.

Study 1

Study 1 was designed to test H1 that a mismatch between one's culturally dominant thinking style and a situationally induced thinking style can impair self-control.

Method

Participants and design. 229 undergraduate students (81 male, 74 female, 74 unreported) participated in exchange for class credit. Participants of Asian ($N = 77$; Asian American, Korean,

Chinese) and European American ($N = 152$; Anglo white European Americans) ethnicities were recruited to represent holistic and analytic thinkers, respectively. The study employed a 2 (ethnicity: Asian vs. European American) X 3 (thinking style: analytic vs. holistic vs. control) between subjects factorial design. No gender related effects were found in this and subsequent studies and therefore will not be discussed.

Thinking style manipulation. Following Monga and John (2008), in the analytic thinking condition, participants were shown a black and white line picture in which line drawings of 11 smaller objects (e.g., ski cap, bird, key) were embedded. Participants were also shown pictures of these 11 objects separately, and were asked to find as many of the embedded objects as possible in the larger picture. Locating embedded figures encourages field independence, a key feature of analytic thinking (Nisbett et al. 2001). In the holistic thinking condition, participants were shown the same picture and asked to focus on its background. They were also asked to write what they saw in the picture. Focusing on the background encourages field dependence, a major characteristic of holistic thinking (Masuda and Nisbett 2001). Participants in the holistic condition were not told about the 11 smaller objects that were embedded in the scene. Note that the figures were well embedded in the picture, such that participants in the holistic condition would not spontaneously see those objects. Monga and John (2008) validated this procedure, showing that this manipulation significantly influenced the locus of attention factor of the 24-item analysis-holism scale (Choi, Koo and Choi 2007), as well as the recall of contextual location information. We also conducted a pilot study ($N = 63$) to ascertain the effectiveness of the holistic/analytic manipulation and found that participants in the holistic (vs. analytic) thinking condition scored significantly higher on the 24-item analysis-holism scale ($M_{\text{Holistic}} =$

4.99, $M_{\text{Analytic}} = 4.70$, $t(61) = 2.30$, $p < .05$). Participants in the control condition were not shown any picture.

Measures. Participants' self-regulation was measured using the 36-item self-control scale developed and validated by Tangney, Baumeister, and Boone (2004). Scale items were anchored by 1 (*not at all*) and 5 (*very much*). Sample items include “I am good at resisting temptation” and “I blurt out whatever is on my mind” ($\alpha = .87$).

Although developed as a measure of chronic level of self-control, scores on this self-control scale are also known to be sensitive to the impact of exerting self-regulatory effort in another domain. For example, in longitudinal studies, Frijns and Finkenauer (2009) demonstrated that those who had reported keeping (versus confiding) a secret showed a decrease in their self-control scores on a shortened version of the self-control scale. Keeping secrets is a taxing activity because it requires effortful self-regulation such as “monitoring and inhibiting one’s thoughts, emotions, and behaviors” (Frijns and Finkenauer 2009, p. 146).

Results and Discussion

As shown in Figure 1, a significant interaction emerged between participant ethnicity (Asian vs. European American) and their primed thinking style (analytic vs. holistic vs. control), $F(1, 223) = 6.09$, $p < .01$. European American participants had higher self-control scores in the analytic than in the holistic thinking condition ($M_{\text{Analytic}} = 3.35$, $M_{\text{Holistic}} = 3.06$; $t(83) = 2.66$, $p < .01$), and Asian participants had higher self-control scores in the holistic than in the analytic thinking condition ($M_{\text{Analytic}} = 3.01$, $M_{\text{Holistic}} = 3.27$; $t(52) = -2.05$, $p < .05$). Results for control conditions fell between analytic and holistic thinking conditions both among European American ($M_{\text{Control}} = 3.26$) and Asian ($M_{\text{Control}} = 3.09$) participants. The difference between holistic and control conditions was significant among European Americans, $t(113) = -2.12$, $p < .05$, but not

among Asians, $t < 1$. The analytic and control conditions did not differ significantly among either European American ($t(102) = 1.09, ns$) or Asian participants ($t < 1$).

Insert figure 1 here

These findings generally support H1 that having to engage in a culturally (mis)matched thinking style impacts self-regulatory resources. Participants who engaged in a task that mismatched their culturally dominant thinking style perceived themselves to be worse at self-control than those who engaged in a task consistent with their culturally prevalent thinking style. Indeed, at least among European American participants, a mismatched experience depleted self-control relative to a control condition.

However, an alternative explanation for the results of Study 1 is worth considering. That is, it can be assumed that participants in the mismatched (vs. matched) condition experienced less fluency while performing the initial task. This disfluency could have led to less favorable judgments about themselves. In other words, participants may have used the metacognitive disfluency they experienced in the culturally mismatched task to assess their ability to engage in self-control. The experience of metacognitive (dis)fluency has been shown to impact a variety of favorability judgments (e.g., Reber, Winkielman and Schwarz 1998; Schwarz 2004) and persuasion (Lee and Aaker 2004). To address this possible account, Study 2 was designed to examine whether mismatched experiences would lead to direct effects of disfluency on product ratings (resulting in less favorable ratings of any product in the mismatch versus match conditions), as opposed to the self-regulatory depletion effects we anticipated, which would be specific to the temptation associated with the product.

Study 2

To provide further support for the role of [mis]matched thinking style, in this study, rather than classifying thinking style based on ethnicity, participants' dominant thinking style was measured using the 24-item analysis-holism scale developed and validated for this purpose (Choi et al. 2007). After completing a randomly-assigned matching or a mismatching initial task, participants were shown marketing materials describing one of two foods – one was delicious but unhealthy, whereas the other appeared to be tasteless but healthy. Participants were then asked to rate how much they would like the given food. As noted, the experience of processing fluency is known to increase the perceived familiarity with (Whittlesea 1993) and fondness for (e.g., Reber et al. 1998) a stimulus. Therefore, if a mismatched task creates a sense of disfluency that directly impacts product ratings, participants in the mismatched (vs. matched) condition, due to the experience of disfluency, should evaluate whichever food was given less favorably. That is, an overall effect of match versus mismatch would be expected, regardless of the target food. In contrast, if a culturally mismatched task leads to depletion, participants in the mismatched condition should prefer the tempting option to the less tempting option, and this difference should be smaller or non-significant in the matched condition.

Method

Participants and design. 148 undergraduate students (73 male, 72 female, 3 unknown; 2 African American, 67 Asian, 76 European American, 1 Hispanic, 2 others) at a large Midwestern university participated in exchange for class credit. The study employed a 2 (measured chronic thinking style: analytic vs. holistic) X 2 (induced thinking style: analytic vs. holistic) X 2 (food type: unhealthy chocolate bar vs. healthy multi-grain bar) between subjects factorial design.

Thinking style manipulation. Participants were induced to think either analytically or holistically using the same procedure as in Study 1 (Monga and John 2008).

Process measures. In order to provide more evidence for the role of depletion, we asked a subset of participants ($N = 61$) to estimate the amount of effort they put into the task that manipulated thinking style (1 = *no effort at all*, 7 = *a lot of effort*). We expected the mismatched (versus matched) task to feel more effortful, and therefore to deplete self-regulatory resources, based on previous findings that effortful tasks are depleting (see Baumeister et al. 2007). In addition, we asked participants to rate their level of motivation (1 = *not motivated at all*, 7 = *very motivated*) and their feelings doing the task (1 = *felt wrong*, 7 = *felt right*). These ratings were included to address the possibility that, rather than the mismatched task being effortful and therefore depleting of resources, the matched task may have enhanced participants' resources and motivation by eliciting a feeling that the task felt right (e.g., Lee et al. 2010; Muraven et al. 2008; Ryan and Deci 2008).

