

What motivates behaviors?
Cultural differences in naïve beliefs about action and their implications

by

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To my parents and Bo Kyung

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ABSTRACT

There are at least two critical tasks in our social life. First, since we only have a limited amount of resources, we need to make a choice and invest our resources to the chosen activities at the expense of other alternatives. Second, it is really important to properly understand others' behaviors because our interaction with other individuals constitutes a significant portion of our life. Although seemingly different, I propose that both tasks are related to our general beliefs about action, more specifically beliefs about what motivates behaviors. Furthermore, these beliefs systematically vary across cultures. In independent cultures (e.g., the U.S.), the self is primarily defined by internal attributes such as personality traits and it is these internal attributes that are believed to motivate behaviors. In contrast, in interdependent cultures (e.g., Japan & Korea), the self is primarily defined by social relations with important others and one's behaviors are believed to be constrained by these social relations. Therefore, I predict that there would be corresponding cultural differences in the way we make a choice and the way we

interpret others' behaviors. To test the prediction, four studies were conducted. Studies 1 & 2 examined whether psychological consequences of choice depend on the way the choice is made. I predict that a choice would be psychologically significant when it is made in a way that is compatible with cultural models of action either as internally motivated in independent cultures or as socially constrained in interdependent cultures. Studies 3 & 4 investigated cultural variations in the degree to which individuals make reference to internal attributes in explaining others' behaviors. I predicted and found that trait inference is in line with the independent model of action that one's behavior is internally motivated and, thus, it would become automatic and spontaneous in independent cultures but not in interdependent cultures.

CHAPTER I

INTRODUCTION

Life is full of challenges. Among them, there are two particular types of challenges that we routinely encounter on a regular basis and, yet, constitute a key factor for success in social life. The first type of challenge has to do with the fact that we are making a lot of choices in our daily lives. Some choices may appear trivial, such as when we choose a restaurant for lunch, whereas some other choices may appear much more significant, such as when we choose our careers. However, regardless of its seeming significance, any choice can potentially have substantial psychological impact and, consequently, choice has been one of major interest of social psychology since its inception (e.g., Lewin, 1947). For example, by making a choice, we choose one course of action over other available alternatives and moreover, once a choice is made, we actively organize our subsequent behaviors to carry out the chosen course of action. In other words, we are motivated toward the choices that we make. Such motivational consequences of choice have been well documented in the motivation literature as in one of previous studies by Zuckerman and colleagues (Zuckerman, Porac, Lathin, Smith, & Deci, 1978). In this study, college students who were given a choice about what puzzles to work on were much more motivated toward the puzzle than their counterparts who performed the same puzzle assigned to them. This finding nicely illustrates the

motivating effect of choice and, thus, the significance of choices that we make in our daily lives.

Another common, yet important, task is to interpret and understand others' behaviors. Given the obvious importance of everyday social interactions with others, it is needless to say how critical it is to properly understand others' behaviors. Thus, social psychologists have long been interested in the attribution process or how we explain and eventually understand the motives of social behaviors. Specifically, major efforts have been invested in determining how much emphasis individuals put on another's internal attributes (e.g., personality trait) vs. the surrounding social contexts to explain his or her behaviors. The early literature on attribution showed that 1) people are biased towards drawing inferences about a person's internal attributes that correspond to his or her behaviors ("correspondence bias", Gilbert & Malone, 1995) and 2) people erroneously make internal attribution even when situational constraints are a main determinant of a given behavior at issue ("fundamental attribution error", Ross, 1977).

The classic study by Jones and Harris (1967) is a good example demonstrating this phenomenon. In this study, participants were asked to read a short essay on "Castro's Cuba" that was either "pro-Castro" or "anti-Castro." After reading the essay, they rated the essay writer's true attitude toward Castro and in the critical condition, they were told that the position the essay writer took had been assigned by the experimenter. In other words, it is logical to believe that the essay would not really reflect the writer's true attitude in the critical condition. However, even in this condition, participants' inferences about the true attitude of the essay writer were still influenced by the direction of the essay, even though they knew that the direction itself had been arbitrarily assigned. The

result clearly suggests that people draw strong inferences about a person's enduring internal attributes upon exposure to his or her behaviors. Considering that this type of inference can guide our behaviors toward the target person, it does not take much insight to realize its importance in navigating the social world.

The foregoing analysis showed that two types of challenges, namely making a choice and interpreting others' behaviors, comprise central parts of our social life. Reflecting such importance, both of them have been frequently examined in social psychological literature. Although they may appear different from each other and, thus, so far have been discussed separately in the literature, I propose that they have at least one element in common. Namely, both of them are conceptually related to our naïve beliefs about action or more specifically our beliefs about what motivates behaviors. For example, if people believe that one's behavior is mostly driven by his or her personality traits or other stable internal attributes, they would make a choice based on their own internal attributes. Further, choice would have a larger psychological impact if it is perceived as realizing these internal attributes. Likewise, those who strongly believe that a person's behavior is internally motivated would look at another's internal attributes in order to understand and interpret his or her behavior.

More interestingly, recent work in social and cultural psychology indicates that these beliefs about the motives of behaviors are significantly modulated by one's cultural background (Imada & Kitayama, 2010; Markus & Kitayama, 1991; 2003; Norenzayan, Choi, & Nisbett, 2002). This emerging literature suggests that Western cultures (e.g., the U.S.) promote a model of action in which one's action is believed to be internally motivated whereas East Asian cultures (e.g., China, Japan, and Korea) promote an

alternative model of action in which one's behavior is believed to be socially responsive or constrained. Drawing on the literature, I predict that there would be systematic cultural differences in how we address the two challenges mentioned at the outset (how we make a choice and how we interpret others' behaviors) because both of them are inherently related to one's models of action, and the models of action people adopt vary substantially across cultures. In order to investigate this prediction, I have organized my dissertation in the following way. First, I will review the evidence showing that cultures vary in the extent to which the self is viewed as independent vs. interdependent. This review is then followed by a discussion that the culturally sanctioned view of the self as independent or interdependent is linked to the corresponding models of action as internally motivated in independent Western cultures (e.g., the U.S.) or as socially responsive/constrained in interdependent Eastern cultures (e.g., Japan, China, and Korea).

In order to show that cultural models of action can affect the way in which we make a choice, Chapter II presents the hypothesis that a choice would be psychologically significant as long as the choice is made in a way that is compatible with models of action that people adopt from their culture. Two studies on motivational consequences of choice are reported to test the hypothesis. Chapter III extends the effects of cultural models of action to the domain of social explanation, more specifically whether one spontaneously infers the corresponding traits from others' behaviors. Two studies were conducted to test the hypothesis that spontaneous trait inference would be relatively unique to Western cultures in which one's behavior is believed to be internally motivated. Finally, in Chapter IV, I discuss the implications of the findings and other related issues.

Independent vs. Interdependent View of the Self

The present dissertation is theoretically rooted in the distinction between the independent and interdependent views of the self. Numerous studies have confirmed that different cultures promote and sanction quite different views of the self (see Fiske, Kitayama, Markus, & Nisbett, 1998; Markus & Kitayama, 1991; 2010; Triandis, 1989 for review). In Western cultural contexts, there is a strong demand toward the independent view of the self (Kitayama, Duffy, & Uchida, 2007). In this view, the self is construed as separated from others and having its unique attributes inside the self (see Figure 1-A). Moreover, it is these internal attributes that primarily define the self. In line with this proposition, previous studies showed that American college students typically referred to abstract and generalized traits when asked to describe themselves (Cousins, 1989; Rhee, Uleman, Lee, & Roman, 1995). In other words, descriptions typically given by American college students are not qualified by any social context (e.g., “I am kind”). Thus, such descriptions imply that their self-view is really detached from social contexts. Furthermore, a recent fMRI study indicates that Westerners use the medial prefrontal cortex (MPFC) exclusively for the representation of the self but not for the presentation of others, including those close ones to them such as their mother (Zhu, Zhang, Fan, & Han, 2007). A number of studies also show that the MPFC is selectively engaged during self-referential processing (Craig et al., 1999; Kelley et al., 2002; Mitchell, Banaji, & Macrae, 2005). Taken together, these findings suggest that for Westerners, the self is indeed separated from others in neural representation.

In contrast, in Eastern cultural contexts, there is a strong normative demand toward the interdependent view of the self. In this view, the self is construed as

fundamentally connected to important others and, consequently, it is perceived as embedded in social relations with these important others (see Figure 1-B). Moreover, it is these social relations that primarily define the self. In line with this proposition, previous studies have found that East Asian college students typically referred to social/relational aspects of the self (e.g., “I am the first son of my family”) when describing themselves. Even when they mentioned a personality trait, it was often qualified by surrounding social contexts (e.g., “I am talkative with my friends”) indicating that their self-view is truly bound with time and situations (Cousins, 1989; Rhee, et al., 1995). Similarly, the fMRI study by Zhu and colleagues (2007) showed that the MPFC activation was linked to self-processing among Chinese participants, as it was among Westerners. However, they also found a remarkable, yet predicted, cultural difference that Chinese participants used the MPFC to represent not only the self but also important others (e.g., their mother) whereas Western participants used the MPFC to represent the self but not their mother. This finding clearly suggests that there is significant overlap between the self and important others among East Asians in neural representation.

In sum, it is well-established that cultures vary in the normatively sanctioned view of the self. Some cultures (e.g., Western cultures) are characterized by a self-view valuing independence whereas other cultures (e.g., Eastern cultures) are characterized by a self-view valuing interdependence.

Cultural Models of Action: Internally Motivated vs. Socially Responsive

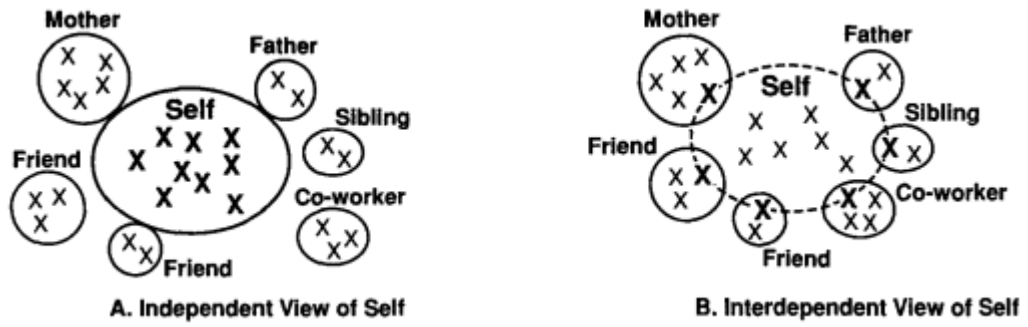
Cultural differences in the self-view are closely linked to the correspondingly different models of action. The view of the self as independent in Western cultures entails an independent model of action, or a strong belief that one’s behavior is guided by one’s

internal attributes such as personality traits or other enduring dispositions (Kitayama, et al., 2007; Markus & Kitayama, 2003). In other words, the self is primarily defined by its internal attributes in Western cultures and it is these internal attributes that are believed to motivate behaviors. For example, Westerners may believe that Michael studied hard because he has a “hard-working” attribute inside the self. Although the model of action as internally motivated in Western cultures can be dated back to as early as Aristotle, contemporary Westerners still frequently use traits as the unit of analysis in social explanation. In fact, Ross and Nisbett (1991) coined the term “lay dispositionism” to describe the model of action as internally motivated which is dominant and widespread in contemporary Western cultures.

To the extent that a very different view of the self is sanctioned in East Asian cultures, the dominant model of action is correspondingly different. The view of the self as interdependent in East Asian cultures entails a model of action as socially responsive/constrained, or a strong belief that one’s behavior is a means to respond and adjust to duties, responsibilities, or other types of social expectations (Kitayama, et al., 2007; Markus & Kitayama, 2003). More specifically, the self is primarily defined by social relations where it is embedded in East Asian cultures. Therefore, East Asians are encouraged to take into account social expectations. In this sense, one’s behavior is believed to be socially responsive or constrained. For example, Koreans may believe that Bo Kyung studied hard because she did not want to disappoint her parents. The model of action as socially responsive can find its root in Ancient Chinese tendency to ascribe causality to relationships (Needham, 1954). Moreover, this model continues to be dominant among contemporary East Asians (Norenzayan, et al., 2002).

In sum, culturally sanctioned views of the self either as independent in Western cultures or as interdependent in East Asian cultures lead people to adopt correspondingly different models of action. While an independent view of the self promotes a model of action as internally motivated, an interdependent view of the self promotes a model of action as socially responsive. Although it is obvious that both models of action are likely to exist in all cultures, I argue that the model of action as internally motivated is much more prevalent in Western cultures whereas the model of action as socially responsive is much more dominant in East Asian cultures.

Figure 1. Conceptual representation of the self adapted from Markus and Kitayama (1991)



CHAPTER II

WILL PEOPLE WORK HARD ON A TASK THEY CHOOSE?¹

The foregoing analysis in Chapter I suggests that different cultures promote different models of action. Chapter II explored behavioral implications of such cultural differences for the domain of choice. Specifically, we examined whether psychological impacts of choice would vary according to cultural models of action either as internally motivated in Western Cultures or as socially responsive in East Asian cultures.

Choice is both ubiquitous and important in all animal species. Among non-human animals, choice strategies are likely to be crucial in mating (e.g., Jennions & Petrie, 1997) and food acquisition (e.g., D. W. Stephens & Krebs, 1986). For humans, choice can sometimes reflect such survival or reproductive strategies. However, some other considerations tend to loom larger. Research has suggested that individuals show their identities and commitments through their choices (Kim & Drolet, 2009) and, as a consequence, choice is crucially important for the construction of the self and social behaviors (Imada & Kitayama, 2010; Miller, 2003). Since very different forms of the self and social behaviors are normatively sanctioned across different cultures, we propose that psychological functions and consequences of choice would be quite different across cultures.

Chapter II focus on an effect of choice on motivation: People are sometimes strongly motivated to work on a task they choose (see Patall, Cooper, & Robinson, 2008 for a review). Chapter II will show that the motivational effect of choice is significantly modulated by both culture and the specific condition in which the choice is made. In particular, the focus will be on what is called as social-eyes priming – a procedure designed to induce an impression of “being-seen-by-others” (Imada & Kitayama, 2010; Kitayama, Snibbe, Markus, & Suzuki, 2004). The procedure involves incidental exposure of a participant to a set of schematic faces that appear to look at the participant from his or her perspective.

In Western cultures, the self is viewed as independent from others and defined primarily by its internal attributes (Markus & Kitayama, 1991; Triandis, 1989). The independent view of self entails a strong belief that one’s behavior is guided by the person’s internal attributes such as preferences and attitudes. Given this model of action as internally motivated, a choice will be experienced as expressive of the self if it is not constrained by social concerns. If, for example, one chooses to help someone out of a concern for reciprocity, the help is not experienced as genuine and internally motivated because it is attributed to the normative demand for reciprocity (Miller & Bersoff, 1994). The social imposition of this kind on choice can be very subtle. In a recent study, Imada and Kitayama (2010) find that when asked to make a choice under the condition of social-eyes priming, European Americans report that their choice is “more constrained” and “less self-expressive.” We thus predicted that European Americans would be strongly motivated by a choice in the absence of any social constraint (Deci & Ryan, 1985), but this effect would be diminished once they are exposed to the social-eyes priming.