Materials. After the thinking-style manipulation, participants were introduced to an ostensibly ongoing market research study with the following instruction:

Kellogg's, the world leading producer of cereal, has recently developed a new line of cereals. Please help with some market research to gauge the opinions of target consumers about these new products before they are launched.

Participants were then given a description of one of two cereal bars (a delicious but unhealthy chocolate cereal bar vs. a healthy but less delicious multi-grain bar) along with a picture of the pertinent cereal bar. The two descriptions were written to be approximately equivalent in terms of format and length (See Appendix A for detailed descriptions). Indeed, a post-test ($N = 62$) showed that there was no difference in the evaluation of the two descriptions

with respect to effectiveness ($M_{\text{chocolate bar}} = 4.61$, $M_{\text{multi-grain bar}} = 4.77$; $F < 1$), impactfulness ($M_{\text{chocolate bar}} = 4.48$, $M_{\text{multi-grain bar}} = 4.71$; $F < 1$), or persuasiveness ($M_{\text{chocolate bar}} = 5.03$, $M_{\text{multi-grain bar}} = 5.00$; $F < 1$). However, the posttest confirmed that those who read the description of the chocolate cereal bar ($N = 31$) evaluated the food to be more tempting than those who read the description of the multi-grain cereal bar ($N = 31$) ($M_{\text{chocolate bar}} = 5.00$, $M_{\text{multi-grain bar}} = 4.06$; $F(1, 60) = 4.03$, $p < .05$).

Measures. After participants read the description, they were asked to evaluate (“How much would you like this cereal bar?”; 1 = *not at all*, 7 = *very much*) and to report their likelihood of buying (“How likely are you to purchase the cereal bars when they are available in your local store?”; 1 = *very unlikely*, 7 = *very likely*) the described food item. The mean rating of these two items was used as a preference index ($r = .75$). In addition, as possible covariate variables, participants’ familiarity with the brand Kellogg’s (1 = *not familiar at all*; 7 = *very familiar*), dieting status (“Are you currently dieting?”; 1 = *yes*, 2 = *no*), and how long it had been since they last ate were measured for a subset of the participants ($N=100$).

Finally, after a short break, participants were guided to a different section of the lab and did another study conducted by other researchers as a filler task. At the end of this separate study, participants' chronic thinking styles were measured using the Analysis-Holism Scale (AHS; Choi et al. 2007) ($\alpha = .81$) (1= *strongly disagree*; 7 = *strongly agree*). The scale measures four subconstructs of analytic versus holistic thinking. Sample items to measure each of the subconstructs include, “It is more important to pay attention to the whole context rather than the details” (locus of attention), “Every phenomenon in the world moves in predictable directions” (perception of change), “Everything in the universe is somehow related to each other,”

(causality), “It is more desirable to take the middle ground than go to extremes” (attitude toward contradictions).

Although we and others (Monga & John 2008) have found that the AHS can be sensitive to the impact of primed thinking style (see the pilot study reported earlier), we took steps to ensure that the prime would not influence chronic AHS scores in this study. As noted, there was a break and a filler study between the prime and the AHS measure. To ensure that the priming task did not influence measured AHS, we examined the impact of the prime in a one-way ANOVA. As expected, the priming manipulation did not have a significant impact on AHS scores, $F(1, 146) = 1.67, p = .20$.

Results and Discussion

Primed thinking style x Chronic thinking style x Type of food

Supporting the depletion explanation, regression analysis showed a significant primed thinking style (analytic vs. holistic) x chronic thinking style (Z-transformed AHS scores) x type of food presented (chocolate vs. multi-grain cereal bar) interaction in cereal bar preferences, $\beta = -2.83, t = -3.18, p < .01$. No other effects were significant.

To follow up this interaction, we collapsed the two types of matched conditions (i.e., chronic and primed analytic; chronic and primed holistic) and the two types of mismatched conditions (i.e., chronic holistic/primed analytic; chronic analytic/primed holistic) to retain statistical power. A significant two way interaction was found in the preference of cereal bar between the type of experience (matched vs. mismatched with one's chronic thinking style, as determined by median split) and the type of food presented (chocolate cereal bar vs. multi-grain cereal bar), $F(1, 144) = 6.52, p < .05$ (See Figure 2). Participants in the mismatched condition ($N = 61$) liked the chocolate bar more than the multi-grain bar ($M_{\text{chocolate bar}} = 4.90, M_{\text{multi-grain bar}} =$

3.69; $F(1, 59) = 8.74, p < .01$). Those in the matched condition ($N = 87$) did not differ in their preference ($M_{\text{chocolate bar}} = 4.20, M_{\text{multi-grain bar}} = 4.35; F(1, 85) = .20, p = .66$). These findings are consistent with those of Zhang, Winterich, and Mittal (2010), who found that whereas consumers low in self-control preferred tempting to non-tempting food products, those high in self-control did not show any difference in their preferences among such products. When we disaggregated the data into the full three-way design results, the same patterns of means emerged.

Primed thinking style x Ethnicity x Type of food

We also found a significant three way interaction in the preference for cereal bar among the primed thinking style (analytic vs. holistic), ethnicity (European American vs. Asian), and the type of food presented (chocolate cereal bar vs. multi-grain cereal bar), $F(1, 135) = 5.88, p < .01$ (See Figure 3).

The pattern for ethnicity was the same as for AHS. Specifically, a two way interaction was significant in the preference of cereal bar between the type of experience (matched vs. mismatched with one's ethnicity) and the type of food presented (chocolate cereal bar vs. multi-grain cereal bar), $F(1, 139) = 5.76, p < .05$. Participants in the mismatched condition ($N = 63$) liked the chocolate bar more than the multi-grain bar ($M_{\text{chocolate bar}} = 4.83, M_{\text{multi-grain bar}} = 3.73; F(1, 61) = 7.55, p < .01$). Those in the matched condition ($N = 80$) did not differ in their preference ($M_{\text{chocolate bar}} = 4.20, M_{\text{multi-grain bar}} = 4.39; F(1, 78) = .29, p = .59$).

Perceived effort associated with the thinking style priming task

We found a significant two way interaction in the perceived amount of effort it took to do the thinking style priming task between the primed thinking style (analytic vs. holistic) and the chronic thinking style (analytic vs. holistic), $F(1, 57) = 4.85, p < .05$, and also between the primed thinking style (analytic vs. holistic) and ethnicity (European American vs. Asian), $F(1,$

52) = 5.80, $p < .05$. Participants in the mismatched condition rated the task as more effortful than those in the matched condition did both when the primed thinking style [mis]matched their chronic thinking style, $F(1, 59) = 4.97, p < .05$, and when it [mis]matched their ethnicity, $F(1, 54) = 6.21, p < .05$. There was no difference between the matched and mismatched conditions in the level of motivation or feelings, $F_s < 1$. These findings offer evidence consistent with the depletion account by showing that a task that involves a culturally mismatched (versus matched) thinking style requires more processing effort. Effortful tasks have been shown to elicit self-regulatory depletion (see Baumeister et al. 2007).