Consistent with this analysis, European Americans have been shown to work harder on a task they freely choose than on a task assigned to them by the experimenter (Iyengar & Lepper, 1999; Zuckerman, et al., 1978; Patall et al. 2008 for review). Also consistent is a vast body of literature on cognitive dissonance (Brehm, 1956; Hoshino-Browne et al., 2005; Steele, Spencer, & Lynch, 1993). When making a choice between two equally attractive objects, the choice often leads to conflicting cognitions (e.g., desirable attributes of a rejected item or undesirable attributes of a chosen item), which in turn produce negative arousal (“dissonance”). To reduce this dissonance, people try to justify their choice by increasing their liking for the chosen object and reducing their liking for the rejected object. Evidence is quite clear that for the justification effect to occur, the choice must be perceived as personal and internally motivated (Cooper & Fazio, 1984).

In contrast, in Asian cultures, the self is seen as interdependent with significant others and, thus, defined primarily by social relations with them (Markus & Kitayama, 1991; Triandis, 1989). The interdependent view of self entails a strong belief that one’s behavior is a means to respond and adjust to social expectations. Given this model of action as socially responsive, choices that are made in the absence of any social context will *not* be experienced as self-relevant because such choices have little bearing on the interdependence of self. Instead, in order for choices to be meaningful for the self, they should be situated in certain social contexts. For example, Miller and Bersoff (1994) found that Asians perceive the help they choose to offer to their neighbors as genuine and internally motivated when the help is prompted out of a concern for reciprocity. Thus, the social concerns are not perceived as an imposition on the self. They instead constitute a

meaningful context in which the self is socially engaged with the relevant others. Because the social-eyes priming is assumed to highlight the psychological presence of others, we anticipated that Asians and Asian Americans would be motivated by their choice, but only if the choice is made in the presence of this priming.

Iyengar and Lepper (1999) found that European American children are more strongly motivated to perform an anagram task if they have chosen the task by themselves rather than if the task has been assigned to them by the experimenter. In support of the foregoing analysis, however, the effect is significantly weaker for Asian American children. Iyengar and Lepper (1999) did not manipulate the presence or absence of social-eyes per se. However, they did include a condition in which a choice was made, not by the participants themselves, but by their ingroup member (i.e., their mother or classmate). Because of their psychological identification with the ingroup member, Asian American children might perceive the ingroup member's choice as no different from what they would make. Further, the choice in this case is obviously public. Consistent with our analysis, in this condition, Iyengar and Lepper (1999) found that Asian American children were more strongly motivated by the task chosen by the ingroup member even in comparison to the task chosen by themselves.²

More direct evidence for the present analysis comes from cross-cultural work on cognitive dissonance. Dissonance produced by a choice may be an important mechanism by which the person justifies the choice and, thus, produces a strong motivational commitment to it. In one of the first cross-cultural studies on choice justification, Heine and Lehman (1997) used the free choice procedure (in which participants freely make a personal choice between equally attractive alternatives) and replicated a strong choice

justification effect among Caucasian Canadians, but failed to obtain any evidence of it among Japanese participants. More recently, Hoshino-Browne and colleagues (2005) replicated an earlier study by Heine and Lehman (1997) and showed that both Asians in Asia (Japanese) and Asian Canadians show little or no dissonance effect in a standard free-choice paradigm. Of importance, the researchers had another group of participants make a choice for their friends. The participants knew that the friends would know the choice they would make. In these circumstances, the participants would take into account their friends' expectations in making the choice. Thus, the choice will be experienced as responding to social expectations. Consistent with the present analysis, in the friend choice condition, both Asians and Asian Canadians showed a highly significant choice justification effect. It is important to note that given the cultural model of action as internally motivated, the friends' expectations will be experienced as constraining their internal motivation. Therefore, as predicted, Caucasian Canadians showed little or no choice justification effect in the friend choice condition.

More relevant to the present investigation, Kitayama and colleagues have shown that the choice justification effect is highly sensitive to an unobtrusive priming of "social-eyes" (Imada & Kitayama, 2010; Kitayama, et al., 2004). In a series of studies, European Americans exhibited a significant choice justification effect in the absence of the "social-eye" priming. However, the effect was reliably weaker in the presence of the priming. Moreover, Imada and Kitayama (2010) showed that the face priming caused Caucasian Americans to experience the choice as constrained. In contrast, Asians and Asian Americans exhibited no choice justification effect in the absence of the face poster. This replicates earlier findings showing no justification effect among Asians within the

standard free choice paradigm. As expected, however, when the “social-eyes” were primed, Asians showed a significant choice justification effect. In support of the contention that Asians and Asian Americans regard their choice as significant when the choice is construed as responding to social expectations, Imada and Kitayama (2010) found that Asian Americans reportedly experienced the choice as unconstrained and reflective of their own preferences under these conditions.

Study 1 Modulation of Choice Effect by Social Eyes Priming

We predicted that whereas European Americans would work hard on a task that is chosen in the absence of the social-eyes priming, Asians and Asian Americans would do so when the task is chosen in the presence of this priming. At present, available evidence for these predictions is inconclusive at best. The Iyengar and Lepper (1999) study used a direct behavioral measure of motivation (task performance) and, yet, it did not manipulate social-eyes priming. Kitayama and colleagues (Imada & Kitayama, 2010; Kitayama, et al., 2004) used social-eyes priming, but only in the context of free choice dissonance effect. In Study 1, we therefore used a direct measure of motivation (performance of a chosen task) and tested effects of social-eyes priming among both Asian Americans and European Americans.

Method

Participants

Participants were 61 European (23 males & 38 females) and 61 Asian American (20 males & 41 females) undergraduates at the University of Michigan. They were

randomly assigned to either a no social-eyes priming condition (30 European & 30 Asian Americans) or a social-eyes priming condition (31 European & 31 Asian Americans).

Gender had no effect in all analyses below.

Procedure

Participants were told that the study examined IQ. In both the no social-eyes priming condition and the social-eyes priming condition, they were given a short booklet describing three aspects of IQ (i.e. fluid, analytic, and creative intelligence). At the end of the booklet, they were asked to indicate which type of their IQ they wanted to be tested. The choice was made in a completely anonymous condition. The only difference between the two conditions was a social-eyes poster (shown in Figure 2.1) used in the priming condition. This poster was hung on the wall right in front of the participants at their eye-level and thus the eyes on the poster would appear to be watching the participants from their point of view. This social-eyes priming manipulation has been used in recent studies on choice justification (Imada & Kitayama, 2010; Kitayama, et al., 2004), self-perception (Park & Kitayama, 2007) and automatic processing of vocal tone (Ishii, Kobayashi, & Kitayama, 2008). In all these studies, the priming successfully induced an impression of perceived scrutiny by others. No participant reported any suspicion about the poster at the debriefing. The relative frequency of the three IQ tests chosen by participants was shown in Table 2.1. The main results of Study1 were not qualified by the IQ test type, all $F_s < 1.1$.

After the choice, participants moved to an individual cubicle where they performed the chosen task. Note that there was no poster in front of them when they worked on the alleged IQ test. Thus, participants were not exposed to the poster while

performing the test. Although participants believed that they would perform different tests depending on their choice, they were given the same version of the Remote Association Test (see below) regardless of their choice; only the title given to the test differed in accordance with each participant's choice. They were unexpectedly asked to stop 5 min after they started to work on the test. Performance during this 5 min was used as a behavioral index of motivation. Then, they completed a demographic questionnaire.

Measures

A version of the Remote Association Test was used as an alleged IQ test (Mednick, 1962). In the RAT, participants are shown three words and asked to generate another word that relates to all of them (e.g. tree, gift, and winter all relate to Christmas). All the RAT items used in the present work were sampled from easy items from previous work in the area (e.g., Heine et al., 2001) because enhanced motivation can be translated into performance only if the test is easy (Harkins, 2006). The pretest participants (N=15) had no problem in generating the correct responses when given enough time.

Results

Performance

The number of items correctly solved during 5 min was computed for each participant as a behavioral measure of motivation. It was predicted that whereas European Americans would perform better in the no social-eyes priming condition than in the social-eyes priming condition, Asian Americans would perform better in the latter than in the former. To test this prediction, a 2 (culture) x 2 (conditions) ANOVA was performed on the number of correctly solved questions. As predicted, the culture x condition interaction proved highly significant, $F(1, 118) = 10.24, p < .01, \eta_p^2 = .080$. A

separate analysis on the number of the questions that were attempted showed the same pattern. As shown in Figure 2.2, European Americans solved more questions correctly in the no social-eyes priming condition than in the social-eyes priming condition, $t(59) = 2.73, p < .01$, Cohen's $d = .71$. In contrast, Asian Americans showed a reversed pattern, with a marginally higher performance in the social-eyes priming condition than in the no social-eyes priming condition, $t(59) = 1.71, p = .09$, Cohen's $d = .45$.

Study 1 provided the evidence that the choice-induced motivation enhancement effect is moderated by both culture and the social-eyes priming scrutiny. For those with the independent view of the self (e.g., European Americans), a choice that has the potential of affirming the model of action as internally motivated fostered a high motivation to perform the chosen task. Because choices made in the absence of social-eyes are much more likely to be construed as internally motivated and thus as a reflection of one's internal preferences than choices made in the presence of social-eyes, we predicted and found a choice-induced motivation enhancement in the no social-eyes priming condition, but not in the social-eyes priming condition. In contrast, for those with the interdependent view of the self (e.g., Asian Americans), a choice that has the potential of affirming the model of action as socially responsive was expected to foster a high motivation to perform a chosen task. We thus predicted and found a choice-induced motivation enhancement in the social-eyes priming condition, but not in the no-social eyes priming condition.

Study 2 Underlying Mechanisms of the Choice Effect on Motivation

There are three important limitations in Study 1. First, It was assumed that European Americans and Asian Americans were motivated more when they made a choice in the no social-eyes priming condition and in the social-eyes priming condition, respectively. However, because a no-choice control condition was not included, the data was inconclusive. For example, it is not clear whether one type of choice is motivating or the other type is de-motivating. To address this issue, Study 2 included this control condition.

Second, no measure of independence/interdependence was included in Study 1. The current theoretical analysis implies that it is each participant's orientation toward the independent or interdependent view of the self that accounts for the cultural difference in Study 1. Specifically, European Americans are motivated when they make a choice in the no social-eyes priming condition because they are independently oriented and thus, believe that one's behavior is internally motivated. Then, this motivational effect of choice should increase as a function of their independent orientation. Likewise, East Asians are motivated when they make a choice in the social-eyes priming condition because they are interdependently oriented and thus, believe that one's behavior is socially responsive. Then, this motivational effect of choice should increase as a function of their interdependent orientation. To test these predictions, in Study 2, we assessed each participant's orientation toward independence versus interdependence.

Third, Study 1 used performance in a task as a primary dependent variable. However, self-report measures of motivation were not measured. It may be expected that

self-report measures of motivation produce the same pattern of results as the behavioral measure of motivation did. However, if motivational processes are based in part on a lower-level system of reward and punishment processing and, moreover, such a lower-level system may not have easy access to conscious awareness, it is not clear whether the pattern observed in Study 1 could be replicated with self-reported measures of motivation.

Method

Participants

Ninety-two European American (26 males & 66 females) undergraduates at the University of Michigan and 86 Korean (58 males & 28 females) undergraduates at Seoul National University participated in the study. They were randomly assigned to either the no social-eyes priming condition (28 Americans and 28 Koreans), the social-eyes priming condition (30 Americans and 29 Koreans), or the no-choice control condition (i.e., assignment by the experimenter: 34 Americans and 29 Koreans). The relative frequency of three different IQ tests across condition was summarized in Table 2.2. As in Study 1, the main results of Study 2 were not interacted with the test type, all F s < 1.

Procedure

RAT As in Study 1, participants in the two choice conditions chose an IQ test they would like to perform after reading a short description of three aspects of IQ in a booklet. The experimental procedure for the no-choice control condition was exactly the same as the other two choice conditions except that participants were instructed at the end of the booklet which IQ test they would work on. To ensure that the three conditions did not vary systematically in terms of the IQ test types, for every participant in the no-choice control condition, we first identified the tasks chosen by one participant in the no social-

eyes priming condition and one participant in the social-eyes priming condition who were tested immediately before the participant at issue. The experimenter then randomly selected one of the two participants and assigned the task chosen by this participant to the current participant in the no-choice control condition. As in Study 1, after the choice/assignment of the test, participants moved to an individual cubicle where they performed the chosen/assigned task.

Self-reported motivation After performing the chosen (or assigned) IQ test, the participants first filled out a questionnaire on self-reported motivation. In the questionnaire, two questions designed to assess the perceived extent of motivation to work on the task at hand were included (Sheldon & Elliot, 1998, 1999). Participants reported how much they enjoyed the test and how hard they worked on the test. Responses were provided on a scale ranging from 1 (not at all) to 6 (very strongly or very hard).

Independence/Interdependence Participants subsequently fill out the Implicit Self-Orientation Questionnaire (ISOQ, Kitayama & Park, 2007; see also Kitayama, Mesquita, & Karasawa, 2006). This instrument is designed to measure each participant's independent vs. interdependent view of the self. The version of ISOQ used in Study 2 had 10 mundane situations (e.g., "having a positive interaction with friends" and "being overloaded with work"). Participants were asked to remember the most recent event that fitted with each situation. They then reported how strongly they experienced each of 12 emotions in the situation. Following Kitayama and Park (2007), we first computed the averages for general positive emotions (happy, elated, calm), disengaged positive emotions (pride, feelings of self-esteem, feelings of self-confidence), and

engaged positive emotions (communal feelings, feeling connected with someone, and friendly feelings). Reliabilities were first computed for each of participants across the 10 situations and then, averaged across participants. Reliabilities were mostly reasonable for all the three types of positive emotion types in both Korea (*Mean α s* = .89, .70, and .91) and the U.S. (*Mean α s* = .81, .63, and .54).

Next, the average intensity for engaged positive emotion was subtracted from the average intensity for disengaged positive emotion in each of the 10 situations. Over the 10 situations, the average intensity for general positive emotion (e.g., happiness) was then regressed on the difference score between the disengaged versus engaged positive emotions. On the one hand, it can be said that individuals would feel disengaged positive emotions rather than engaged positive emotions when their independence is achieved. On the other hand, it can be said that one would feel engaged positive emotions rather than disengaged positive emotions when their interdependence is achieved. Then, the regression coefficient indicates the degree to which one feels happy when independence or interdependence is achieved. It is therefore assumed to index one's desire to achieve independence or interdependence. If disengaged positive emotion was more predictive of general positive emotion, then the beta should take positive values and, conversely, if engaged rather than disengaged positive emotion was more predictive of general positive emotion, then the beta should take negative values. That is, larger values signify greater (or lesser) degrees of independence (or interdependence). As expected, the propensity toward independence was greater for Americans than for Koreans, (*Ms* = -.18 and -.52), $t(176) = 3.46, p < .01, \text{Cohen's } d = .52$.