Other measures

The key interaction between type of experience (matched vs. mismatched) and type of food (chocolate cereal bar vs. multi-grain cereal bar) on preferences also emerged after controlling for familiarity with the brand Kellogg's and for the time elapsed since eating. Finally, although we expected stronger effects of [mis]matched thinking styles among dieters because chronic inhibition (dieting) decreases ability to engage in self-control, the number of dieting participants was too small ($N= 12$) to examine whether this variable moderated the results.

Insert figure 2 & 3 here

In sum, the findings of Study 2 not only supported H1 by confirming that engaging in culturally mismatched thinking styles impairs self-regulation, it also supported H2 by demonstrating that this makes people more vulnerable to a tempting but less healthy choice of food. Our results did not show that [dis]fluency caused by a [mis]matched task reduced the favorability of evaluations in this situation. That is, evaluations were not significantly more

favorable in the matched versus mismatched conditions. Instead, participants in the mismatch condition evaluated a tempting food more positively than a less tempting food, presumably because participants were depleted, whereas those in the match condition evaluated both foods equally positively.

Study 3

Study 3 provided a further test of H2 and evaluated the managerial relevance of the effect of culturally (mis)matched experiences using a real-world situation and measuring actual consumption behavior.

Method

Participants and design. 84 undergraduate students (40 male, 41 female, 3 unknown) at a large Midwestern university participated and received pens in compensation for their participation. Two participants did not complete the study, and therefore their data were not included. Participants from Asian ($N = 46$; Asian American, Korean, Chinese) and European American ($N = 36$; Anglo, Whites of European origin) cultural backgrounds were recruited to represent holistic and analytic thinkers, respectively. The study employed a 2 (ethnicity: Asians vs. European Americans) X 2 (induced thinking style: analytic vs. holistic) between subjects factorial design.

Study setting. A field study was conducted in campus locations with high foot traffic. We attracted participants with a sign that read, “Free snacks for a short consumer study”. The research was introduced to participants as a consumer study involving three different tasks: advertising evaluation, snack (popcorn) tasting, and a short survey. We measured the amount of popcorn taken by participants as a dependent variable reflecting self-regulation. Because popcorn is a tempting but not necessarily healthy snack, we expected that the more participants

were depleted by a prior task, the more popcorn they would take. In a separate study, we verified participants' perception of the healthfulness of popcorn. Out of 31 participants, 23 categorized popcorn as unhealthy and 8 categorized it as healthy food.

Thinking style manipulation. When participants arrived, they were introduced to the study, and as the first task of the consumer study, they were given a set of 12 mock ads and asked to evaluate the ads with the following instruction:

In many cases, advertisers have to rely on images to inform potential consumers about their products. In this study, we are interested in your opinion about the following ads that include different images. These ads were prepared for testing purposes only.

Each ad included a picture of individual chocolates or candies of different colors and shapes, arranged in the shape of different objects such as a house, a star, and a tree (see Appendix B for examples). Participants in the analytic condition were asked to describe what made each piece of candy distinct, and those in the holistic condition were asked to describe what shape the individual pieces make as a whole. Through pretesting, the arrangements of the chocolates and candies were designed so that recognizing the shape would neither be too easy or too difficult. Because analytic thinkers in general tend to focus on details whereas holistic thinkers tend to focus on the big picture (Nisbett et al. 2001), analytic thinkers were expected to have a harder time finding the figure, whereas holistic thinkers were expected to have a harder time distinguishing chocolates based on their detailed attributes.

Measures. Participants were then guided to a tasting study, ostensibly designed to test consumers' quick reactions to real brands. They were provided with butter flavored popcorn in a big container along with a cup for scooping the popcorn and a paper plate to hold their serving.

They were given an opportunity to sample as much popcorn as they wanted. After participants left, using a small digital scale, we weighed the container to measure the weight (in grams) of the popcorn taken by each participant. The scale was hidden from the view of participants during the tasting study. We did not account for popcorn that participants have left on their serving plates.

In a short survey following the tasting study, participants were asked whether they were currently dieting, how long it had been since they last ate, and their demographics.

Results and Discussion

Consistent with the previous two studies, a significant interaction between ethnicity (Asian vs. European American) and the type of task associated with the ad (analytic vs. holistic) emerged, $F(1, 78) = 7.68, p < .01$. European American participants consumed more popcorn when they had to find an overall figure than when they had to focus on individual chocolates in the ads ($M_{\text{Analytic}} = 6.67, M_{\text{Holistic}} = 10.00; F(1, 34) = 3.02, p = .09$). In contrast, Asian participants consumed more popcorn when they had to focus on individual pieces of chocolate than an overall figure in the ads ($M_{\text{Analytic}} = 8.67, M_{\text{Holistic}} = 4.86; F(1, 44) = 4.92, p < .05$) (See Figure 4).

As in the previous study, the interaction between ethnicity (Asian vs. European American) and the type of task associated with the ad (analytic vs. holistic) remained significant when the time elapsed since eating was included as a covariate. The number of dieting participants was also too small ($N = 8$) to examine whether dieting status moderated the results.

Insert figure 4 here

Taken together, Study 3 showed that participants who were exposed to ads in a way that required a culturally mismatched thinking style were less able to self-regulate their consumption. Therefore, they took more popcorn than those who processed the ads in a way that matched their dominant thinking style. Study 3 not only replicated the findings of the previous two studies, it extended them and pointed to important implications of experiencing mismatched thinking styles. The ad materials created in this study to induce thinking styles closely resembled ads that are commonly used in real-world marketing communications, suggesting that exposure to such ads can have a measurable impact on consumers' vulnerability to temptation. Moreover, going beyond effects on evaluations or purchase intentions, the findings showed that experiencing a culturally mismatched thinking style significantly influenced actual food consumption.

Study 4

If engaging in a mismatched (versus matched) thinking style leads to reduced self-control and increased indulgence, it may also be expected to lead consumers to make other choices that reflect depletion. That is, consumers may be generally more prone to choosing options that are hedonically pleasing and comfortable. In particular, H3 predicted that engaging in a mismatched thinking style would enhance the general tendency to prefer familiar objects to unfamiliar ones (Zajonc and Markus 1982). Familiar objects elicit more positive feelings. Thus, all else being equal, thinking about familiar options may elicit feelings of greater pleasure and comfort than thinking about new options.

Study 4 tested H3 by examining whether, after engaging in a mismatched versus matched thinking style, consumers are more likely to stick with familiar options. If indeed experiencing a mismatched thinking style increases the preference for familiar consumer options, this has broad

implications for understanding the consequences of self-regulatory resources for consumer choice.

Method

Participants and design. 200 undergraduate students (87 male, 109 female, 4 unknown) at a large Midwestern university participated for extra course credit. Participants of Asian ($N = 101$; Asian American, Korean, Chinese) and European American ($N = 99$; Anglo white European Americans) ethnicities were recruited to represent holistic and analytic thinkers, respectively. The study employed a 2 (ethnicity: Asians vs. European Americans) X 2 (induced thinking style: analytic vs. holistic) between subjects factorial design.

Thinking style manipulation. Participants were induced to think either analytically or holistically using the same procedure as in Study 1 (Monga and John 2008).

Materials. After the thinking-style manipulation, participants were shown a scenario in which they had to make choices regarding an upcoming vacation:

Please imagine you are going on a weekend vacation to a destination you have visited several times before. You have several favorite places to go and things to do there.

However, through a travel website, you recently learned about several new options for hotels, activities, and attractions at this destination that have gotten decent reviews...