Results

Performance

As in Study 1, the number of correct responses was analyzed within a 2 (culture) x 3 (condition) ANOVA. The hypothesized culture x condition interaction was highly significant, $F(2, 172) = 5.62, p < .01, \eta_p^2 = .061$. Relevant means are displayed in Figure 2.3. Replicating Study 1, European Americans performed significantly better in the no social-eyes priming condition than in the social-eyes priming condition ($M_s = 26.89$ and 22.63), $t(89) = 2.36, p < .05$, Cohen's $d = .50$. Moreover, performance in the no social-eyes priming condition was significantly better than in the no-choice control condition ($M_s = 26.89$ and 23.26), $t(89) = 2.07, p < .05$, Cohen's $d = .44$. However, there was no significant difference between the social-eyes priming condition and the no-choice control condition, $t(89) = .37, p > .70$. Thus, the results clearly indicate that motivation was increased by a choice when the choice is made in the *absence* of social eyes priming.

Also replicating Study 1, Koreans performed significantly better in the social-eyes priming condition than in the no social-eyes priming condition ($M_s = 28.83$ and 23.71), $t(83) = 2.38, p < .05$, Cohen's $d = .52$. Furthermore, performance was better in the social-eyes priming condition than in the no-choice control condition ($M_s = 28.83$ and 24.66), $t(83) = 1.96, p = .053$, Cohen's $d = .43$. However, the no social-eyes priming condition and the no-choice control condition did not significantly differ from each other, $t(83) = .44, p > .60$. Thus, Koreans were motivated by a choice that was made in the *presence* of social eyes priming.

Predicting Performance by Independence/Interdependence

It was hypothesized that European Americans would work hard on a test chosen in the absence of social-eyes priming because of their model of action as internally motivated which is closely linked to the independent view of the self. Hence, we expected, for European Americans, that one's level of independence measured by the ISOQ would predict performance in the no social-eyes priming condition. Similarly, we hypothesized that Koreans would work hard on a test chosen in the presence of social-eyes priming because of their model of action as socially responsive which is closely linked to the interdependent view of the self. Hence, we expected, for Koreans, that one's level of interdependence measured by the ISOQ would predict performance in the social-eyes priming condition.

To test these predictions, performance in the RAT was regressed on the ISOQ measure of independence vs. interdependence. For European Americans, the RAT performance increased significantly as a function of *independence* (vs. interdependence) in the no social-eyes priming choice condition, $\beta = .49, p < .01$. Comparable effects were not significant in either the social-eyes priming condition or the no-choice control condition, $\beta_s = .07$ and $-.21$, respectively. The dummy-coded condition (no social-eyes priming vs. no-choice) x orientation interaction was significant, $\beta = .39, t(58) = 2.69, p < .05$. In contrast, for Koreans, the RAT performance in the social-eyes priming condition increased as a function of *interdependence* (vs. independence), $\beta = -.40, p < .05$. This effect was not significant either in the no social eyes priming condition or in the no-choice control condition, $\beta_s = .05$ and $.01$, respectively, although the dummy-coded

condition (social-eyes priming vs. no-choice) x orientation interaction did not reach statistical significance, $\beta = -.23$, $t(54) = 1.26$, *ns*.

Seen from a different angle, while the cultural difference observed in the no social-eyes priming conditions may be due to the independent orientation of European Americans, cultural difference in the social-eyes priming conditions may be due to the interdependent orientation of Koreans. To test these predictions, we ran two mediations analyses: 1) whether the performance difference between European Americans and Koreans in the no social-eyes priming condition would be mediated by independent (vs. interdependent) orientation measured by the ISOQ and 2) whether the comparable difference in the social-eyes condition would be mediated by interdependent (vs. independent) orientation measured by the ISOQ.

First, in the no social-eyes priming condition (see Figure 2.4-A), European Americans were more independent than Koreans in the ISOQ index, $\beta = -.28$, $p < .05$. Also, one's level of independent orientation could predict his or her performance in the IQ tests when controlling for culture, $\beta = .28$, $p < .05$. Finally, controlling for one's level of independent orientation, the cultural difference in performance decreased from $\beta = -.22$, $p = .09$ to $\beta = -.15$, *ns*. A bootstrap mediation analysis (Preacher & Hayes, 2008; Shrout & Bolger, 2002) indicated that the mediation was significant in that the 95% confidence interval (CI) did not include zero (bootstrap sample = 1000).

Second, in the social-eyes priming condition (see Figure 2.4-B), Koreans were more interdependent than European Americans in the ISOQ index, $\beta = -.26$, $p < .05$. One's level of interdependent orientation could also predict his or her performance in the IQ tests when controlling for culture, $\beta = -.20$, $p = .10$. Finally, controlling for one's level

of interdependent orientation, the cultural difference in performance decreased from $\beta = .43, p < .001$ to $\beta = .37, p < .01$. However, a bootstrap mediation analysis indicated that the decrease was not statistically significant in that the 95% confidence interval (CI) included zero (bootstrap sample = 1000).

Taken together, the results provide converging evidence that the cultural differences in motivation (as indexed in performance) was indeed due to one's level of independent/interdependent orientation (as indexed in the ISOQ).

Self-reported Motivation

Self-reported measures of motivation (reported enjoyment and reported effort) did not show any effect when analyzed within a 2 (culture) x 3 (condition) ANOVA. Pertinent means are reported in Table 2.3. First of all, participants in both cultures in all conditions reported relatively high levels of self-reported motivation (above the midpoint of the 6 point rating scale). Most importantly, the culture x condition interaction was negligible for both enjoyment and effort, $F_s < 1$. In other words, curiously, the motivational effect of choice was clearly observed in the performance measure, but not in the self-report measures. This curious dissociation will be revisited in the Conclusion section.

Taken together, Study 2 extended Study 1 in two important ways. First, Study 2 included a no-choice control and found that whereas European Americans are most motivated to work on a task they choose in the absence of any watching faces, Koreans are most motivated to work on a task they choose in the presence of the faces. Equally importantly, the choice-induced motivation effect for European Americans disappeared once the faces were presented and, conversely, the comparable effect for Koreans

disappeared once the faces were withheld. This strongly suggests that a choice indeed increased motivation when it is made in the absence of social-eyes priming for European Americans and in the presence of social-eyes priming for Koreans, respectively.

Second, Study 2 found that the choice-induced motivation enhancement for European Americans (observed in the private choice condition) was significantly predicted by their independent orientation measured by the ISOQ. Conversely, the comparable effect for Koreans (observed in the poster choice condition) was significantly predicted by their interdependent orientation measured by the ISOQ. These findings lend strong support to the hypothesis that a choice is motivating to the extent that the choice is made in a way that is compatible with cultural models of action as internally motivated in Western cultures or socially responsive in East Asian cultures.

Finally, Study 2 demonstrated an interesting finding that the motivating effects of choice were *not* observed in self-report measures of motivation. This might seem odd in view of the fact that previous studies have repeatedly found differences in motivation as measured with comparable self-report measures (Heine, et al., 2001; Iyengar & Lepper, 1999). This issue will be discussed in Conclusion.

Discussion

Studies 1 & 2 showed that culture plays a crucial role in the act of choosing. Our analysis highlighted culturally divergent models of action. Western cultures tend to regard action as reflecting personal wants, whereas East Asian cultures tend to regard action as reflecting social expectations. If one's choice is construed within the culturally

sanctioned model, it becomes highly motivating. A choice would be construed as reflecting personal aspects of the self when the choice is made in a completely private situation without any unnecessary influence from others as in the no-social eyes priming condition. However, in order for a choice to be construed as reflecting social aspects of the self, the choice should be made in public as in the social eyes condition. In line with this analysis, two studies showed that European Americans worked much harder on a chosen task in the no social-eyes priming condition than in the social-eyes priming condition. More importantly, as predicted, this effect was much more pronounced for Independent European Americans. In contrast, Koreans and Asian Americans worked much harder on a chosen task in the social-eyes priming condition than in the no social-eyes priming condition. More importantly, as predicted, this effect was much more pronounced for interdependent Koreans. Finally, the cultural difference in the choice-induced motivation in the no social-eyes condition was mediated by the corresponding difference in one's level of independent/interdependent orientation (as indexed in the ISOQ).

One interesting as well as informative aspect of Studies 1 & 2 is that the presence or absences of social-eyes was subtly manipulated by a poster of schematic human faces. Given the entirely incidental and unobtrusive nature of the face poster, the robust effect it has on motivation might seem surprising. Yet, the vast literature on face processing suggests that people are extremely sensitive to faces and face-like stimuli (Farah, Wilson, Drain, & Tanaka, 1998), with one sizable area in the visual cortex of the brain (i.e., the fusiform face area in the temporal lobe) dedicated to face processing (Kanwisher, McDermott, & Chun, 1997). Accordingly, even though participants paid no active

attention to the poster, their brain may automatically register the faces in the poster. Moreover, it is also well-known that many aspects of self-regulation are highly automatized (Fitzsimons & Bargh, 2004). In combination, the present work may suggest that, once detected by the visual system, the faces, in turn, influence subsequent self-relevant processing and, as a consequence, they activate the culturally contingent ways of responding to the watching others.

We believe that the current findings provide converging evidence for the hypothesis that choice made under the social eyes priming results in divergent motivational consequences depending on the cultural backgrounds of participants. As a whole, the evidence is consistent with our thesis that “private” choice is more motivating for European Americans, but “public” choice is more motivating for Asians. The result for European Americans is quite compelling: Because our participants either made a choice or did not make a choice in the absence of social eyes priming, the motivational effect can be attributed unequivocally to choice per se. However, there is one ambiguity left for the interpretation of the Asian result: Because Asian participants performed better when they made a choice under the social eyes priming, relative to a control in which they did not make a choice in the absence of the social eyes priming, it remains possible that Asians are motivated more, even when the task was merely assigned to them, as long as the social eyes had been primed. We found this alternative rather unlikely because an analogous motivation effect does not occur even in the presence of social eyes priming as long as the priming does not occur *during* the choice (Imada & Kitayama, 2010, Study 1). Nevertheless, our case would be more compelling if it could be shown that the social eyes manipulation does not increase motivation of Asians if no choice is made.

Accordingly, we recruited additional groups of 31 European American and 25 Asian (8 Asian Americans) undergraduates. Within the procedure identical to the procedure used here in Study 2, these participants were assigned to an IQ test under the social-eyes priming. First, there was no difference in performance in this condition, European Americans: $M = 21.35$ vs. Asians: $M = 22.16$, $p > .60$. Moreover, the performance in this condition did not differ from the no-choice control condition in Study 2, $M_s = 21.35$ vs. 23.26 (European Americans) & 22.16 vs. 24.66 (Asians), all $p_s > .25$. As in the main study, Asians ($-.37$) were more interdependent than European Americans ($-.09$) in the ISOQ index, $t(54) = 1.80$, $p = .078$, $d = 0.48$. As may be expected, however, the ISOQ was not associated with the performance, $p_s > .50$. Taken together, the results from this follow-up suggest that the motivational effect shown by Asians in Studies 1 and 2 requires both choice and the social-eyes priming.

In Sum, Chapter II nicely demonstrates that although a choice would be psychologically important and hence, motivating in all cultures, the type of choice that is significant systematically vary across cultures depending on cultural models of action as internally motivated in Western cultures or socially responsive in East Asian cultures.

Footnotes

1. Chapter II is co-authored with Prof. Shinobu Kitayama.
2. Recently, Bao and Lam (2008) have cast doubt on this finding by showing that Hong Kong Chinese children worked harder on a task they themselves had chosen than on a task that had been chosen by their ingroup member (i.e., their mother or teacher). However, it is noteworthy that children in the personal choice condition of the Bao and Lam studies were explicitly instructed that other participants were not given the opportunity to make a choice because their task had been chosen by their mother or teacher. They were then told that unlike those participants, they *could* make such a choice. In effect, then, the personal choice was presented as a “special privilege.” This instruction might have enhanced motivation of the children through a heightened positive mood, enhanced self-esteem, perceived social approval by the experimenter, or any combination thereof. Equally importantly, the instruction referred to the participants’ mother or teacher as someone who could have made a choice for them. This aspect of the instruction might have inadvertently primed social others in the participants’ mind. A priming procedure like this one could increase the motivation of Asians to carry out a chosen task.

Table 2.1 The relative frequency of the chosen IQ test by culture and condition in Study 1

	<u>European Americans</u>		<u>Asian Americans</u>	
	No Social Eyes	Social Eyes	No Social Eyes	Social Eyes
Analytic	10	9	11	11
Fluid	13	12	14	14
Creative	7	10	5	6

Table 2.2 The relative frequency of the chosen IQ test by culture and condition in Study 2

	<u>US</u>			<u>Korea</u>		
	No Social Eyes	Social Eyes	No Choice	No Social Eyes	Social Eyes	No Choice
Analytic	11	9	12	5	5	7
Fluid	12	13	14	13	16	15
Creative	5	8	8	10	8	7

Table 2.3 Means and standard deviations of self-reported measures of motivation in Study 2

Condition		Koreans		Americans	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Enjoyment	No Social Eyes	3.93	1.30	4.04	.88
	Social Eyes	3.86	1.36	3.90	.80
	No Choice	3.62	1.05	3.88	1.23
Effort	No Social Eyes	4.57	1.14	4.25	.75
	Social Eyes	4.41	1.15	4.13	.86
	No Choice	4.00	1.23	4.12	.69

Figure 2.1 The face poster used in the present study (adapted from Kitayama et al., 2004)

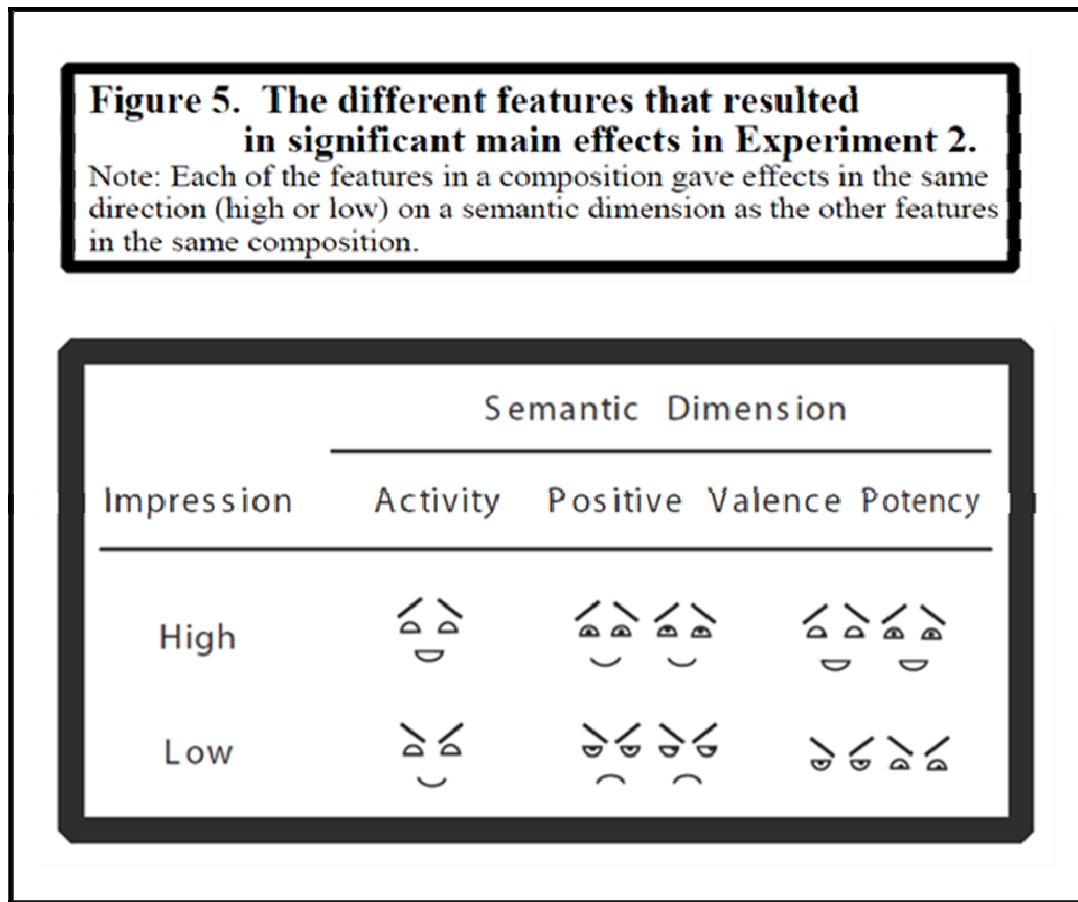


Figure 2.2 The number of items correctly solved within 5 minutes by European and Asian Americans in an alleged IQ test in Study 1. The line in each bar signifies the standard error.