For each of the decisions below, please indicate which of the options you would be more likely to choose.

Measures. Participants were then asked to indicate for the categories of hotel, bar/nightclub, and spa, which option they would be more likely choose, either a familiar favorite location or a new place. They did so on a 7-point scale (1= *very likely from the familiar favorites*; 7 = *very likely from the new places*).

Next, for a subset of the participants ($N = 110$), we measured the expected levels of comfort and pleasantness for each of the three hospitality services (“How comfortable [pleasant] would it be to stay/go to one of your familiar favorite hotels [bars, spas]?; “How comfortable [pleasant] would it be to stay/go to one of the new hotels [bars, spas]? 1 = *not at all*; 7 = *very much so*) and participants’ current mood (1 = *very negative*; 7 = *very positive*).

Results and Discussion

Supporting H3, a significant interaction emerged between participant ethnicity (Asian vs. European American) and their primed thinking style (analytic vs. holistic) on the mean likelihood of selecting familiar (vs. unfamiliar) choices, $F(1, 196) = 8.76, p < .01$. European Americans were more likely to favor one of the familiar choices in the holistic than in the analytic thinking condition ($M_{\text{Analytic}} = 4.19, M_{\text{Holistic}} = 3.62; t(74) = -2.17, p < .05$). In contrast, Asian participants were more likely to favor one of the familiar choices in the analytic than in the holistic thinking condition ($M_{\text{Analytic}} = 3.62, M_{\text{Holistic}} = 4.28; t(96) = 2.61, p < .05$) (see Figure 5).

 Insert figure 5 here

As expected, participants felt that choosing a familiar option would be more comfortable ($M_{\text{familiar}} = 6.19$ vs. $M_{\text{new}} = 4.54, t(109) = 15.34, p < .01$) and pleasant ($M_{\text{familiar}} = 5.99$ vs. $M_{\text{new}} = 4.72, t(109) = 11.76, p < .01$) than a new option. This provides evidence that opting for a familiar option is more hedonically pleasing and thus likely to be more appealing to depleted consumers. However, the experience of [mis]matched thinking did not affect the expected comfort or pleasantness of any of the three types of hospitality services, $F_s < 1$, confirming that engaging in a [mis]matched thinking style did not alter the way these services were perceived.

It is also plausible that the preference for familiarity was a mood management effort: Research has shown that people feel happier when they see familiar (vs. unfamiliar) objects (Bornstein, 1989). If so, participants may have chosen more familiar hospitality services because they felt less happy after engaging in a culturally mismatched (vs. matched) thinking style. However, the interaction between participant ethnicity (Asian vs. European American) and primed thinking style (analytic vs. holistic) remained significant even when participant mood was included as a covariate, $F(1, 105) = 4.26, p < .05$. The interaction between ethnicity and primed thinking style on mood was not significant, $F(1, 106) = .11, p = .74$, thus mood did not mediate the interaction between ethnicity and prime on the likelihood of seeking familiar options.

In a separate scenario study ($N=93$), we replicated the significant effects of mismatch on the choice of familiar options at a restaurant -- specifically, the choice of an appetizer and a dessert (though not for a main dish). This suggests that the effects observed here are not limited to important and consequential choices, or ones that involve significant risk, such as a hotel. They impact smaller decisions, as well, such as the tendency to order items from a familiar menu rather than from a new set of options. Taken together, these findings support H3, suggesting that people who engage in a task that mismatches (versus matches) their culturally dominant thinking style are more likely to visit places or select consumer options that they already know well.

Study 5

In Study 5, we extended the findings of Study 4 and examined broader marketing implications of the effect of a mismatched (versus matched) thinking style. If engaging in a mismatched (versus matched) thinking style enhances a familiarity seeking tendency, one might expect that a mismatched thinking style will also lead to a greater preference for national chain stores over local stores when people are shopping in unfamiliar places. National chain stores

normally have a standardized and thus familiar layout whereas local stores have a novel set of products and displays. Therefore, in line with H3, we expected that choosing a national chain store (versus a local store) will be a more pleasant and thus desirable option for those who engage in a culturally mismatched (versus matched) thinking style.

Method

Participants and design. 47 undergraduates (28 male, 19 female; 4 African American, 5 Asian, 30 European American, 4 Hispanic, 4 others) at a large Midwestern university participated for extra course credit. The study employed a 2 (primed thinking style: analytic vs. holistic) X 2 (induced thinking style: analytic vs. holistic) between subjects factorial design.

Thinking style manipulation. Participants were induced to think either analytically or holistically using the same procedure as in Study 1 (Monga and John 2008).

Materials. After the thinking-style manipulation, participants were shown a scenario in which they had to make choices in a new city, which was adapted from Oishi et al. (in press):

Please imagine you have recently moved to a new city and you are out shopping.

When you want to buy a particular item, which one of the stores would you choose between the two offered on the next pages? Some of them are local stores in the new city and some are national chain stores you visited in your previous hometown.

For each of the following decisions, please indicate which of the options you would be more likely to choose.

Measures. Participants were then asked to imagine that they were shopping at a bakery, ice cream shop, pizza place, and bookstore. These categories are hedonic consumption items and thus we reasoned that the decisions involving these items may be primarily influenced by the anticipated pleasantness of the options. Participants were then asked to indicate which option

they would be more likely to choose, using a 7-point scale (1= *very likely a local store*; 7 = *very likely a national store*).

Finally, as in Study 2, in a separated session after a break, chronic thinking style was measured using the same Analysis-Holism Scale used in Study 2 ($\alpha = .72$). As expected, the priming manipulation did not impact AHS scores, $F(1, 45) = .02, p = .88$. Also, we measured need for cognitive closure (NFC; Webster and Kruglanski 1994) ($\alpha = .85$) using a 42-item scale, as a possible covariate for preference for national chain stores.

Results and Discussion

We regressed mean likelihood of choosing national chain store over local stores on need for cognitive closure (control variable), primed thinking style, chronic thinking style (Z-transformed AHS score), and their interaction. As expected, there was a significant interaction between primed thinking style (analytic vs. holistic) and chronic thinking style on the mean likelihood of selecting national chain stores (vs. local stores), $\beta = -1.07, t = -2.39, p < .05$. There was also a main effect of chronic thinking style, $\beta = 1.08, t = 2.41, p < .05$, and need for cognitive closure, $\beta = .38, t = 2.79, p < .01$. Those who scored high on AHS (chronic holistic thinkers) and NFC were more likely to choose national stores versus local stores. However, neither of these main effects is relevant to our hypotheses.

We also found a significant two-way interaction between primed thinking style (analytic vs. holistic) and chronic thinking style (analytic vs. holistic) with a median split of AHS scores, $F(1, 42) = 7.01, p < .01$ (see Figure 6).

 Insert figure 6 here

Chronic analytic thinkers were more likely to favor national chain stores in the holistic condition than they were in the analytic thinking condition ($M_{\text{Analytic}} = 3.93$, $M_{\text{Holistic}} = 5.21$; $F(1, 19) = 6.00$, $p < .05$). In contrast, chronic holistic thinkers were more likely to favor national chain stores in the analytic condition rather than in the holistic thinking condition ($M_{\text{Analytic}} = 5.12$, $M_{\text{Holistic}} = 4.64$; $F(1, 24) = 1.40$, $p = .25$) although this difference was not statistically significant. The results not only conceptually replicate the findings of Study 4 but also extend the implications, suggesting that consumers who experience a culturally mismatched (versus matched) task are more likely to opt for national chain versus local stores. Taken together, studies 4 and 5 support H3 and extend our knowledge about the impact of (mis)matched thinking styles on familiarity seeking across a range of consumer services and retail options.