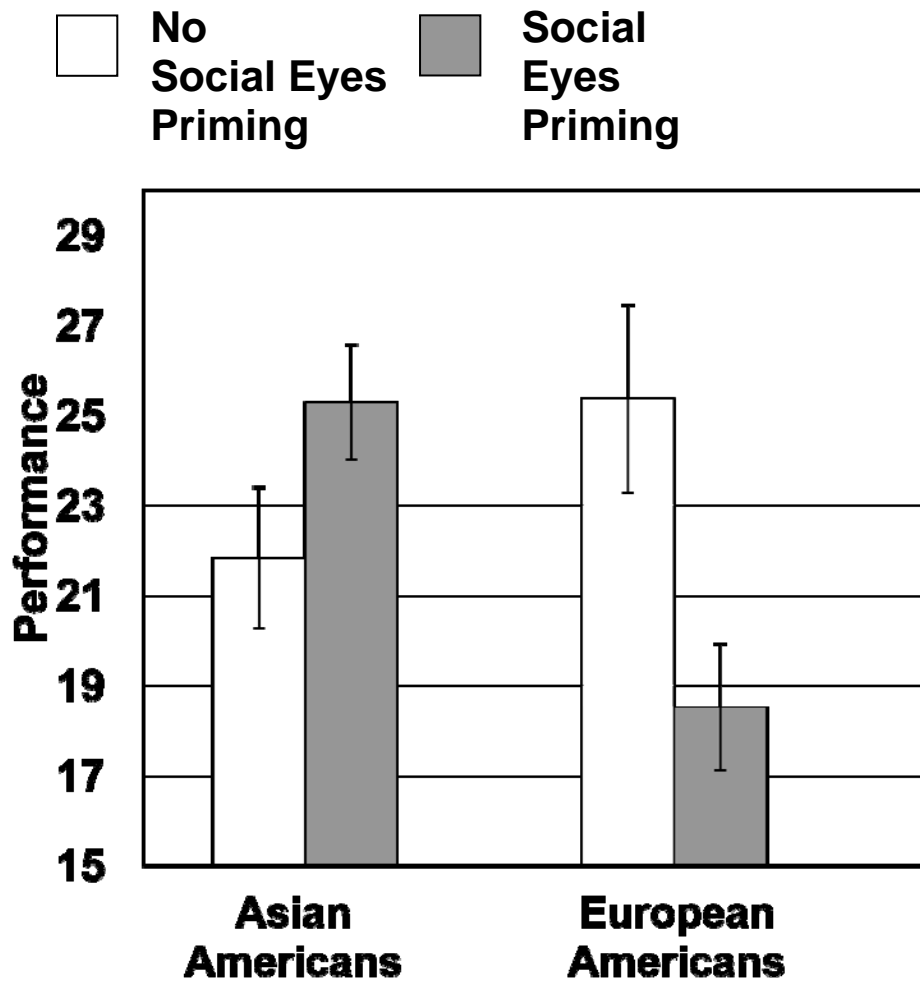


Figure 2.3 The number of items correctly solved within 5 minutes by Americans and Koreans in an alleged IQ test in Study 2. The line in each bar signifies the standard error.

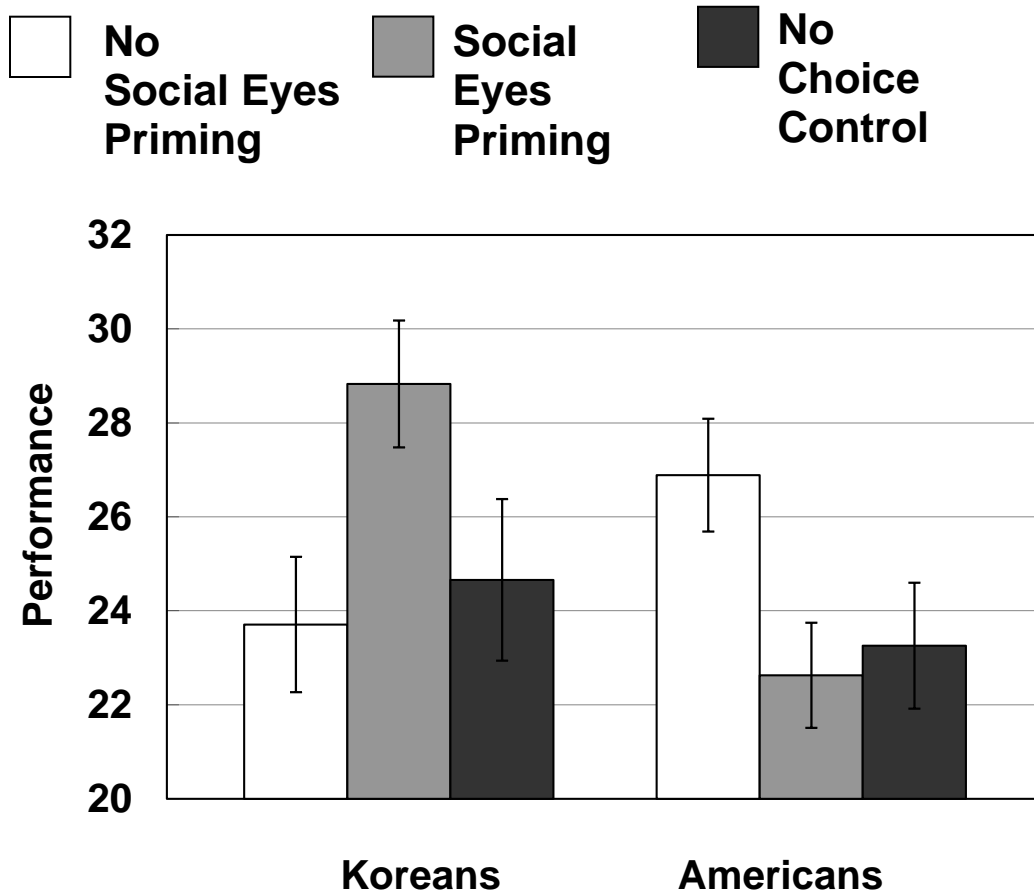
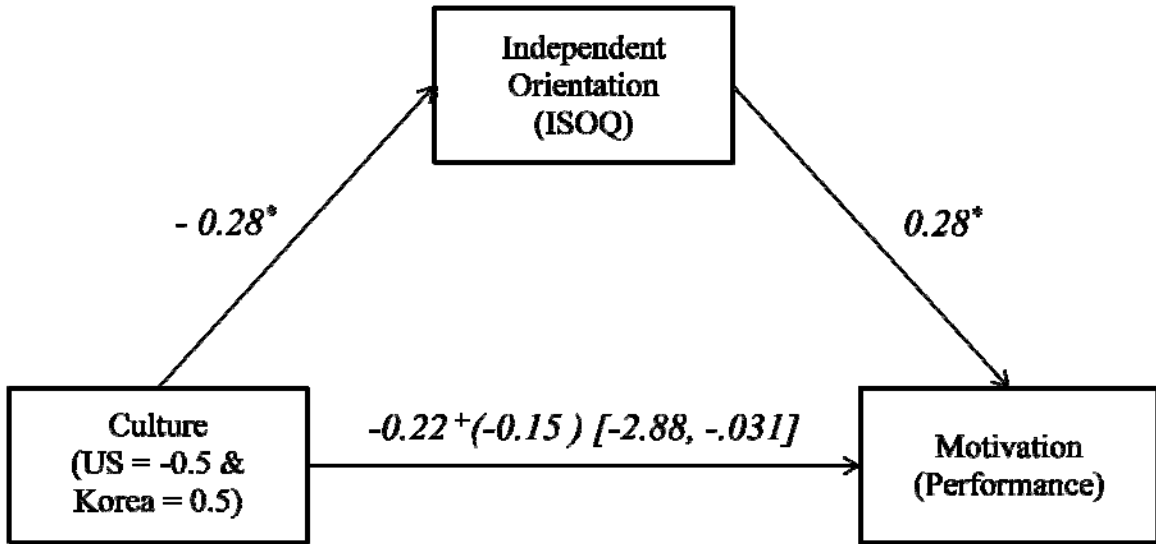


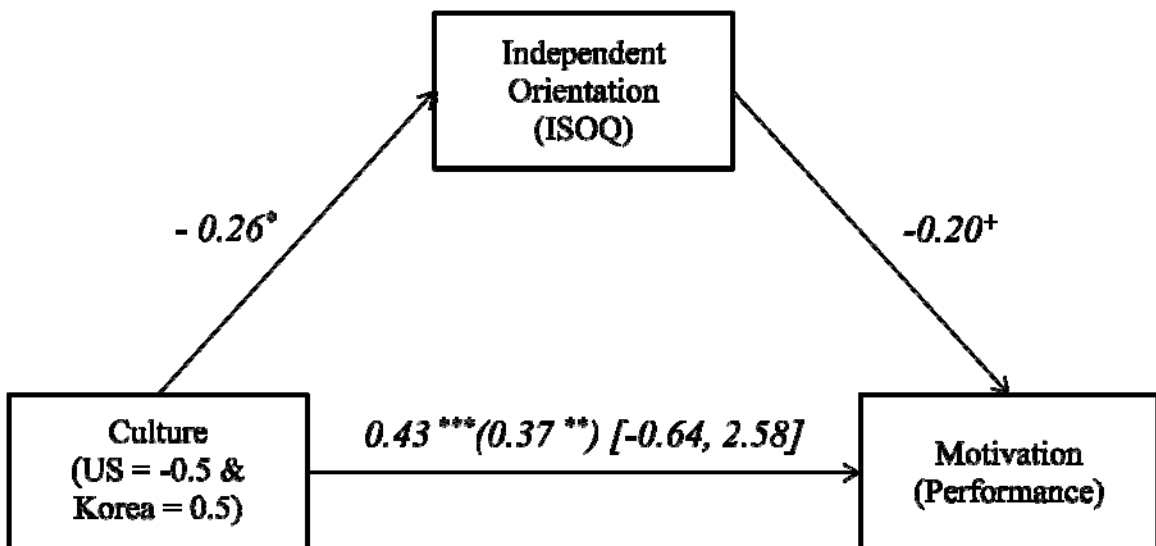
Figure 2.4 Mediation analyses in Study 2, A: No Social-Eyes Priming Condition & B: Social-Eyes Priming Condition. The numbers in the brackets show the confidence interval generated by the bootstrapping test.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, & *** $p < 0.01$.

A.



B.



CHAPTER III

SPONTANEOUS TRAIT INFERENCE IS CULTURE SPECIFIC.¹

Chapter II addressed how cultural model of action either as internally motivated in Western cultures or as socially responsive in East Asian cultures can affect how we behave in the domain of choice. However, if the model of action people adopt really vary across cultures, similar cultural differences should be observed in how we interpret another's behaviors. Thus, Chapter III further explores cultural differences in naïve beliefs about the motive of behavior with respect to social explanation. Those who strongly believe that one's behavior is internally motivated would focus on another's internal attributes such as personality traits or other internal dispositions. However, those who strongly believe that one's behaviors can be constrained by situational constraints would not necessarily make strong inference about another's internal attributes when observing his or her behaviors. Instead, they would take into account obligations, duty, or other situational factors. Thus, we predicted that, upon exposure to another's behaviors, European American would draw strong trait-inference whereas this tendency would be much weaker or even absent among East Asians.

Supporting the foregoing predictions, cultural psychological research has documented a sizable cultural variation in social explanation (Choi, Nisbett, & Norenzayan, 1999). Relative to European Americans, Asians are less likely to use

another person's personality traits in accounting for the person's behavior. The classic study by Miller (1984) is said to be the first study that elegantly demonstrated cultural differences in social explanation. In the study, Miller interviewed Hindu Indians and Americans and asked them to explain both good and bad behaviors of their acquaintances. She found that Americans made greater reference to general dispositions than did Hindu Indians. This indicates that Americans inferred the corresponding traits from their acquaintance's behaviors whereas Hindu Indians explained similar events in terms of social roles, obligations, or other social constraints. More importantly, her participants consisted of 4 age-groups (ages 8, 11, 15 years, and adults) and a linear age increase in cultural differences was observed. In other words, dispositional attribution increased with age among Americans whereas references to the contexts increased with age among Hindu Indians. The results clearly suggest that culture-specific causal inferences were obtained through socialization.

The cultural differences in social explanation can be observed not only in the behaviors of the members of a given culture but also in cultural products (tangible and public representations of culture such as advertising or popular text; Morling & Lamoreaux, 2008). For example, Morris and Peng (1994) compared how two mass-murder incidents were reported in an English-language newspaper and in a Chinese-language newspaper. They found that the English-language newspaper mentioned the mental instability and other negative traits of the perpetrators as possible causes (e.g., man was mentally unstable or he had a short fuse). On the other hand, the Chinese-language newspaper emphasized situational or societal factors as possible causes (e.g.,

He was a victim of the 'Top Students' Education Policy or He did not get along with his advisor).

Moreover, Choi and Nisbett (1998) showed that the Fundamental Attribution Error (FAE: a tendency to give undue weight to internal attributes in social explanation), one of most influential findings in social psychology, was not observed among Koreans when situational constraints were made salient. Using the classic attitude paradigm by Jones and Harris (1967), they found that Korean participants did not make inference about the true attitude of an essay writer when the position the writer took in the essay was assigned and this constraint was made salient by asking participants themselves to write an essay in the same situation or emphasizing that the writer merely copied the arguments provided by the experimenter. However, American participants were not affected by these additional manipulations (see also Masuda & Kitayama, 2004; Choi et al. 1999 for a review).