Study 6

Study 6 was conducted to reveal a key factor that moderates the impact of culturally mismatched experiences, particularly to examine whether the impact of culturally (mis)matched experiences can be buffered by the nature of individuals' bicultural identity. Research on bicultural identity suggests that biculturals who view their culture of origin and mainstream culture to be "oppositional" (versus "compatible") tend to be cognitively less flexible as they are less open to new experiences (Benet-Martinez and Haritatos 2005). Thus, oppositional biculturals experience more difficulty switching between two cultural mindsets (Benet-Martinez et al. 2002, see also Lau-Gesk, 2003). Based on this, in H4 we predicted that a culturally mismatched thinking style exerts a greater impact on those who are not adept or flexible in switching to a different cultural mindset than on those who easily integrate their culture of origin with another one.

Method

Participants and design. An online panel study was conducted that included self-identified bicultural and monocultural participants. Because our focus was on bicultural identity integration (BII), we analyzed the responses of all 94 European Americans (34 male, 60 female) who identified themselves as having roots in a non-American culture of origin and completed the BII scale. We attempted to sample biculturals of different ethnic groups. However, the number of Asians was too small for analysis. Thus, the study employed a 2 (primed thinking style: analytic vs. holistic) X 2 (bicultural identity integration: oppositional vs. integrated) between subjects factorial design. Mean age of participants was 36.9.

Thinking style manipulation. Participants were induced to think either analytically or holistically using the same procedure as in Study 1 (Monga and John 2008).

Measures. Participants' self-regulation was measured using the 36-item self-control scale developed by Tangney et al. (2004) ($\alpha = .86$) as in Study 1. Then, a variety of demographic, cultural and geographic variables including gender, age, ethnicity, culture of origin, and education level were measured.

Next, participants' bicultural identity integration was measured using a 7-item BII scale adapted from Benet-Martinez and Haritatos (2005) ($\alpha = .71$). The items were originally developed to measure bicultural identity integration between Chinese and American cultures. For the purpose of our study, we modified the items to be applicable to broader categories of biculturals. Sample items include "I keep my culture of origin and American culture separate", "I feel part of a combined culture", and "I am conflicted between ways of doing things in American culture and in my culture of origin," (1 = strongly disagree, 7 = strongly agree).

Results and Discussion

Bicultural identity integration

The mean on the self-control scale was regressed on age (control variable), education level (control variable), primed thinking style and bicultural identity integration (Z-transformed mean score of BII scale), and their interaction. As expected, we found a significant interaction between primed thinking style and BII on self-control scores, $\beta = .70$, $t = 2.19$, $p < .05$. The main effect of thinking style condition was significant, $\beta = -.20$, $t = -1.98$, $p = .05$, reflecting that participants (European Americans) in general had lower self-control scores in the holistic (mismatched) than in the analytic (matched) thinking condition, replicating Study 1.

A median split of the BII means classified participants into two groups: those high in BII ($N = 48$) and those low in BII ($N = 46$). A significant interaction between BII (median split) and induced thinking style (analytic vs. holistic) emerged again controlling for age and education, $F(1, 88) = 8.71$, $p < .05$. Those low in BII, who tend to view their culture of origin and mainstream culture as oppositional, had higher self-control scores in the analytic thinking condition (matched) than in the holistic thinking condition (mismatched) ($M_{\text{analytic}} = 3.71$, $M_{\text{holistic}} = 3.18$; $F(1, 44) = 9.55$, $p < .05$). However, as expected, for those high in BII, who tend to view their culture of origin as compatible with mainstream culture, there was no difference between the two thinking conditions ($M_{\text{analytic}} = 3.58$, $M_{\text{holistic}} = 3.68$; $F < 1$) (see Figure 7). [Results for the self-identified monocultural participants did not yield a significant difference by thinking condition, either. This may reflect a reduced responsiveness to cultural priming procedures shown in other research on monoculturals (Fu et al. 2007).]

 Insert figure 7 here

These findings support H4 that the effects of engaging in a culturally mismatched versus matched thinking style are evident among those who have more difficulty switching from one cultural mindset to another. In contrast, those who integrate their culture of origin with American culture and are thus likely to be more flexible or adept at switching from one cultural mindset to another are less impacted by culturally [mis]matched experiences. These findings suggest that having an integrated bicultural identity can reduce the consequences of culturally (mis)matched experiences.

General Discussion

Overall, the present research showed converging evidence that engaging in a culturally mismatched versus matched thinking style results in reduced self-regulatory resources and thus self-regulatory performance. This was evidenced on a self-control scale (Study 1, 6), evaluative judgments and purchase intentions (Study 2), and actual snacking behavior (Study 3). The generalizability of the phenomenon was established in a real world setting using advertising materials and measuring participants' actual consumption behaviors. Furthermore, our studies showed that engaging in a culturally mismatched thinking style increases the preference for familiar choices when making consumer decisions (Study 4, 5). Finally, we found that bicultural identity integration attenuates the depleting effect of a culturally mismatched thinking style (Study 6). Across studies, dominant thinking style was operationalized either via ethnicity (Studies 1, 3, 4, 6) or via measured chronic thinking style (Study 2, 5), lending confidence to the role of dominant thinking style in driving the results.

Our findings have novel implications for the understanding of culture, especially the potentially depleting consequences of intercultural interactions. In a globalizing ad environment, exposure to ads or other experiences that require a culturally mismatched thinking style is a

commonplace experience. Indeed, immigrants and travelers routinely encounter such situations. Our research suggests for the first time that these enriching cross-cultural experiences come with self-regulatory costs and consequences: a reduced ability to control one's intentions, a greater likelihood of giving in to temptations, and a reduced interest in novel (vs. familiar) experiences.

The findings of the present research also shed light on self-regulation processes by demonstrating for the first time the impact of engaging in a culturally mismatched thinking style on self-regulation. Previous research has pointed to consequences of other types of mismatch experiences. For instance, people who experienced a regulatory fit between their regulatory focus and their goal-pursuit strategies showed better self-regulatory performance than those who experienced a non-fit (Hong and Lee 2008). Similarly, people who were primed with goals consistent (vs. inconsistent) with their chronic regulatory focus performed better (Lisjak, Lee and Molden 2009). Also, switching back and forth between different mindset tasks depleted psychological resources (Hamilton et al. 2011). Finally, research has shown that mixed-race interpersonal interactions can be detrimental to subsequent self-regulatory performance. Such interactions require suppressing one's bias toward the other racial group to which the interaction partner belongs (Richeson and Shelton 2003). Our findings are consistent with these in showing that engaging in culturally mismatched thinking experiences can impair self-regulation. However, our results establish the potential for predicting *a priori* the impact of any such experience based on available knowledge of target consumers' ethnicity. This has key implications for understanding the effects of persuasive appeals, and even for designing and targeting them to match (or mismatch) the likely cultural thinking style of a target audience. *Implications for familiarity seeking*

This research also demonstrates a novel consequence of a culturally mismatched experience – the tendency to choose familiar rather than new options. Research suggests that, in general, people tend to prefer familiar objects and evaluate them more positively than unfamiliar ones (Zajonc and Markus 1982), whether they are people (Moreland and Zajonc 1982), smells (Porter and Winberg 1999), food (Capaldi 1996), sounds (Peretz, Gaudreau and Bonnel 1998), or marketing stimuli (Janiszewski 1993). However, relatively limited research (e.g., Ferraro, Bettman and Chartrand 2009) has examined conditions that moderate this familiarity seeking tendency. The present research reveals an important and commonplace moderator -- engaging in a culturally mismatched thinking style. It suggests that, ironically, experiencing a novel thinking style reduces the subsequent likelihood of choosing new consumer experiences.

In sum, people who experience a mismatch (vs. match) in thinking styles, and who consequently feel depleted are more likely to make choices that are hedonically pleasing and thus tend to stick to familiar (vs. new) consumer choices, which elicit more positive feelings. Beyond the implications for culturally mismatched thinking styles, this finding has broad implications for understanding the consequences of depletion for consumer choices. It suggests that the depleting effects of mismatch experiences go beyond the outcomes commonly associated with reduced self-regulatory performance.

Alternative explanations

One may wonder whether our findings are due to the experience of negative affect, not necessarily due to self-regulation depletion per se. Negative affect can influence self-regulation behavior such that people tend to eat more snack foods when confronting emotional distress, because they believe that eating will make them feel better (Tice, Bratslavsky and Baumeister 2001). However, past research has examined and found no link between numerous self-

regulation depletion manipulations and the experience of negative affect (e.g., Dewall et al. 2008; Gailliot, Schmeichel and Baumeister 2006; Schmeichel and Vohs 2003; Stucke and Baumeister 2006; Vohs and Heatherton 2000), lending support to the notion that our findings do not reflect the influence of mood or affect. Indeed, consistent with this literature, we found no evidence that mood has an impact on depletion. In an additional study replicating Study 1 in which mood was measured, the interaction between induced thinking style and ethnicity remained significant even when mood was included as a covariate. Also, as described in Study 4, the interaction between induced thinking style and participant ethnicity remained significant even after controlling for mood. Furthermore, no significant interaction was found between induced thinking style and ethnicity on mood.

In addition, we examined several variables as potential moderators. First, in Study 2, one's chronic level of risk-aversion was measured using a 3 item, 7-point scale (1 = *strongly disagree*; 7 = *strong agree*) (Zhou, Su and Bao 2002). The items were "I am cautious in trying new/different products," "I would rather stick with a brand I usually buy than try something I am not very sure," and "I never buy something I don't know about at the risk of making a mistake." It is possible that the depleting effect of engaging in a culturally [mis]matched thinking style could be amplified by one's tendency toward risk-aversion. That is, unusual thinking experiences could be experienced as more challenging and thus more depleting to those who are afraid of taking risks than those who are willing to task risks.

Second, in Study 2, we also measured participants' personality traits using a 10 item, 7-point scale (1 = *strongly disagree*; 7 = *strong agree*) assessing the Big Five personality domains (Gosling, Rentfrow and Swann 2003). Out of the five personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism), "openness to experience" in

particular could attenuate the depleting effect of the mismatched experience because a culturally mismatched thinking style could be more acceptable and less stressful to those who are open to new experiences.

Lastly, one's chronic level of novelty seeking was measured in Study 4, using an 8-item scale (1 = *strongly disagree*; 7 = *strong agree*). We developed these items by modifying a novelty-seeking scale in tourism (Lee and Crompton 1992) in order to make the scale items more broadly applicable to consumer choices. Sample items were "I prefer to try products I am used to," "I am curious about things I am not familiar with," and "When considering things for purchase, I like to try out new flavors, colors, or brands." A novelty-seeking tendency could mitigate the effect of a culturally mismatched thinking style because that thinking style could be perceived as a more desirable experience by those who seek novelty.

We did not find any evidence that these variables moderated the impact of culturally [mis]matched experiences on resistance to temptation or preference for familiar experiences. Given that the variables we examined are far from exhaustive, it is still possible that other individual difference variables could influence the magnitude of the cultural [mis]match effects. Nevertheless, our data suggest that the temporarily induced effect of engaging in culturally [mis]matched thinking styles is quite robust and unaffected by a chronic tendency toward risk aversion or toward novelty seeking, or by one's personality. This may be because engaging in a new way of thinking is an effortful cognitive process and thus one cannot complete a culturally mismatched task without depleting cognitive resources, regardless of whether one tends to seek or avoid new experiences.

Additional implications

Most consumers are used to thinking in the style that is prevalent in their culture. The findings of the present research suggest that when consumers process ads that are not in line with their habitual processing style and thus require them to exert more effort, they become depleted, affecting their self-control and a range of subsequent consumer choices. The findings further indicate that when creating ads that target certain ethnicities, nationalities, and backgrounds, it is important to consider cultural differences in consumers' thinking styles. If ads (mis)match the thinking styles of a target audience, consumers' self-regulation efforts may be affected. Managerial decisions involving what kind of thinking style should be elicited in the target audience could thus consider whether the products or services being marketed benefit from a high or a low level of self-regulation. For example, a weight-loss program may be more successful when utilizing ads that match target consumers' culturally dominant thinking style. Under such conditions, consumers' perceived ability to control themselves may be greater than with mismatched ads (as shown in Study 1), and this may enhance consumers' perceived chances of maintaining the weight-loss program successfully. In contrast, chocolates or other indulgent foods may sell better when consumers have been depleted by ads or other experiences that do not match their cultural thinking style.

Future research

We showed that culturally mismatched experiences depleted self-regulatory resources and motivated people to select familiar versus new consumer experiences. However, seeking new flavors or services might sometimes be more tempting than sticking to familiar options, and people may have to exert self-control not to choose the tempting new options over the safe but less tempting options. In this case, culturally mismatched experiences may be likely to increase choices of tempting, new options for the sake of variety and sensation seeking. Therefore, it

would be worth examining the boundary conditions under which culturally mismatched experiences foster novelty (vs. familiarity) seeking.

Another future research agenda involves examining whether the effect of culturally mismatched thinking styles on self-regulation or familiarity seeking can be obtained when other culturally mismatched experiences are examined. For example, emotion regulation such as suppressing one's emotions is known to be one source of self-regulation depletion (Richards and Gross 2000). However, certain types of emotions are valued more highly in one culture than in another culture (Tsai 2007). As a result, the depleting effect of emotion regulation may also differ according to one's culture and the type of emotion to be regulated. In other words, depleting effects may be amplified when people have to suppress emotions that are highly valued and frequently experienced in their culture.

In addition, just as people regain muscle power and become energetic again over time after exertion of their physical energy, depleted self-regulatory resources can be replenished under certain circumstances (Muraven, Baumeister and Tice 1999). Our findings suggest that culturally mismatched experiences are depleting, and conversely, it is plausible that culturally *matched* experiences can be a source of replenishment. For example, after being depleted, people may regain their resources more rapidly when they watch commercials that match well with their culturally dominant thinking style or have other culturally matched experiences (e.g., tasting ethnic food of their cultural origin). For the same reason, after being depleted, people may be more attracted to, and be more likely to choose the products advertised in those commercials that are culturally matched.

Finally, our findings have important implications for bicultural consumers. As found in our research, the impact of engaging in a culturally mismatched thinking style does not have the

same impact for everyone. It suggests that the effect of (mis)matched experiences is particularly an issue for those who in general have difficulty integrating their cultures into their identity. In contrast, such culturally (mis)matched thinking has less impact on biculturals whose identities are more integrated and who are thus more flexible in switching cultural mindsets. Future research can examine other variables that may determine the impact of culturally (mis)matched experiences, such as one's attitude toward other cultures.