In sum, numerous studies have clearly demonstrated that European Americans are biased toward dispositional explanation whereas such bias is much weaker for East Asians. However, previous work has largely focused on final attribution and consequently, it is not clear exactly when and how the cultural differences in social explanation emerge. For example, as shown in Figure 3.1-A, individuals may initially draw strong trait inferences regardless of cultures. Then, cultural differences later arise as East Asians adjust their initial trait inference to available situational constraints more than do European Americans. According to this view, the initial trait inference is automatic and universal. Moreover, situational adjustment is solely responsible for the cultural differences in social explanation. This view is consistent with a well-accepted 2-stage

model of person perception (Gilbert & Malone, 1995). The model proposes that when observing a behavior of another person, the social perceiver initially infers a trait from the behavior. This initial trait inference is held to be highly automatic and universal. Next, the social perceiver is assumed to deliberately adjust the initial trait judgment by taking into account available situational constraints. Because Asians are more attentive to situations or social contexts (Kitayama, Duffy, Kawamura, & Larsen, 2003; Masuda & Nisbett, 2001), they may be expected to dilute the initial trait inference more in explanation of the observed behavior. However, an alternative view is also possible (see Figure 3.1-B). In other words, there may be cultural differences even in the early automatic stage of trait inference. Then, the key issue is whether there is any cultural difference in the initial trait inference or the initial trait inference really occurs spontaneously in all cultures.

In an original investigation of spontaneous trait inference, Winter and Uleman (1984) asked participants to read and remember descriptions of behaviors. In a subsequent recall task, a trait implied by each behavior served as an effective memory cue. The researchers argued that while encoding the behaviors, the traits were inferred despite the fact that the participants were instructed only to memorize the behaviors. They thus concluded that trait inference was spontaneous. More recent studies (Carlston & Skowronski, 1994; Carlston, Skowronski, & Sparks, 1995; Todorov & Uleman, 2002, 2004) show that the inferred trait is also spontaneously ascribed to the actor so that the inferred trait is subsequently retrieved automatically upon exposure to the actor. For example, Todorov and Uleman (2002) had participants memorize faces and trait-implicating behavioral sentences. When faces were paired with implied traits in a

recognition test, participants falsely recognized these traits more often than unrelated traits, suggesting that a face paired with a trait-implying behavior activated the trait concept that corresponded to the paired behavior. Thus, the previous research has convincingly demonstrated that upon observing another person's behavior, individuals automatically infer the corresponding trait (i.e., *trait activation*) and, moreover, they ascribe the trait, also automatically, to the actor (i.e., *trait binding*) (see Uleman, Saribay, & Gonzalez, 2008 for a review). At present, however, with one important exception to be discussed below, the evidence comes exclusively from Western cultures

Is trait inference really spontaneous in East Asian cultures? First, as mentioned in the outset, cultures vary in the model of action they sanction. European American cultures emphasize a model of action as internally motivated. Because those with this model of action may routinely engage in trait inference, spontaneous trait inference may be expected to have an important root in the Western independent model of the self (Duff & Newman, 1997). In contrast, East Asian cultures place a much greater emphasis on a contrasting model of action as socially responsive. Those with this model of action may *not* draw trait inferences on any regular basis because this model highlights situational constraints on the actor. Accordingly, for these individuals, trait inference may prove to be much less spontaneous. Spontaneous trait inference, then, might be relatively unique to the Western, independent cultural context.

Zárate and colleagues (2001) examined a similar prediction by comparing Latino Americans and European Americans. Because Latinos are less independent and more interdependent, trait inference may be less spontaneous for them. In their Study 1, the researchers examined whether participants would infer corresponding traits when reading

trait-implying behaviors, and found some trend toward this prediction. Although the cultural difference fell short of statistical significance, the task used in this study enabled the researchers to examine only the effect of trait activation. It remains possible that the cultural difference would become more pronounced if a cumulative effect of both trait activation and trait binding were tested.

In their Study 2, Zárate and colleagues (2001) had participants memorize many pairings of a face and a trait-implying behavior. Subsequently, participants were shown each stimulus face and asked to rate the person in terms of a few trait dimensions, one of which was the trait implied by the behavior paired with the face (see also Carlston & Skowronski, 2005). They found that European Americans gave more extreme ratings on the implied trait than did Latino Americans. Although the researchers interpreted the result as consistent with the predicted cultural difference in spontaneous trait inference, this interpretation can be called into question because participants were explicitly asked to make trait judgment during the testing phase. As a consequence, trait inference might have been made during the testing phase when participants were explicitly requested to do so (rather than spontaneously during the memorization phase) on the basis of behaviors that were recalled at the time of judgment.

At present, then, there remains a need to further investigate the predicted cultural difference in spontaneous trait inference. If Chapter III can demonstrate that trait inference is, in fact, *not* spontaneous for those with Asian cultural heritage, it will pose a significant challenge to the current 2-stage model of person perception. In Chapter III, we tested the predicted cross-cultural difference by examining a cumulative effect of both trait activation and trait binding with a diagnostic task that required no trait judgment.

Study 3: Behavioral Evidence

In Study 3 participants were asked to memorize pairings of a face and a trait-implying behavior. Because participants were not asked to infer any traits, the association established between the implied trait and the face during the memorization phase of the study would imply that the trait had been inferred (i.e., trait activation) and bound to the actor (i.e., trait binding) in highly automatic fashion. To assess the magnitude of this association, we used a lexical decision task with the face as a priming stimulus. If the inferred trait had been associated with the face, the face would activate the inferred trait when presented during the lexical decision task and, thus, it would facilitate lexical decision for the inferred trait, as compared to a target that was semantically unrelated to the inferred trait. We predicted the priming effect to be more pronounced for European Americans than for Asian Americans.

Method

Participants

Sixty seven European American (28 males & 39 females) and 64 Asian American students (27 males & 37 females) at the University of Michigan were participated in Study 3 in return for partial course credit or monetary compensation (\$7).

Procedures

Study Phase: Face-Behavior Pairings Twenty faces (10 females) and 40 behaviors were prepared. Note that all the behavior statements used in Study 3 were adopted from previous studies (Mitchell, Macrae, & Banaji, 2005; Uleman, 1987). To make sure that

the trait-diagnostics of the behavior statements does not vary across cultures, a different group of participants (11 European Americans and 13 Asian Americans) were recruited for a pretest. In the pretest, they were asked to rate each of the 40 behaviors on the degree to which it implied either a trait designated as “implied” for the behavior and a trait designated as “unrelated” to the behavior (1 = “not implying at all, 7 = “strongly implying”). For both European and Asian Americans, the “implied” traits were judged as much more implied by the behaviors than the “unrelated” traits ($M_s = 5.89$ vs. 2.53), $F(1, 22) = 228.38$, $p < .001$, $\eta_p^2 = .921$. Thus, the behavior statements used in the Study 3 were equally trait implying for both European and Asian Americans.

In existing studies, one face is typically paired with one behavior. To maximize the chance of observing trait inference effect, however, each of the 20 faces was paired with two different behaviors that implied the same trait, yielding 40 face-behavior pairings. Since individuals preferentially attend to and remember the same-race faces (Hewstone, Rubin, & Willis, 2002, for a review of the in-group bias in face recognition), face stimuli used in the study were matched for ethnicity. For European American participants, all the 20 faces were European Americans, whereas for Asian American participants, they were Asian Americans. For each ethnicity, two sets of face-behavior pairings were used. The two sets included the same faces and behaviors but only differed in the combination of them. The results did not vary as a function of which set was used.

During the first phase of the study, participants were presented with the 40 face-behavior pairs and asked to memorize them. For each pair, a face was presented first. After 2 sec, the paired behavior was added to the screen. Both the face and the behavior stayed on the screen for either 4 (6 sec condition: 2 sec of face + 4 sec of face & behavior

statement) or 7 sec (9 sec condition: 2 sec of face + 7 sec of face & behavior statement). This variation did not qualify the results.

Test Phase: Lexical Decision Task Next, a lexical decision task was given as a filler task. In fact, the task was designed to assess the magnitude of face-trait associations. On each trial of the lexical decision task, one of the 20 faces was first presented as a priming stimulus for 1500 msec. Participants were told that the face was a fixation point and asked to look at it when it was presented on the computer screen. The priming face was immediately followed by a target stimulus, which stayed on the screen until participants responded. There were three types of targets: a trait that was implied by the behaviors previously paired with each of the 20 face (20 trials), a trait that was unrelated to these behaviors (20 trials), and a pseudo-word (40 trials). The order of the resulting 80 trials was randomized for each participant. Participants reported whether the stimulus was an English word or not by pressing one of two designated computer keys.

Memory Test After the lexical decision task, for about the half of participants (34 European Americans & 33 Asian Americans), memory of face-behavior pairings was tested to test whether attention paid to the pairs during the memory phase did not differ between the two cultural groups. Participants were given the 20 faces and the 40 behaviors that had been used in the memory phase of the study, and asked to indicate which face had previously been paired with each of the 40 behaviors. Upon completion of the questionnaire, participants were fully debriefed and dismissed.

Results

Performance in the Memory Task

We examined how many face-behavior pairs they correctly remembered as an index of the amount of attention paid to the face-behavior pairings during the memory phase of the study. The number of correct responses did not vary across cultures, $M_s = 30.91$ vs. 28.58 out of 40 for European Americans and Asian Americans, respectively, $t(65) = 1.30$, *n.s.* Thus, cultural differences in the following results cannot be attributed to the corresponding cultural differences in the amount of attention paid to the face-behavior pairings.

Accuracy in the Lexical Decision Task

Preliminary analysis showed no effect of either gender or stimulus set; so these factors were dropped and will not be further discussed. First, accuracy (i.e., % of correct responses) was log-transformed and submitted to a 2 (culture) x 2 (presentation time: 6 sec vs. 9 sec) x 2 (target: word vs. pseudo-word) mixed ANOVA. As can be seen in Table 3.1, accuracy was significantly higher for the word targets than for the pseudo word targets regardless of cultures. In other words, they made more mistake in the pseudo word trials than in the word trials, $F(1, 125) = 18.74$, $p < 0.001$, $\eta_p^2 = .130$. The subsequent analysis focused on the word target trials. A 2 (culture) x 2 (presentation time) x 2 (trait type: implied vs. unrelated) ANOVA showed, as predicted, a significant culture x trait type interaction, $F(1, 125) = 9.96$, $p < 0.05$, $\eta_p^2 = .074$. As shown in Figure 3.2, accuracy was higher for the implied traits than for the unrelated traits for European Americans, $.99$ vs. $.95$, $t(64) = 3.25$, $p < .01$, suggesting that the implied traits had been inferred and ascribed to the priming faces during the memorization phase of the study.

Because there was no explicit instruction to draw such an inference, the inference was spontaneous. In contrast, the corresponding difference was negligible for Asian Americans, .99 vs. .98, $t(63) = 1.48, p = .14$. The cultural difference based on the difference between implied traits and unrelated traits in accuracy was sizable, Cohen's $d = 0.47$. This result is consistent with the hypothesis that Asian Americans do not engage in spontaneous trait inference. However, accuracy was very high for both European and Asian Americans and, hence, a ceiling effect could be involved.

Reaction Time in the Lexical Decision Task

Second, reaction time (RTs) for correct responses was analyzed after excluding outliers (3SDs or more from the mean for each participant). Overall, as can be seen in Table 3.1, lexical decision was faster for the word targets than for pseudo-word targets, $F(1, 125) = 15.92, p < 0.001, \eta_p^2 = .119$. The overall reaction time did not vary across cultures, $F < 1$. As for the accuracy data, the subsequent analysis focused on the word target trials. Most importantly, a 2 (culture) x 2 (presentation time) x 2 (trait type: implied vs. unrelated) ANOVA showed a significant interaction between culture and trait type, $F(1, 125) = 13.84, p < 0.001, \eta_p^2 = .10$. As illustrated in Figure 3.3, for European Americans lexical decision was significantly faster for the implied traits than for the unrelated traits, $M_s = 638$ vs. 665 ms, $t(64) = 4.94, p < .001$. For Asian Americans, however, the difference was completely vanished, $M_s = 639$ vs. 636 ms $t < 1$. The cultural difference based on the difference between implied traits and unrelated traits in RT was substantial, Cohen's $d = 0.65$. The results lend further support to the prediction that spontaneous trait inference would be culture-specific.

Taken together, Study 3 used a procedure designed to assess, without requesting any trait judgment, a cumulative effect of both trait activation and trait binding, and found the first solid evidence for the predicted cultural difference in spontaneous trait inference. Spontaneous trait inference is highly reliable in both accuracy and RT for European Americans. However, there was no such evidence whatsoever in either measure for Asian Americans.

Since we hypothesized that the critical difference is the relative spontaneity of trait inference, the evidence would be more convincing if we could show that Asian Americans can engage in trait inference when they intend to do so. Thus another group of 33 Asian Americans were tested. These participants were explicitly instructed to form a clear impression of each stimulus person during the first phase of the study (except for this change, the procedure was identical to the 9 sec condition). The instruction and examples in this condition clearly asked them to engage in trait inference based on given face-behavior pairings. Under this condition of *intentional* trait inference, Asian Americans showed clear evidence of trait inference: the accuracy was higher, $M_s = 0.99$ vs. 0.95 , $t(32) = 3.88$, $p < .001$, and the RT was shorter, $M_s = 653$ vs. 685 ms, $t(32) = 3.85$, $p < 0.01$, for the implied traits than for the unrelated traits. Thus, the cultural difference observed in Study 3 can be attributed to the relative spontaneity of trait inference. In other words, unlike European Americans who spontaneously engage in trait inference, Asian Americans can infer the corresponding traits from another's behavior but they would not do so spontaneously.

Study 4: Neural Evidence

When a trait is spontaneously inferred, the association between the trait and the actor is stored in a certain neural circuitry of the brain. This implies that a similar cultural difference should be observed just as clearly with a neural indicator. In Study 4, we measured stimulus-locked electrical activities of the brain (event-related potential or ERP). Of particular interest is an ERP component called N400, a negative deflection peaking approximately 400 ms after stimulus presentation. Typically observed in posterior electrodes, N400 is thought to index detection of semantic incongruity (Kutas & Hillyard, 1980). The results of Study 3 imply that during the memorization phase of the study, European Americans spontaneously infer a trait corresponding to each behavior and associate the trait to the stimulus face. When presented as a fixation in the lexical decision task, the face will automatically activate the inferred trait. Thus, if the activation of the inferred trait was followed by presentation of its antonym, a strong N400 component may be expected. In contrast, Study 3 shows that Asian Americans do not spontaneously infer any traits during the memorization phase of the study. The confidence on this conclusion would be greater if there was no N400 component to the antonym of the implied trait.

Methods

Participants

Twenty-three European (11 males & 12 females) and 23 Asian American (11 males & 12 females) undergraduates at the University of Michigan participated in Study 4 in return for monetary compensation (\$20).

Procedures

First, they were presented with 60 (two behaviors per each face) face-behavior pairs and asked to memorize them. This first memorization phase was followed by a lexical decision task similar to the one used in Study 3. As illustrated in Figure 3.4, each trial consisted of a face prime presented for 1500 ms as a fixation, immediately followed by presentation of a target stimulus for 200 ms. Participants were given up to 5000 ms to make a lexical decision on the target. 1400 ms after the decision period, the next trial started. In Study 4 the focus was on the brain response that signifies the detection of semantic incongruity. We therefore used traits implied by the stimulus behaviors and their antonyms as word targets in the lexical decision task (30 trials each). An equal number of pseudo-word targets (60 trials) were also included, yielding 120 trials, which were divided into two blocks (with 30 word target and 30 pseudo-word target trials in each). The blocks were repeated twice, resulting in the total of 4 blocks and 240 trials. The order of trials within each block was randomized for each participant. To ensure that the same set of trait words would be used on both the congruous trials and the incongruous trials, one trait word was served as the implied trait for one face and as the incongruous trait (the antonym of an implied trait) for another face. Thus, the congruity/incongruity of trait was not confounded with specific traits that were used. The electroencephalogram (EEG) was recorded during the task. After the computer task, participants filled out the Singelis measure of independent and interdependent self-construal (Singelis, 1994).