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Figure Captions

Figure 1. Scores on the self-control scale (Study 1)

Figure 2. Preference of cereal bars (primed vs. chronic thinking styles) (Study 2)

Figure 3. Preference of cereal bars (primed thinking style vs. ethnicity) (Study 2)

Figure 4. Amount of popcorn (in grams) taken by participants (Study 3)

Figure 5. Likelihood of choosing new (vs. familiar) travel products (Study 4)

Figure 6. Likelihood of choosing national (vs. local) stores (Study 5)

Figure 7. Scores on the self-control scale (Study 6)

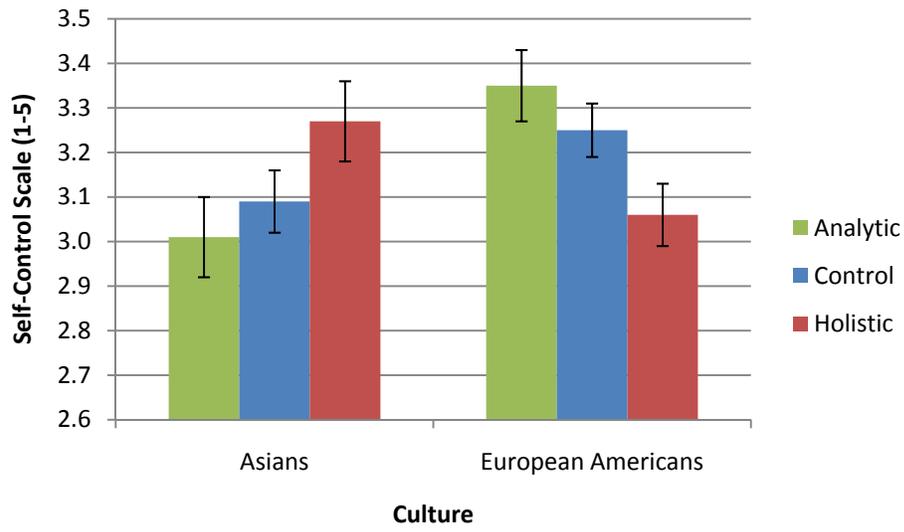


Figure 1. Scores on the self-control scale (Study 1)

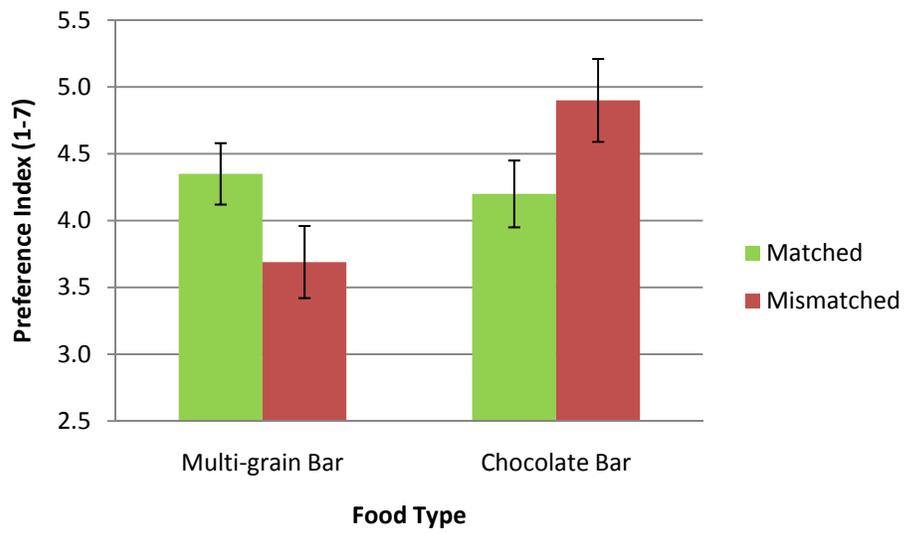


Figure 2. Preference of cereal bars (primed vs. chronic thinking styles) (Study 2)

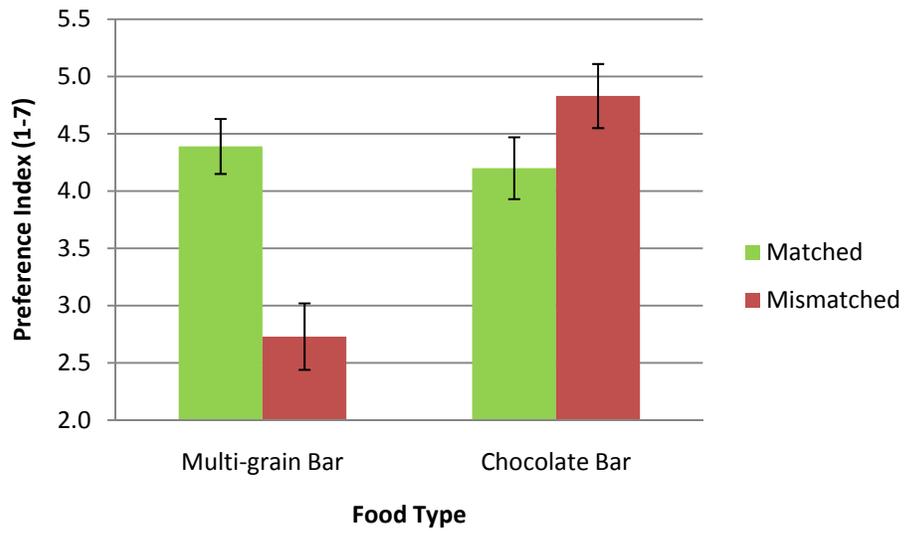


Figure 3. Preference of cereal bars (primed thinking style vs. ethnicity) (Study 2)

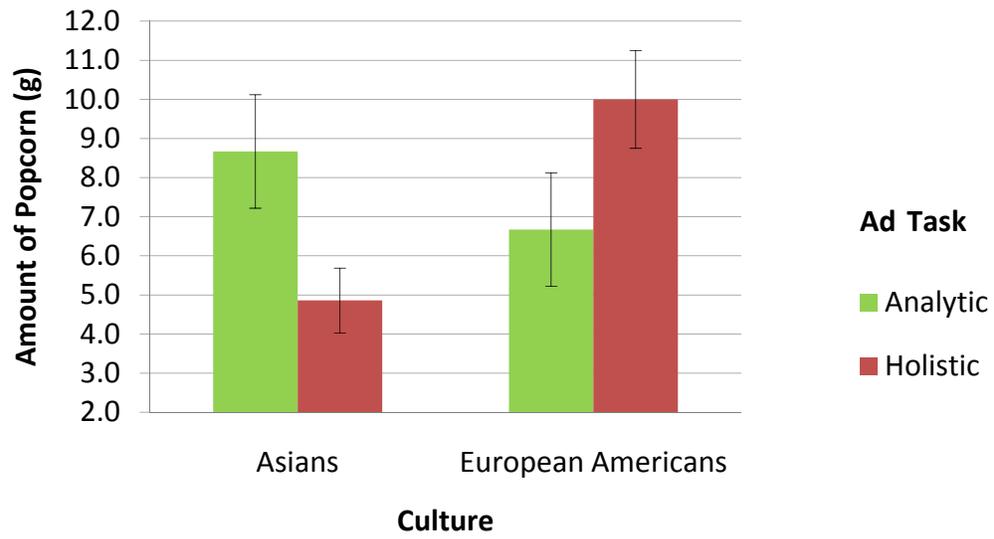


Figure 4. Amount of popcorn (in grams) taken by participants (Study 3)