Electroencephalogram (EEG) Acquisition

EEG was recorded from 32 Ag/AgCl electrodes embedded in an elastic cap according to the 10-20 system. Electrooculograph (EOG) was also recorded with electrodes placed above and below both eyes as well as at positions lateral to the left outer canthi. EOG was used to monitor horizontal and vertical eye movements. In addition, two electrodes were placed on the left and right mastoid (M1 and M2, respectively). EEG and EOG were recorded with a bandwidth of DC to 104 Hz (3 dB/octave) using a Biosemi Active Two system (Biosemi, Inc., Amsterdam, Netherlands) with a sampling rate of 512 Hz.

For off-line analysis, EEG was re-referenced to an average activity of the left and right mastoids and re-sampled at 256 Hz. The EEG for each trial was corrected for vertical and horizontal EOG artifacts as in Gratton, Cole, and Donchin (1983). ERPs to word targets were averaged over an epoch of 1200 ms (starting 200 ms prior to the presentation of each target), using a 200-ms prestimulus baseline. Only segments with correct responses were averaged. The trials with deflection exceeding $\pm 100 \mu\text{V}$ were excluded from averaging.

Results

Behavioral Data

Mean accuracies and RTs are summarized in Table 3.2. ANOVAs performed on these means showed no significant effects of our experimental variables. When trait information is activated by a given priming face, this activation may spread to its antonym as well (see Todorov & Uleman, 2002, for evidence). This could facilitate lexical decision of both congruous and incongruous word targets even though participants

would still be able to recognize the meaning of the antonym as incongruous with the trait associated with the priming face.

ERP analysis

The time course of ERPs was examined at all scalp locations first. The clearest pattern was identified in the posterior central (Pz) scalp location. This is consistent with previous work showing that the visual N400 is most clearly observed in the centro-posterior region of the brain (Kutas & Federmeier, 2000).

As shown in Figure 3.5 for European Americans, a clear N400 component was identified when the targets were antonyms of the implied traits. The N400 component could be expected only if the face activated a trait implied by the behaviors associated with the face. Hence, the pattern observed here clearly indicates that European Americans spontaneously inferred a trait of a stimulus person from his or her behaviors during the memorization phase of the study. For Asian Americans, however, there was no such incongruity effect. This lends further support to the hypothesis that Asian Americans do not engage in spontaneous trait inference.

To closely look at the cross-cultural difference in N400 at Pz, both the mean amplitude and the peak amplitude were computed for each of two relevant time periods (350-450 ms and 450-550 ms) for each participant and submitted to 2 (culture) x 2 (trait type) ANOVAs. The results were largely identical for the two indices. So the results on the mean amplitude will be reported in what follows. As predicted, a significant interaction between culture and trait type was found at both 350-450 ms and 450-550 ms, $F(1, 44) = 6.51, p < .05, \eta_p^2 = .129$ and $F(1, 44) = 9.67, p < .01, \eta_p^2 = .180$, respectively. European Americans showed a significantly greater negativity for the incongruous traits

(i.e., antonyms) than for the implied traits, $t(22) = 3.06, p < .01$ and $t(22) = 2.89, p < .01$ at 350-450 ms and 450-550 ms, respectively. For Asian Americans, however, there was no such difference between the incongruous traits and the implied traits, $t(22) = 0.21$ and $t(22) = 1.29, n.s.$, at 350-450 ms and 450-550 ms, respectively. Thus, cultural difference in the incongruity effect was quite sizable, Cohen's d s = 0.77 & 0.93 at 350-450 ms and 450-550 ms, respectively.

Self-Construal

We argued that the cultural difference in spontaneous trait inference is due to the corresponding difference in cultural models of action which are closely linked to independent vs. interdependent self-construal. To test this proposition, we examined whether the cultural difference in the N400 incongruity effect might be mediated by independent vs. interdependent self-construal.

In both cultural groups, the ERP incongruity effect (the relative magnitude of negativity during the incongruous [relative to implied] trait trials) significantly increased with independent self-construal and, further, the relationship was reversed for interdependent self-construal. We thus subtracted the interdependence score from the independence score to yield a summary index of independent self-construal. European Americans were more independent than Asian Americans, as predicted, M s (SDs) = .70 (1.09) vs. -.10 (1.09), $t(44) = 2.25, p < .05$, Cohen's $d = 0.68$ or $\beta = 0.33, p < .05$. As also predicted, the ERP incongruity effect was positively associated with independent self-construal at both 350–450 ms and 450–550 ms, $\beta = 0.32, p < .05$ and $\beta = 0.35, p < .05$, respectively. The relevant scatter plots are shown in Figures 3.6. Importantly, controlling for independent self-construal, the cultural difference in the ERP incongruity effect

significantly decreased: from $\beta = 0.36, p < .05$ to $\beta = 0.25, n.s.$ at 350-450 ms and from $\beta = 0.42, p < .01$ to $\beta = 0.30, p < .05$ at 450–550 ms. With a bootstrap mediation model analysis recommended by Shrout and Bolger (2002), the mediation proved significant for both time periods as indicated in the 95% confidence interval (CI) that did *not* include zero. This analysis, summarized in Figure 3.7, shows that the cultural difference in spontaneous trait inference was at least partially mediated by independent self-construal.

Discussion

Studies 3 & 4 provided the first unequivocal evidence that spontaneous trait inference is quite robust among European Americans, but not among Asian Americans. These studies went beyond the previous work by using a diagnostic task that assesses a cumulative effect of both trait activation and trait binding. Furthermore, the task required *no* trait judgment, thereby ruling out any trait inference during the diagnostic task. The cultural difference was partially mediated by individual differences in independent (vs. interdependent) self-construal.

One methodological issue regarding Asian American findings in Studies 3 & 4 comes from the fact that Asian American participants saw Asian faces. They might believe that behaviors are typically constrained by social norms or social expectations in Asian cultures. As long as Asians perceive other Asians as not internally motivated, there is no reason for them to infer the corresponding trait. In other words, Asian Americans might not have spontaneously inferred the corresponding trait because they were presented with Asian faces. Thus, they might show the same effect as European

Americans when they are presented with European faces. To address this issue, we presented another group of 30 Asian Americans with European faces within the same procedure as in Study 3. As in Study 3, implied traits was no different from irrelevant traits in terms of both response time, $M_s = 639$ vs. 640 ms, $t(29) = 0.16$, *n.s.* and accuracy, $M_s = .98$ vs. $.98$, $t(29) = 0.68$, *n.s.* This suggests that the findings for Asian Americans reported in the main studies are not an artifact of using Asian faces for them.

However, the current work did not systematically investigate whether the present conclusions would hold for the perception of outgroup members. Since different ethnic groups are associated with different stereotypes, which might in turn have certain, hitherto unknown effects on spontaneous trait inference, more work is required to test this issue. This limitation, notwithstanding, Studies 3 & 4 can make substantial contribution to the current literature on cultural differences in social explanation. In the current literature, the cultural variation in social explanation is typically explained in terms of deliberate attention applied to social constraint information (Choi, Nisbett, & Norenzayan, 1999; Gilbert & Malone, 1995). A premise central in this account is that initial trait inference is automatic in all cultures. The current findings call this premise into question.

Footnote

1. Chapter III is co-authored with Prof. Shinobu Kitayama.

Table 3.1 Accuracy and response time (RT) in the lexical decision task in Study 1. The relevant means are computed as a function of target type (implied vs. unrelated trait words and pseudo-words), presentation time of trait implying behaviors during the memorization phase of the study (6 vs. 9 sec), and cultural backgrounds of participants (European vs. Asian). Standard deviations are given in the parentheses.

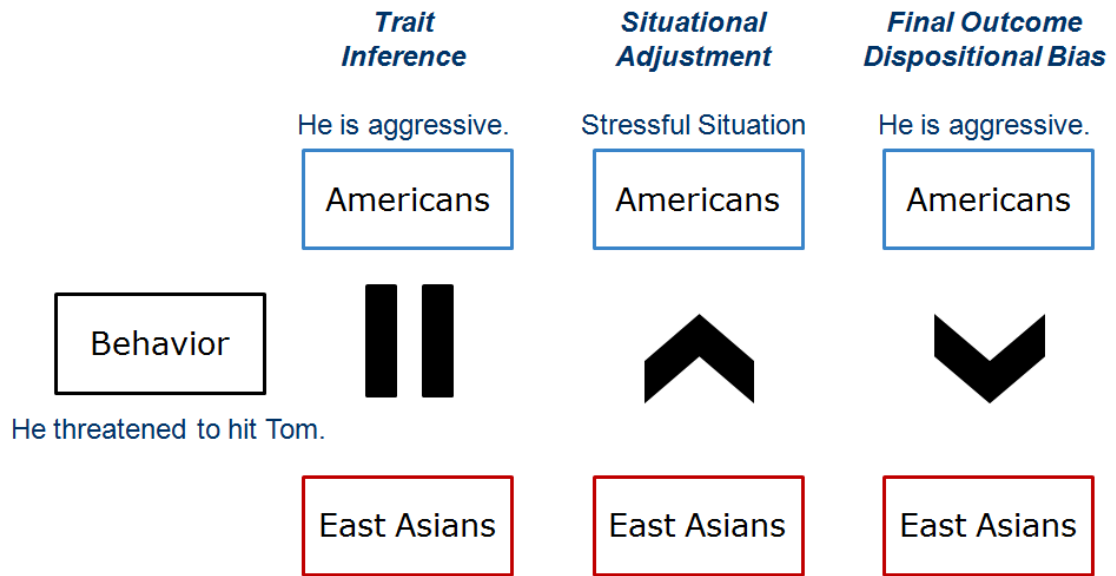
	Implied Trait Words			Unrelated Trait Words			Pseudo-words			
	6 sec	9 sec	Combined	6 sec	9 sec	Combined	6 sec	9 sec	Combined	
Accuracy	Euro	.99 (.04)	.98 (.03)	.99 (.03)	.97 (.11)	.92 (.07)	.95 (.10)	.95 (.07)	.94 (.07)	.95 (.07)
	Asian	.99 (.04)	.99 (.03)	.99 (.03)	.99 (.03)	.97 (.04)	.98 (.03)	.92 (.10)	.95 (.08)	.94 (.09)
RT (ms)	Euro	663 (128)	612 (139)	638 (135)	680 (145)	649 (165)	665 (154)	721 (134)	662 (147)	692 (137)
	Asian	659 (160)	619 (158)	639 (159)	654 (158)	617 (137)	636 (148)	698 (137)	646 (125)	672 (130)

Table 3.2 Accuracy and response time (RT) in the lexical decision task in Study 2. The relevant means are computed as a function of target type (implied vs. incongruous trait words and pseudo-words) and cultural backgrounds of participants (European vs. Asian). Standard deviations are given in the parentheses.

		<i>Implied Trait</i>	<i>Incongruous Trait</i>	<i>Pseudo-Word</i>
Accuracy	Euro	.96 (.03)	.96 (.03)	.97 (.03)
	Asian	.97 (.04)	.97 (.03)	.95 (.06)
RT (ms)	Euro	530 (96)	536 (101)	536 (92)
	Asian	481 (65)	484 (59)	504 (63)

Figure 3.1 Two views of cultural differences in dispositional bias

A



B

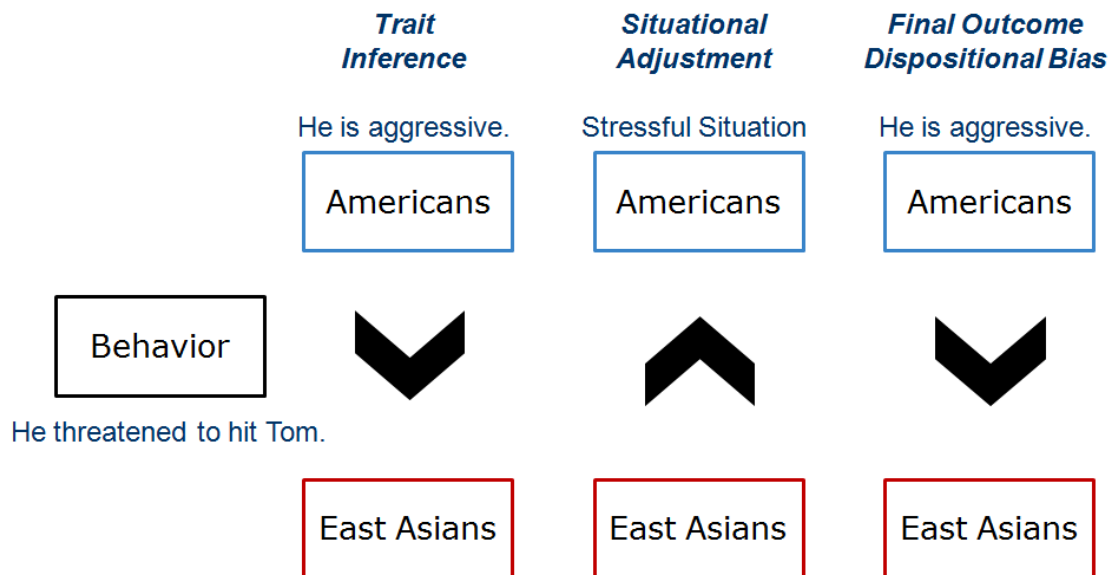


Figure 3.2 Accuracy for the implied trait vs. unrelated trait trials among European Americans and Asian Americans in Study 3

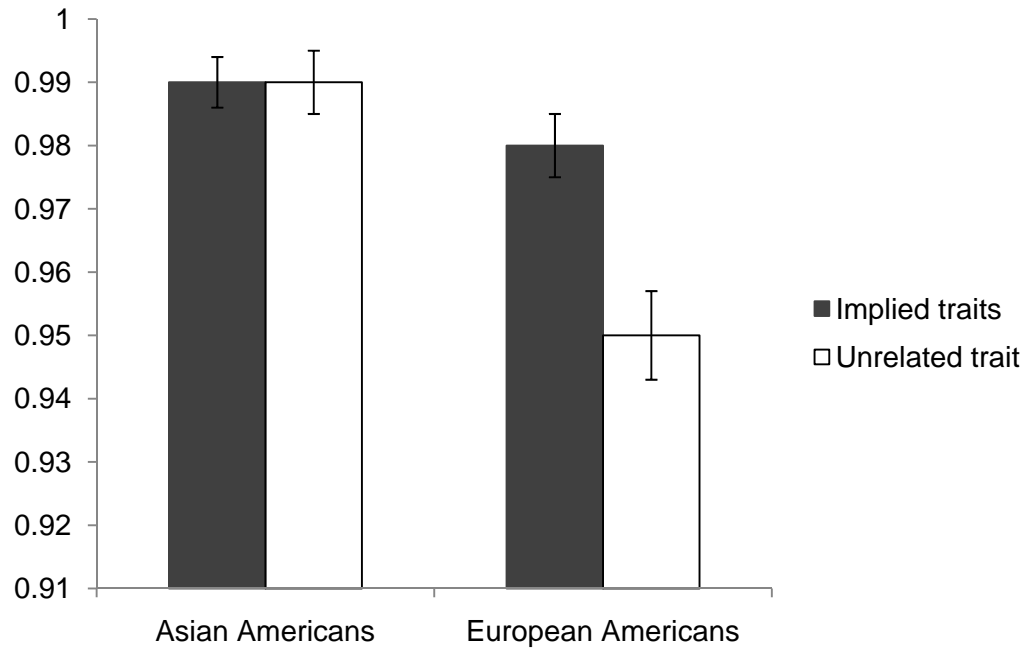


Figure 3.3 Reaction time for the implied trait vs. unrelated trait trials among European Americans and Asian Americans in Study 3

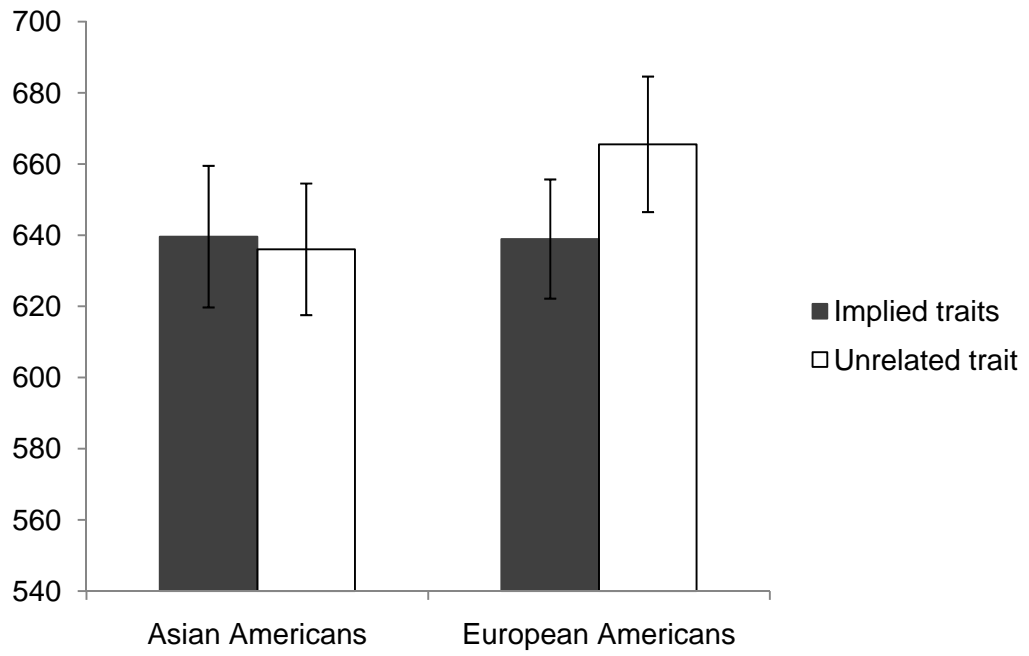


Figure 3.4 Trial structure of the lexical decision task in Study 4

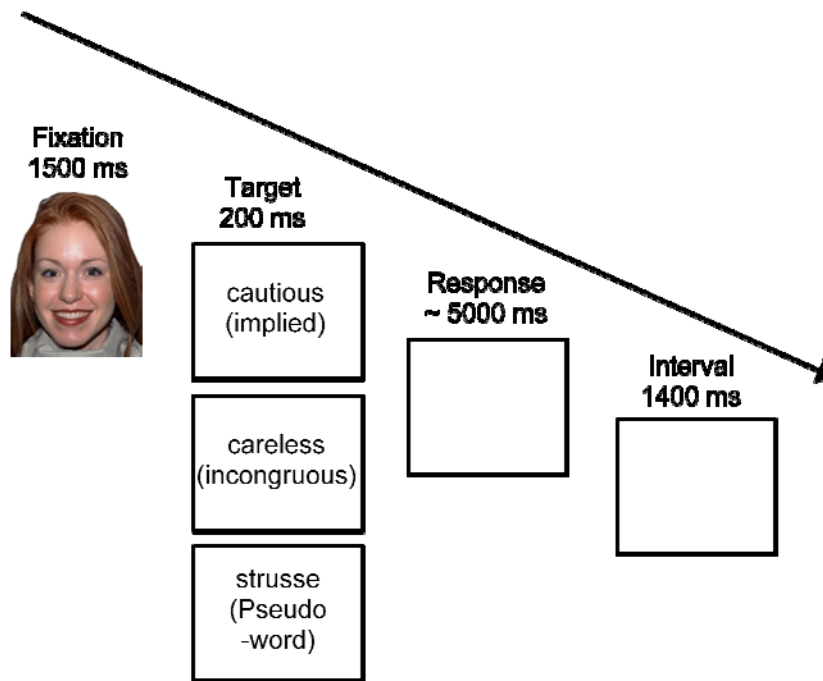


Figure 3.5 Grand-averaged ERPs at Pz in the implied trait condition (dotted lines) and the incongruous trait (antonym) condition (solid lines) for European Americans (blue lines) and Asian Americans (red lines). The data were digitally low-pass filtered at 12 Hz. Note that negative deflections of ERPs are shown in the upward direction on the y-axis

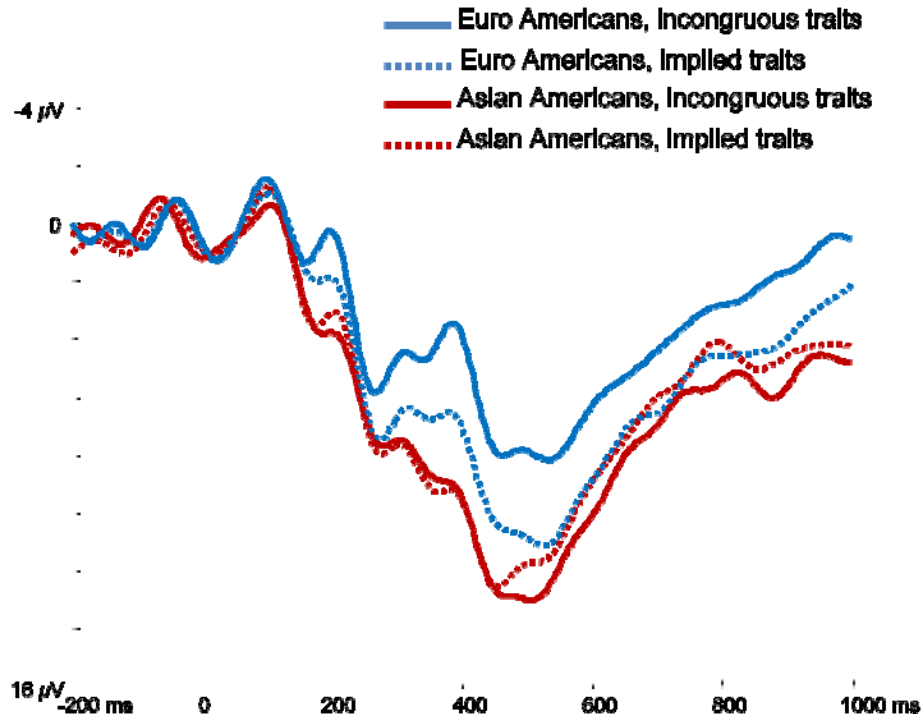


Figure 3.6 The correlations between independent/interdependent self-construal and the N400 incongruity effect at 350–450 ms (the top panel) and at 450–550 ms (the bottom panel).

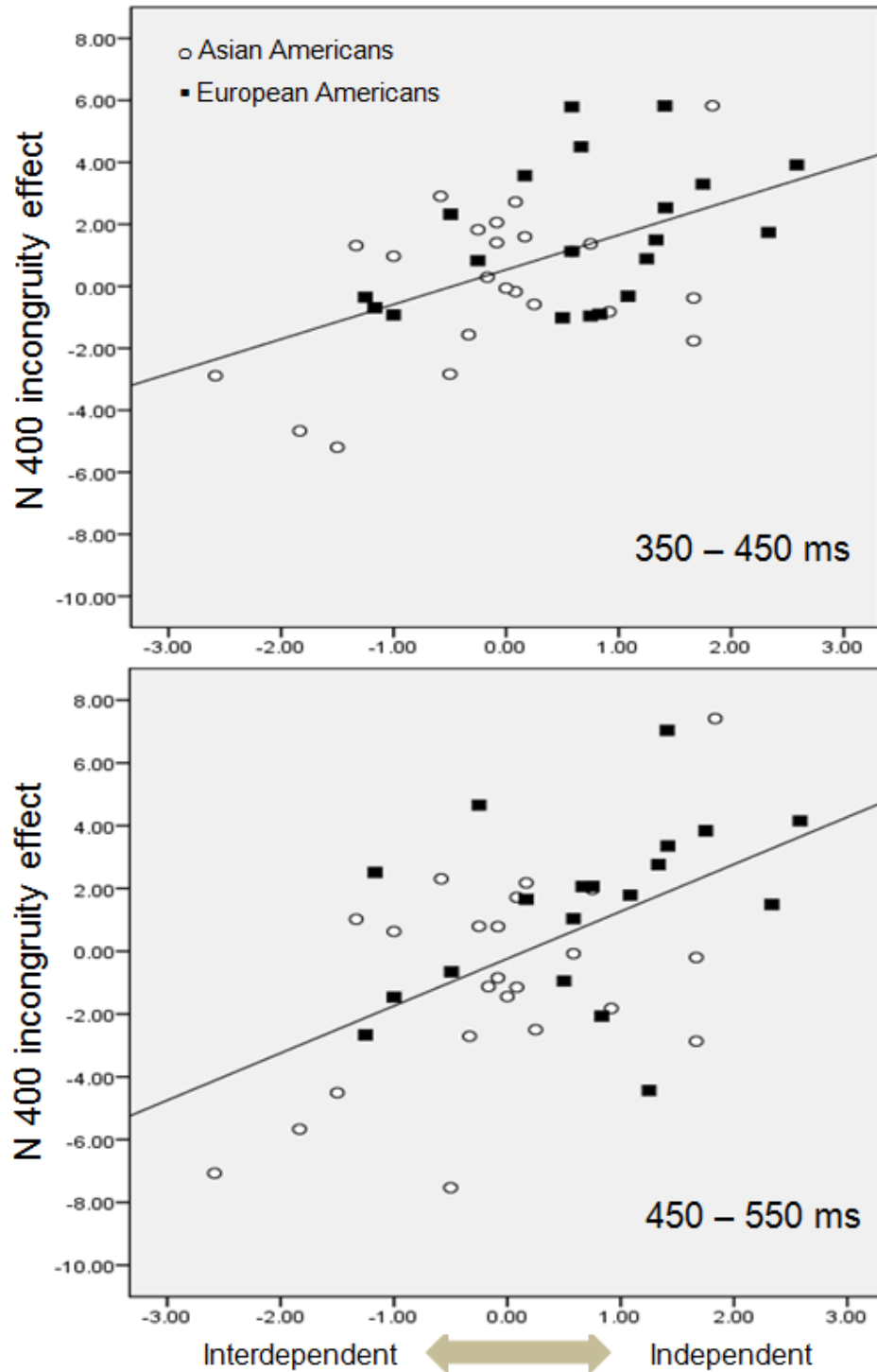
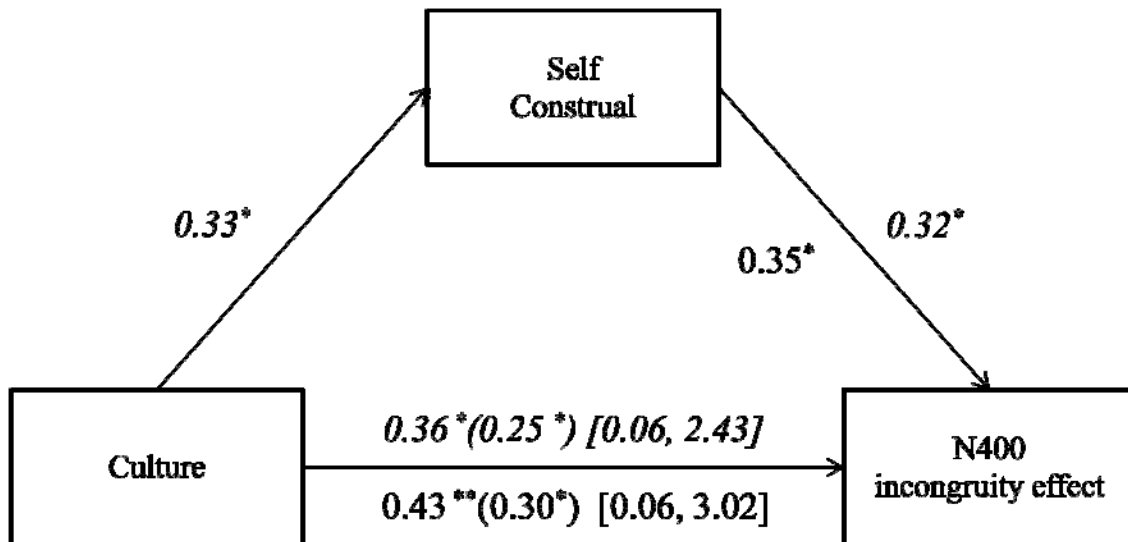


Figure 3.7 Standardized regression coefficients (betas) from regression analyses examining the mediation of the N400 incongruity effect by self-construal. The path from culture to the N400 incongruity effect is highly significant when self-construal is not controlled (the first beta). However, the same path becomes weaker once self-construal is statistically controlled (the second beta in the parenthesis). The numbers in the brackets show the confidence interval generated by the bootstrapping test. The data for the 350-450 period are presented above the relevant arrows, whereas those for the 450-550 period are presented below the arrows. * $p < 0.05$, & ** $p < 0.01$.



CHAPTER IV

CONCLUSION

Whether we recognize it or not, all of us are under the enormous influence of culture. We consume products and services that culture provides; we absorb and eventually internalize culturally sanctioned beliefs and values. Thus, the effect of culture can be revealed in various occasions ranging from a simple and mundane habit such as pronoun use (Na & Choi, 2009) to a complex problem like resolving social conflicts (Grossmann et al., 2010). To further illustrate the powerful influence of culture, four studies presented in the current dissertation focused on two important challenges of our social life (i.e., choice and social explanation) and investigated how culture modulates the way we address these challenges.

Specifically, the present dissertation is based on the premise that cultures systematically vary in the model of action they normatively sanction. The independent view of the self in Western cultures emphasizes personal aspects of the self and consequently, one's behaviors are also considered as mainly reflecting personal aspects of the self such as internal attributes. In contrast, the interdependent view of the self in East Asian cultures highlights social aspects of the self and consequently, one's behavior is regarded as mainly reflecting social aspects of the self such as expectations held by important others. Chapters II & III demonstrated a critical role played by cultural models

of action either as internally motivated in Western cultures or socially responsive in East Asian cultures across two domains.