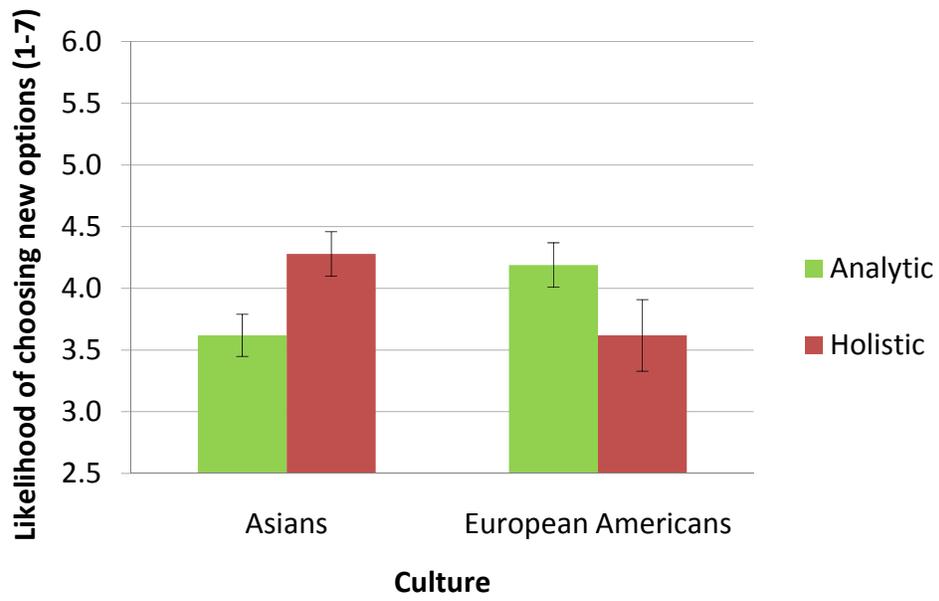


Figure 5. Likelihood of choosing new (vs. familiar) travel products (Study 4)

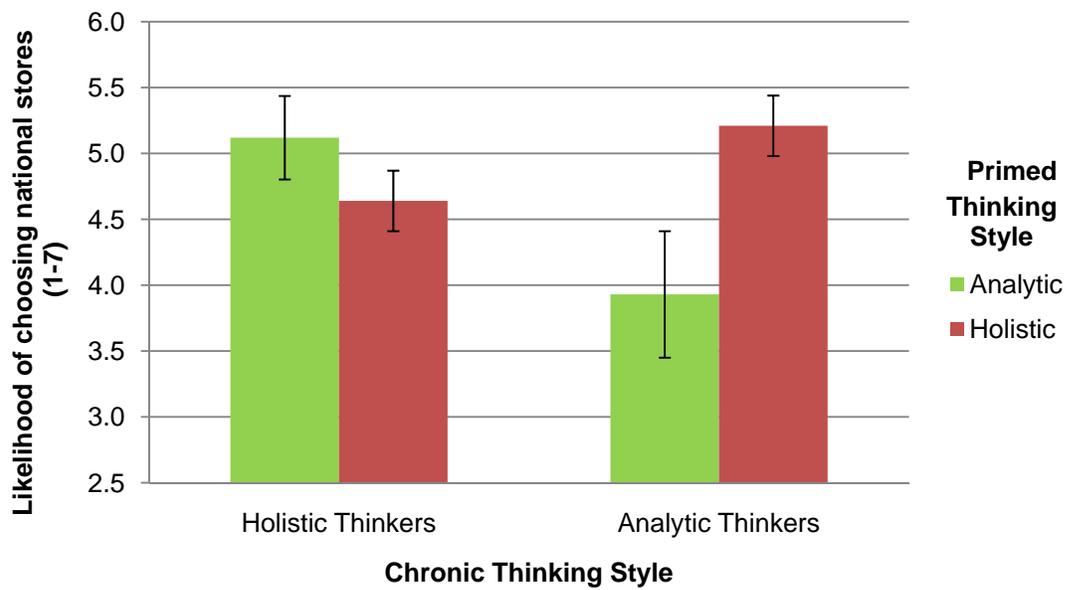


Figure 6. Likelihood of choosing national (vs. local) stores (Study 5)

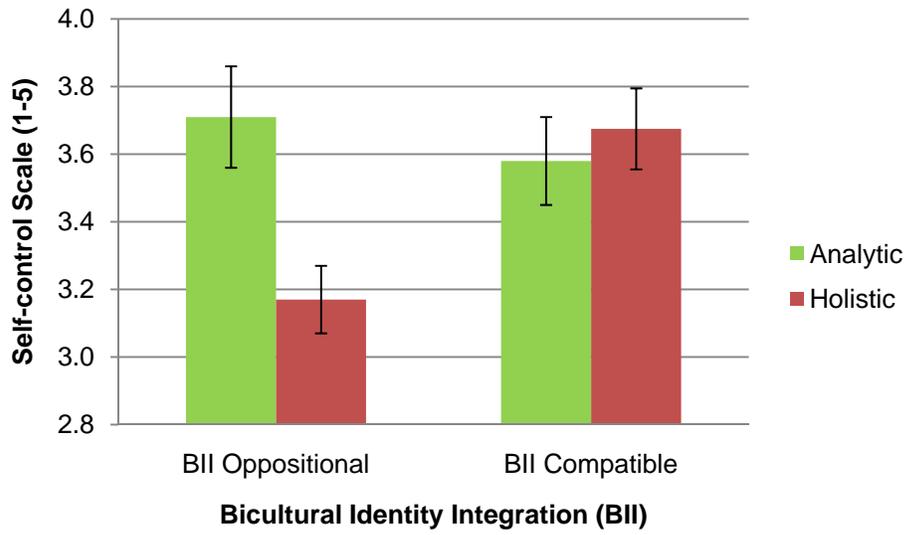


Figure 7. Scores on the self-control scale (Study 6)

APPENDIX A

Descriptions of two cereal bars (Study 2)

1. A delicious but unhealthy chocolate cereal bar

Kellogg's™ Chocolate Fudge Cereal Bar

Stay on track, while you snack! Delicious chocolate fudge cereal bar with pretzel pieces and naturally and artificially flavored chocolaty coating on the bottom. This sweet cereal bar will satisfy your desire for a delicious, filling breakfast or a fun snack anytime. Kellogg's Chocolate Fudge Cereal Bars are packed with real peanuts, creamy toffee, chewy nougat and crispy rice. You don't have to give up a tasty treat when you are in a hurry. This chocolate cereal bar gives you satisfaction on the go.



2. A healthy but less delicious multi-grain cereal bar

Kellogg's™ Multi-Grain Cereal Bar

Stay on track, while you snack!

Healthy and lightly sweetened, sodium-free, low-fat cereal bar. Made from whole wheat, whole oats, and oat bran, this cereal bar will satisfy your desire for a healthy, filling breakfast or a wholesome snack anytime. Kellogg's Multi-Grain Cereal Bars are cholesterol-free, with no sugar added, but they offer a crunchy whole grain taste. You don't have to give up fiber and nutrition when you are in a hurry. Get 25% of your daily fiber and a whole day's worth of whole grains on the go.



APPENDIX B

Examples of the mock ads (Study 3)