Chapter II examined how cultural models of action affect the act of choosing. We predicted that a choice would be highly motivating only when it is construed within culturally sanctioned models of action. In support of the prediction, European Americans worked harder toward their choice when it was made in private and thus, believed to be internally motivated without any influence from others (Studies 1 & 2). Equally importantly, the motivating effect of choice completely vanished when the choice was perceived to be compromised by “social-eyes” (Study 2). However, Koreans and Asian Americans worked harder toward their choice when it was made in the presence of “social-eyes” and thus, believed to incorporate social expectations from others (Studies 1 & 2). Equally importantly, choice lost its privilege in motivation when it was made in private and thus, perceived to have no social implications (Study 2). Furthermore, enhanced motivation toward choice in the respective choice conditions was predicted by participants’ orientation toward independence/interdependence, as measured by the ISOQ (Kitayama, et al., 2006) (Study 2).

While Chapter II shows that cultural models of action affect the way we behave in the domain of choice, Chapter III focuses on the other side of action, namely how we interpret others’ behaviors. We hypothesized that European Americans would spontaneously engage in trait inference upon exposure to another’s behaviors because they construe his or her behaviors as being internally motivated. In stark contrast, trait-inference would not be spontaneous among East Asians because they construe another’s behaviors as being socially constrained/responsive. To test the hypothesis, participants

were asked to remember pairings of a face and a behavioral statement (Studies 3 & 4). In a subsequent lexical decision task, European Americans showed clear evidence of spontaneous trait inference: when primed with previously studied faces, 1) lexical decision of the implied trait was facilitated in terms of both accuracy and reaction time (Study 3) and 2) the antonym of the implied trait elicited an electrophysiological sign (i.e., N400) of processing semantically inconsistent information (Study 4). Importantly, neither effect was evident among Asian Americans. Moreover, the cultural difference in N400 was partially mediated by participants' orientation toward independence/interdependence, as measured by the self-construal scale (Singelis, 1994).

Taken together, these results clearly show that cultural models of action either as internally motivated in Western cultures or as socially responsive in East Asian cultures influence not only the way in which we behave (Studies 1 & 2) but also the way in which we interpret another's behaviors (Studies 3 & 4). Within this general frame work, the present dissertation makes three important contributions to the current theories of culture, choice, and social explanation.

Implications for Cultural Psychology

The first important contribution of the current work was to show how deep cultural influence could be. In Studies 1 & 2, the presence or absence of social-eyes was subtly manipulated by a poster of schematic faces that appeared to be "watching" them. In fact, no participant mistook these faces for real people in their conscious thought and none of the participants recognized any significance in the schematic faces. However, such subtle manipulation powerfully modulated their motivation toward the chosen task. More importantly, the presence of social-eyes had dramatically different effects across

cultures. Likewise, Chapter III investigated participants' immediate reaction in terms of both behavioral measures (i.e., reaction time in Study 3) as well as neural indicators (i.e., N400 in Study 4). Significant cultural differences were found in both indicators of participants' immediate reaction to the target words. Taken together, this evidence strongly suggests that cultural influences often operate at the unconscious and automatic level. As amply demonstrated by Bargh and Morsella (2008), this type of unconsciousness/automaticity can be quite smart and highly adaptive. What the current findings add to this literature is to show that unconscious/automatic psychological processes may more often than not be shaped by one's cultural milieu.

In addition to this general implication, Chapters II and III contribute to the respective literature on choice and social explanation.

Implications for Culture and Choice

There has been a debate regarding whether choice is really motivating to East Asians, as previous studies have produced mixed results of this issue. On the one hand, Iyengar and Lepper (1999) found that the motivating effect of choice was much weaker for Asian American children compared to European American children. Similarly, Heine and Lehman (Heine & Lehman, 1997) showed that unlike European Canadians, East Asians were not motivated to justify their choice. On the other hand, Bao and Lam (2008) recently found that Hong Kong Chinese children were more motivated when they made a choice than when they did not make a choice. That is, whereas choice has been shown to be motivating even to East Asians in some studies, such motivating effect of choice was not observed among East Asians in other studies. Then, the critical question to ask may be under what circumstances choice is motivating to East Asians. Studies 1 & 2 can

clearly speak to this question. In both studies, Koreans and Asian Americans with East Asian heritage were motivated toward their choice when the choice was perceived to have clear social implications. However, choice was not motivating at all when it lacked social implications. Equally importantly, Studies 1 & 2 also showed that European Americans were not always motivated toward their choice. They worked hard on the chosen task only when the choice was perceived as internally motivated without any hint of social influences. Taken together, Chapter II shows that it is unlikely that choice is always motivating in one culture but never motivating in another culture. Rather, the results suggest that choice will be motivating only when culturally valued aspects of the self (e.g., personal aspects in Western cultures or social aspects in East Asian cultures) are reflected in the choice.

The findings in Chapter II are also relevant to self-determination theory. Within the influential framework of self-determination theory, choice is typically equated with a sense of autonomy, which in turn is thought to enhance one's motivation (Deci & Ryan, 1987; Ryan, Koestner, & Deci, 1991; Zuckerman, et al., 1978). Ryan and colleagues have recently expanded their definition of autonomy to suggest that all actions that are willingly performed are autonomous. The findings in Studies 1 & 2 suggest that choice per se does not automatically induce autonomy in this expanded sense. Instead, the choice has to be made meaningful within a pertinent cultural frame so that it is seen as expressive of the culturally sanctioned form of the self. It is when the choice is perceived as an expression of the independent self that it has a strong motivating effect on European Americans, but it is when the choice is perceived as an expression of the interdependent self that it has a strong motivating effect on Asians. We believe that an effort to integrate

the present cultural psychological analysis with the self-determination theory is a very worthy endeavor for future work (Chirkov, Ryan, Kim, & Kaplan, 2003).

Finally, the findings in Chapter II are also consistent with recent work by Kim and colleagues on culture and self-expression. These researchers hypothesize that choice is construed as an expression of the personal self (e.g. preferences) among European Americans whereas this conceptualization is less common in Asian cultures (Kim & Drolet, 2003, 2009; Kim & Sherman, 2007; Savani, Markus, & Conner, 2008). More pertinent to the present analysis, they argue that Asians also seek to express their selves through choice, but the aspects of the self that are expressed are different from the aspects of the self European Americans highlight through their choice. Whereas European Americans express their internal attributes such as preferences and attitudes through their choices, Asians express their social or public attributes such as social status and prestige through their choice (Kim & Drolet, 2009). Adding to their analysis, Studies 1 & 2 presented here show that European Americans implicitly recognize that their choice becomes expressive of their personal self only when the choice is made in the absence of any social imposition such as watching eyes. In the presence of such imposition (as subtly induced by the social-eyes priming), they no longer show much interest in the chosen activity because the choice ceases to be expressive of the ever-important personal aspects of the self. Likewise, East Asians appear to recognize that their choice becomes expressive of social aspects of the self, but this happens only to the extent that others are aware of the choice they make. As a result, they show little interest in their choice if the choice is purely personal.

Implications for Culture and Social Explanation

Although numerous studies have established robust cultural differences in social explanation, such that the dispositional bias is much weaker among East Asians than among European Americans (see Choi, et al., 1999 for a review), the underlying mechanism of the difference in social explanation has not been fully understood. Particularly, since the dispositional bias is always a joint product of an initial trait inference and a later situational adjustment, it is not obvious when and how the observed difference in dispositional bias emerges. The results in Studies 3 and 4 are relevant to this issue. When European American participants in the present dissertation were asked to remember pairings of a face and a behavior, they spontaneously inferred the corresponding trait from another's behavior and ascribed it to him or her. Consequently, they later displayed behavioral (i.e., facilitated lexical decision of the implied traits) and neural (i.e., N400 to the antonyms) evidence of spontaneous trait inference when primed with the previously studied faces. In stark contrast, neither effect was observed among Asian Americans, suggesting they did not make any spontaneous trait inference. Taken together, Studies 3 & 4 in Chapter III presented strong evidence suggesting that the cultural difference in social explanation has its root in the early automatic process of trait inference.

These results might seem inconsistent with previous studies showing that dispositional bias became weaker among East Asians only when situational constraints were made salient (Choi & Nisbett, 1998; Masuda & Kitayama, 2004). East Asian participants in these studies (Koreans in Choi & Nisbett, 1998 and Japanese in Masuda & Kitayama, 2004) drew trait inference as strongly as did European Americans when

situational constraints were not salient. Given that there was no mention about possible situational constraints in the behavioral statements used in Studies 3 & 4, one might suspect that these findings are contradictory to the present results showing no evidence of trait inference among Asian Americans. However, there is a significant procedural difference between the previous studies and the studies presented in this dissertation. Whereas participants were explicitly asked to think about internal attributes of a target person in the previous studies, participants in the main studies of Chapter III were not asked to do so. Therefore, these previous studies are more comparable to the additional study reported in Chapter III in which Asian Americans were explicitly asked to engage in trait inference. In this intentional trait inference condition, Asian Americans did show evidence of trait inference. Thus, all these results converge to the conclusion that the critical difference across cultures lies in the spontaneity of trait inference. For European Americans, trait inference is a default strategy and, thus, is not avoidable. However, For East Asians or Asian Americans, trait inference is optional and, thus, may or may not occur depending on situational demands.

Finally, another important contribution of the present work was to use the N400 ERP component to investigate a cultural difference in information processing. As in some recent studies (e.g., Goto et al., 2010; Ishii et al., 2010), we found the N400 component to be quite sensitive to cultural influences. These data suggest that culture's effects are quite pervasive, occurring in quite early, even during highly automatic stages of processing. Chapter III, then, joins the emerging literature of cultural neuroscience (Chiao & Ambady, 2007; Kitayama & Park, 2010) to highlight the promise of using brain measures to uncover the nature of cultural influences.

Future Directions

Although the studies reported in the present dissertation have clear implications for culture, choice, and social explanation, some limitations of the present work need to be addressed in future research. First, in Study 2, we included some face-valid self-report measures of motivation and, yet, we found no effect that corresponded to the performance measure of motivation. The absence of any effect on the self-report measures is intriguing because previous work tends to find predicted effects of choice on such measures (e.g., Iyengar & Lepper, 1999). To address the curious absence of any choice effects on self-report measures of motivation, it may be hypothesized that the social-eyes priming produces a certain psychological set or expectation, which in turn influences subsequent motivational processes at the level of evolutionarily old reward/punishment processing (Berridge, 2004; Olds & Olds, 1962). If the effect of social-eyes priming is mediated by such a relatively low-level affective processing system, its motivational effect is unlikely to always be accessible to conscious awareness.

To illustrate this reasoning, consider European Americans who are placed in a situation that is completely private because no eyes are watching them (i.e., in the no social-eyes priming condition). In this situation, the European Americans may *expect*, on the basis of past experiences, that their private selves are at stake if a choice is required. Or imagine Asian Americans who are placed in a public situation, with others' eyes watching (i.e., in the social-eyes priming condition). In this situation, the Asians may *expect*, on the basis of past experiences, that their public selves are at stake if a choice is required. In both cases, the individuals may be *motivationally alerted*, becoming sensitive to cues signaling reward and punishment. Accordingly, if they in fact make a choice

under this condition, they may experience cognitive dissonance, which in turn may cause them to justify the choice, thereby producing a strong motivational commitment to the task (Festinger, 1957). Because recent neuroimaging evidence strongly suggests that dissonance arousal and subsequent reduction can occur rather quickly, without any conscious awareness (Jarcho, Berkman, & Lieberman, in press; van Veen, Krug, Schooler, & Carter, 2009; see also Nisbett & Wilson, 1977), the resulting motivational commitment to the chosen task needs not be consciously registered. This analysis is consistent with a recent literature review that testifies to the adaptability and “smartness” of the unconscious (Bargh & Morsella, 2008).

We suspect that once unconsciously and automatically produced via low-level affective processing, the resulting motivational commitment to a chosen task can be made available to conscious awareness. Yet, it may require some effortful introspection. Perhaps in the present paradigm, participants did not have a sufficient opportunity to introspect on their unconsciously produced motivational commitment to the task, as they were asked to work on the task right after the choice. This might explain why the motivational effect observed in the performance measure is entirely absent on the self-report measures. However, to make any significant advancement on this analysis, it would be important to use neuroscience measures such as functional magnetic resonance imaging (fMRI) and electroencephalogram (EEG) to make more direct observations on the underlying brain processes.

Second, the lexical decision procedure in Study 4 is notable because it lends itself to a robust ERP measure of spontaneous trait inference. However, in another recent ERP study on spontaneous trait inference, Van Duynslaeger and colleagues (2008) looked at a

different ERP component (see also Van Overwalle, Van den Eede, Baetens, & Vandekerckhove, 2009). In this study, Dutch participants merely read a trait-implying description of a target person (e.g., friendly). Next, the participants were asked to read a series of sentences describing different behaviors of the target person, which were either congruous or incongruous with the trait implied by the initial description (e.g. Tolvan gave her a hug vs. Tolvan gave her a fist). Consistent with the fact that Western Europeans including Dutch are relatively independent (Kitayama, Park, Servincer, Karasawa, & Uskul, 2009), they found a difference in ERPs between expectation-congruous and expectation-incongruous behaviors. Curiously, however, this difference was observed, not in N400, but in a late positive potential (positive-going deflection beginning around 400-500 ms post-stimulus).

In Study 4, semantic incongruity was clearly manipulated by pairing a stimulus face with an incongruous trait. Because of this, we predicted and found that N400 is a sensitive index of spontaneous trait inference. But in the study by Van Duynstaegeer and colleagues, even when a behavior was seemingly incongruous with an expectation at issue (e.g., “giving a fist” is typically not friendly), the behavior might still be re-interpretable to be fitted into the expectation (“perhaps the person was joking”). This may explain why, in their study, there was greater “context updating (updating one’s representation),” as indicated in the late positivity (Donchin & Coles, 1988), for incongruous behaviors than for congruous behaviors.

Finally, we recruited and tested only college undergraduates –well-educated young adults with primarily middle class backgrounds. Studying this particular population of convenience is a necessary first step. Nevertheless, it is obviously

important to examine other samples, old as well as young adults with working-class as well as middleclass backgrounds. Evidence is mounting that at least within the U.S., people become more interdependent as a function of age (Varnum, Grossmann, Na, Kitayama, & Nisbett, 2010) and, moreover, that working class individuals are distinctly more interdependent than middle class individuals (Kraus, Piff, & Keltner, 2009; Na et al., 2010; N. M. Stephens, Markus, & Townsend, 2007). Future work must explore whether there is any age or social class-related variation in the present findings.

Concluding Remarks

The studies in the present dissertation suggest that culturally sanctioned models of action systematically vary across cultures. While people in Western cultures strongly believe that one's behavior is internally motivated, people in East Asian cultures strongly believe that one's behavior is socially constrained. Based on this premise, the current work found strong evidence for the close interaction among culture, choice, and social explanation. Moreover, the results of this interaction observed in the current work largely remained at a subconscious and neural level. Therefore, the current work lends support to the premise that theoretical understanding of cultural influence may be greatly enriched when it is integrated with the recent advancement of social and cultural neuroscience (Kitayama & Park, 2010; Kitayama & Uskul, in press; Lieberman, 2007).

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